The roles of primary-level health workers in delivering mental healthcare in India

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Abstract

This research explored the history, effectiveness and feasibility of primary-level health workers (PHWs) in delivering care for mental, neurological and substance use (MNS) disorders in India, to better inform the organisation and delivery of mental health services at primary care and community levels.

This thesis examined evidence for the effectiveness of PHWs in mental healthcare in low- and middle-income countries (LMICs) (Cochrane review – 38 included studies), and then focused on India. Seventeen oral history interviews described the experiences of integrating mental healthcare into primary care and 72 case-studies explored government and non-governmental models of PHW-delivered mental healthcare initiatives and their human resources.

PHWs can be effective in delivering care for MNS disorders in LMICs. The case studies identified heterogeneous collaborative care models in India, most of which were delivered through community- rather than government- primary care. Other models (training and referral) which have less evidence for effectiveness were more widespread, and included the government model which was perceived as having 'failed'. A new model was identified: community outreach services which were specialist-led but PHW-delivered.

 LHWs and care managers seemed more feasible and appropriate care managers than PHC doctors across models and provided more holistic psychosocial support. Specialists were valuable for PHWs' and care managers' training and ongoing support. Barriers to mental health care integration are discussed.

Future research priorities are to assess whether variations of collaborative models are similarly effective to those described in HICs and whether these are feasible and effective if implemented at scale. Priorities for improving the DMHP would be to consider deploying care managers and LHWs and reorient as well as incentivise specialists to support them. Better inter-sectoral collaborations, health system strengthening and technical support at central- and state-government levels may improve leadership, implementation and evaluation of mental healthcare integration into primary care across India.

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DISCUSSION AND CONCLUSIONS

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EPOC: Effectiveness for Practice and Organisation of Care; DELIVER: Delivering mEntal heaLth care in India Via non-specialist hEalth woRkers; LSHTM: London School of Hygiene and Tropical Medicine; NIMHANS: National Institute for Mental Health and NeuroSciences; UCL: University C London; WHO: World Health Organisation

Abbreviations

'The ant': partner organisation of Ashadeep

AIIMH: All India Institute of Mental Health

AIIMS: All India Institute of Medical Sciences

ANM: auxiliary nurse midwife

ASHA: accredited social health activist

BALM: The Banyan Academy in Leadership in Mental Health

BAMS: Bachelor of Ayurveda, Medicine and Surgery

BRICS: Brazil, Russia, India, China, South Africa

CBA: controlled before and after study

CBO: community based organisation

CBR: community-based rehabilitation

CBT: cognitive behavioural therapy

CHAD: Department of Community Health, Christian Medical College Vellore

CHEC: Consensus on Health Economic Criteria

CI: confidence interval

CMDs: common mental disorders

CMHP: community mental health programme

CMHS: community mental health services

COPSI: Care for people with Schizophrenia in India

C-RCT: cluster randomised controlled trial

CT: Chellamuthu Trust

DMHP: District Mental Health Programme

EPOC: Effective Practice and Organisation of Care (Cochrane group)

E&T: education and training

FPA: Family Planning Association

GASS: Grameena Abhyudaya Seva Samasthe

GOI: Government of India

GP: general practitioner

HICs: high income countries

ICC: intracluster correlation coefficient

ICD-10: international classification of disorders (10th version)

IIAHS: Indian Institute of Allied Health Sciences

IPT: interpersonal therapy

ITS: interrupted time series study

ITT: intention to treat analysis

LHW: lay health worker

LICs: low income countries

LMICs: low- and middle- income countries

MCD : mean change difference

MD: mental disorder

MD (in Cochrane review): mean difference

MDT: multidisciplinary team

MH: mental health

MHAT: Mental Health Action Trust

MICP: Malappuram Initiative in Community Psychiatry

MNS: mental neurological and substance use

MSW: medical social worker

NBJK: Nav Bharat Jagrath Kendra

NCDs: non-communicable diseases

NET: narrative exposure therapy

NGO: non-governmental organisation

NIMHANS: National Institute for Mental Health and NeuroSciences

NMHP: National Mental Health Programme

NRHM: National Rural Health Mission

NRCT: non-randomised controlled trial

NSHW: non-specialist health worker

OPHR: other professional with health roles

PACT: Saarthak reintegration project for people recovering from severe mental illness

PHC: Primary healthcare

PHW: primary-level health worker

PSW: psychiatric social worker

PTSD: post-traumatic stress disorder

RCT: randomised controlled trial

RFS: Richmond Fellowship Society

R&R: replacement and referral

SCARF: Schizophrenia Research Foundation

SD: standard deviation

SHG: self-help group

SMDs: severe mental disorders

SMD (in Cochrane review): standardised mean difference

SW: social worker

TTK: T.T.K. Ranganathan Trust Clinical Research Foundation

UMHP: urban mental health program

VOLCOM: Volunteers for Community Mental Health

WHO: World Health Organisation

Chapter 1

General introduction: Why the use of primary-level health workers?

The introduction starts with describing the burden of mental, neurological and substance use disorders worldwide (1.1). It follows with a description of health and mental health models and human resources and their effectiveness in low-and middle-income countries (LMICs) (1.2 and 1.3). Finally it situates the burden of mental neurological and substance use (MNS) disorders and health system and human resource issues within India (1.4).

1.1 The current burden of mental illness worldwide

1.1.1 Defining mental, neurological and substance-abuse disorders

Mental neurological and substance use (MNS) disorders (Box 1.1) are sometimes dealt with together because they can co-exist (such as neurological consequences of alcohol or drug abuse). In the context of limited health service resources in LMICs, they are often addressed by the same health sector.

Box 1.1: MNS disorders covered in this research (ICD10 categories) (based on ICD-10 criteria (WHO, 2007a; Patel, 2003))

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1. <u>Common mental disorders</u>

Mild to moderate mood/ affective disorders (F32-38)

Neurotic, stress-related and somatoform disorders (F40-49)

Behavioural syndromes associated with physiological disturbances and physical factors (F50-59)

2. <u>Severe mental disorders</u>

Schizophrenia, schizotypal and delusional disorders (F20-F29)

Bipolar affective disorder (F31)

Severe depressive episode with or without psychosis (F32.2, F32.3)

3. <u>Neuropsychiatric disorders</u>

Organic, including symptomatic, mental disorders (F1-9)

Mental retardation (F70-79)

Epilepsy (G40)

4. <u>Disorders caused by substance abuse</u>

Mental and behavioural disorders due to psychoactive substance use (F10-19)

Mental disorders are characterised by a combination of abnormal thoughts, emotions, behaviour and relationships with others. These disorders, if left untreated, lead to disability and social exclusion (WHO, 2008a). Though the concept of mental disorder is universal, its expression can differ individually and culturally. Treatment choices for mental disorders also vary according to medical and cultural paradigms (Kleinman et al., 2006).

1.1.2 The burden of MNS disorders

The global burden of MNS disorders is high. The latest global burden of disease estimates have shown that mental, behavioural and neuropsychiatric disorders all feature in the top 30 causes of all years lived with disability, the highest contributors being major depression (ranked second), anxiety (ranked seventh) and substance-use disorders (ranked twelfth) (Vos et al., 2012). The worldwide contribution of major depressive disorders to the loss of disability-adjusted life years (DALYs) has increased by 37% from 1990 to 2010 and is predicted to rise further (Murray et al., 2012; Prince et al., 2007). Furthermore, self inflicted injuries and alcohol-related disorders are likely to increase in the ranking of disease burden due to the decline in communicable diseases and because of a predicted increase in war and violence. The disease burden due to Alzheimer's disease is also increasing, linked to the demographic transition towards an ageing population (Vos et al., 2012). The lifetime risk of a severe mental disorder or epilepsy remains stable between 1 and 4% (Patel et al., 2007c; Saha et al., 2005). The impact of mental disorders spans beyond the affected individual's mental health. For example maternal mental disorders impact on child mortality, morbidity, growth and development (Rahman et al., 2013).

The economic effect of MNS illnesses on individuals, families, health services and social costs is substantial (WHO, 2003a). MNS disorders affect productivity and quality of life (Bloom et al., 2011). Data remain sparse on the macro-economic costs for LMIC settings (Hu, 2006). However, high direct costs are incurred in countries such as India where health spending is met largely through private, as opposed to public, spending and where health insurance and employer-met health payments are insubstantial (Patel et al., 2007b). High indirect costs are also incurred due to informal care-giving

and lost work opportunities, as well as due to untreated disorders and their associated disability (Chisholm et al., 2000; WHO, 2003a).

1.2   Barriers and strategies to reduce the treatment gap

The gap between those who could benefit from MNS health interventions and those who receive such care is very large (WHO, 2008a; WHO, 2010); in LMICs up to 90% of people needing care do not receive it (Demyttenaere et al., 2004; Saxena et al., 2007). This is despite the existence of a range of cost-effective interventions in mental health care (Patel et al., 2007a; WHO, 2010).

Major barriers to closing the treatment gap are the huge scarcity of skilled human resources, as well as large inequities and inefficiencies in resource allocation and the significant stigma associated with psychiatric illness (Saxena et al., 2007). This thesis focuses on the specific issue of human resources and their use in rural areas. The first research paper (chapter 2) presents the worldwide mental health human resource shortage figures, and changes to these over a 10 year period (2001 to 2011). The prevalence of psychiatrists and psychiatric nurses is much lower in LMICs (the median number of psychiatrists is 172 times lower in low-income countries than in high-income countries (HICs)). The article also reviews strategies for increasing human resources which involves sharing tasks with primary level health workers (PHWs) and educating mental health service providers. To remove shortages in human resources for mental health, overarching issues need to be addressed: scaling-up costs, recruitment, management of attrition and leadership (Kakuma et al., 2011).

To help overcome these barriers, the World Health Organisation (WHO) have initiated a Mental Health Gap Action Programme which sets clear comprehensive activities and programmes for scaling-up care for mental, neurological and substance use disorders (WHO, 2008a). Within this are firm recommendations and guidelines to integrate the use of PHWs, as well as a manual to help build their skills in mental healthcare (WHO, 2010).

1.3 Delivering mental healthcare in LMICs

1.3.1 Health systems in LMICs

Many health systems in LMICs have difficulties providing a successful wide-scale accessible and affordable delivery of health services. Common barriers to this are one or several of the following: good leadership, effective management, realistic financing arrangements, national ownership and technical innovation; by contrast the presence of these characteristics are common attributes of successful programmes (Medlin et al., 2006). As a consequence, health professionals trained in these countries tend to favour working in the private sector which is more lucrative and less bureaucratic.

Government health services have widely adopted the model of decentralisation in an attempt to proved better services. Decentralisation is a health reform strategy promoted worldwide in the 1980s following the Alma Ata declaration and the desire for better and locally-adapted healthcare services (Mills, 1994). Decentralisation involves the transfer of workload, management and political decision-making powers from central to peripheral levels (Munga et al., 2009; Rondinelli et al., 1983). Curative and preventive services are provided in line with national health policy and local needs through a tiered system of care: (i) primary care: the first level of contact with formal health services;[1] (ii) secondary care (referral general hospitals), (iii) tertiary level care (specialist centres) (Gorgen et al., 2004).

In addition, the health system may be composed of horizontal or integrated care (general health services which bring together inputs, delivery, management and organisation of health care), and vertical programmes (disease-specific packages of care which may be delivered within or parallel to primary care often executed directed or supervised wholly or to a great extent by a specialist service using dedicated health workers) (Gorgen et al., 2004; Atun et al., 2008).

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[1] Services provided at community level or at PHC clinics (on their own or attached to hospital settings, provided they have no specialist input, apart from supervision)

Most health services are also constantly changing and becoming more complex, partly because of an ongoing desire to make more healthcare accessible. Scaling up interventions or services is the process of increasing coverage of health interventions that have been shown to be successful on a small scale, accompanied by an increase in resources (WHO, 2001) (see figure 1.1). It may involve creating broader access to general services (horizontal programmes), broadening access to specific innovations or services (vertical programmes) or integrating specific interventions into existing services (a combination of vertical and horizontal integration sometimes called diagonal integration). However, scaling-up can be hampered by the same weaknesses that affect health systems: weak policy, poor health service infrastructure, lack of community utilisation and the shortage of healthcare workers (Travis et al., 2004; WHO, 2006; Hanson et al., 2003). In addition, not only do models first have to be shown to be effective on a small scale, but also it is difficult to evaluate what impact scaling up interventions has on health outcomes (Mangham and Hanson, 2010). In spite of this complexity, a limited number of scaled-up health and financing initiatives have been shown to be successful (Levine et al., 2004). It is therefore relevant to think about scaling up in the context of mental health services.

Figure 1.1: The elements of scaling up based on (Simmons and Shiffman, 2007)
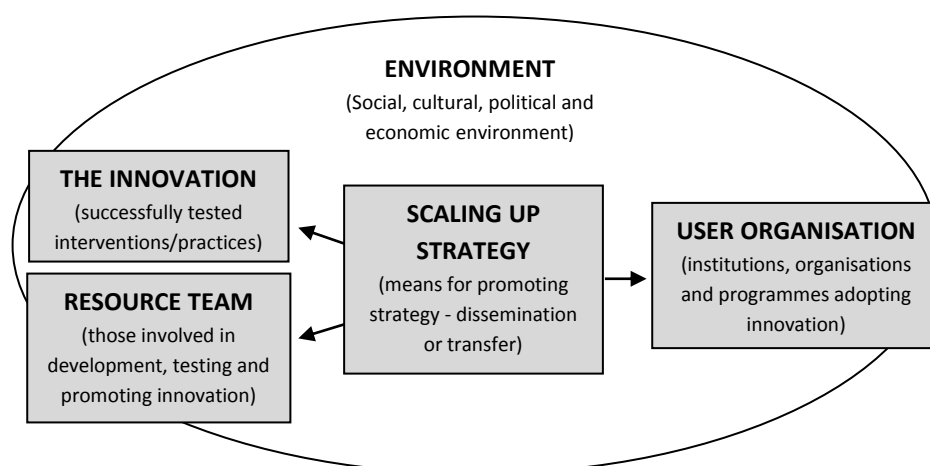
The next section discusses what place mental healthcare has within the health system in LMICs.

1.3.2 The scope of mental health services

A balance of community- and hospital-based services and better organisation and cooperation of services between general and mental health sectors have been advocated as part of the task-shifting (also called task-sharing, defined in more detail below) strategy and to achieve effective comprehensive mental healthcare (Thornicroft and Tansella, 2004; WHO, 1975). Mental healthcare is delivered at each tiered level of the decentralised health system and may be more or less integrated or vertically provided at primary care level. A visual representation of these tiers as applied to mental healthcare is represented by the WHO pyramid (figure 1.2) (WHO, 2008a).

Figure 1.2: WHO service organisation pyramid for an optimal mix of services for mental health (WHO-WONCA, 2008)
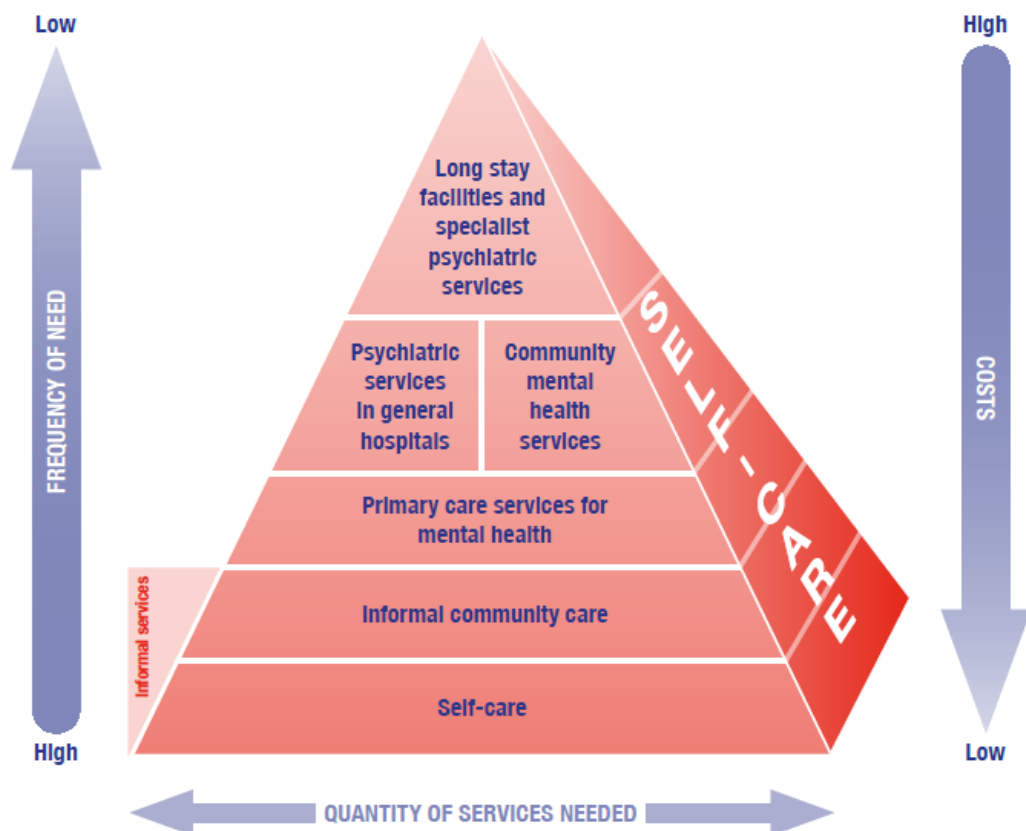
The top of the pyramid corresponds to tertiary specialist care, the second level down includes secondary care delivered in hospitals (psychiatric care in general hospitals) and in the community (community mental health services). The bottom sections of the pyramid are where non-specialist providers/PHWs usually are involved: primary care and community care. They often are the levels which identify mental illness, and may provide preliminary treatment or care and/or follow up. They also encourage self care of patients and carers. Informal care may also include other types of health care accessed often by a large proportion of people, such as indigenous medicines, religious healing and other types of healing.

1.3.3 Primary mental healthcare

The integration of mental health services into general health services is a key strategy worldwide and has been shown to reduce stigma, address personnel shortages, and encourage early identification of mental disorders (WHO, 2003b). Comprehensive and integrated service delivery is a core value of primary healthcare (PHC) (WHO, 2008b).

The use of formal government-run primary care is an obvious model for implementing PHW-delivered mental health care as it uses existing nationwide resources which are cheaper than highly skilled specialist resources. The WHO defines primary mental healthcare as "mental health services that are integrated into formal general health care at a primary care level […] provided by primary care workers who are skilled, able and supported to provide mental healthcare services" including "first-line interventions that are provided as an integral part of general healthcare" (WHO-WONCA, 2008).

However few LMICs have adequate mental health policies or implementation strategies to collaborate with general healthcare delivery. Also many LMICs' primary care systems function poorly: they have high rates of staff attrition, those who are there are overburdened, and often there are poor mechanisms for monitoring, evaluation and support. Funding shortages, inadequate infrastructure and poor training compound the issue of inadequate care. Several LMICs also implement what is known as selective primary care: a minimal package of certain interventions only (such as maternal and child health and some crucial vertical programmes like tuberculosis

and polio eradication). When faced with these limitations, it is then inappropriate to expect such a system to take on mental healthcare without profound changes to and strengthening of the system itself (Atun et al., 2008). Indeed many programmes bypass primary care and have direct links with communities.

Within LMICs, other platforms of healthcare delivery outside formal primary care are present which have developed as a consequence of a poor government healthcare structure, such as NGO-delivered community healthcare, private for-profit care, or health interventions delivered in non-health settings (such as schools, or within development projects). This study therefore adopted the broader Alma Ata definition of primary healthcare which "is the first level of contact of individuals, the family and community with the national health system […]. It involves, in addition to the health sector, all related sectors and aspects of national and community development, and demands the coordinated efforts of all those sectors" (WHO/UNICEF, 1978). This, according to figure 1.2, encompasses not just formal primary care but also community and self care.

1.3.4 Models of mental healthcare delivery

In practice the levels of mental health care delivery described in the WHO pyramid (figure 1.2) do not necessarily function simply as a referral system or as a stepped care model from the bottom to the top of the pyramid. Certain services may function independently and just get referred to from other sectors, such as long stay facilities/residential care, or acute psychiatric treatment facilities in specialist or general hospitals. However many of these levels may interact with each other under various guises and with different levels of intensity. They may simply be co-located but not involve primary care, such as having ambulatory psychiatric care (outreach clinics by a psychiatric team) (Thornicroft and Tansella, 2004). They may on the other hand engage primary care or community level providers: for example psychiatric services may train and supervise primary care delivery of mental healthcare, or some community mental health services may bypass primary care and deliver interventions at community level through locally trained lay health workers (LHWs).

The latter forms of collaboration have been described particularly in the literature in HICs. Several models have been developed to think about collaborative care. Within this thesis we refer to two, which were most relevant to our material: the Bower model and the Milbank report model. Both these models provide different frameworks for exploring collaborations between specialist and non-specialist care. The Bower framework is an established framework for analysing the level of engagement, collaboration and integration between mental health specialists and primary care workers (Bower, 2011; Bower and Gilbody, 2005) (figure 1.3).

Figure 1.3: Models of mental health care in primary care based on (Bower and Gilbody, 2005)
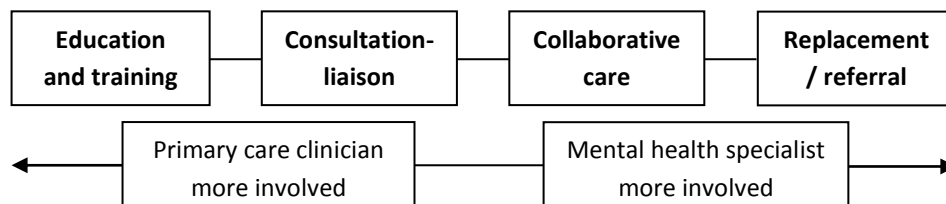
This framework describes four levels of integration of depression care within primary care in HICs, ranging from relatively more PHW responsibility to relatively more specialist responsibility for mental healthcare:

1. Training and education: Aims to make primary care practitioners independent in managing basic mental health conditions through training provision only.
2. Consultation liaison: As above but also involves an ongoing educational relationship with a specialist (for example through joint case discussions) to make the primary practitioner more independent and confident in providing mental health care and reduce the frequency of referrals to specialist care.
3. Collaborative care: Also known as the chronic care model, this has an additional workforce member (a "care manager") with mental healthcare

responsibilities and who acts as a 'link' between the patient, the primary care practitioner and the specialist.

4. Replacement and referral: Health workers are trained to identify and refer suspected cases to the mental health professional, who retains the main responsibility of care.

Another way of describing collaboration is according to how integrated the PHW and specialist services are in terms of service delivery, as described in the Milbank report (figure 1.4). This framework explains how at one end of the spectrum, specialist and PHW structures work in completely separate facilities and communicate sporadically (minimal collaboration), whereas at the other end of the spectrum there may be a completely integrated system where specialists and PHWs are part of the same service, i.e. mental healthcare is part of regular primary care (fully integrated). In between are lesser or greater degrees of integration: basic collaboration (where specialists and primary care services are either collaborating at a distance or are collocated), and close collaboration, which implies some shared systems of care where specialist and primary care services are either partially integrated or fully integrated. They further explain that different degrees of integration are needed depending on the patient's physical and mental needs: a patient with low requirements of mental care would be best served in primary care setting, whereas those with high mental care requirements would need both primary and specialist care settings. Integrated care would be valuable for this group of patients (Collins et al., 2010).

Figure 1.4: Five levels of integration of specialist and primary care based on (Collins et al., 2010)

Minimal	Basic at a distance	Basic on site	Close partly integrated	Close fully integrated

<center>←   Collaboration continuum   →</center>
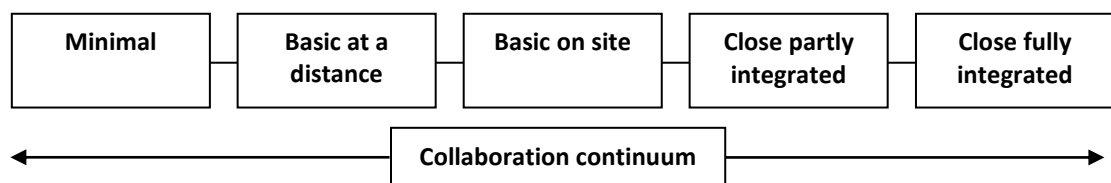
These frameworks have been formulated to describe models of collaboration in HICs. How much this applies to LMIC models remains to be determined.

1.3.5 Human resources

As this study covers both primary and community-level healthcare, we sought an appropriate term to encompass all non-specialists with mental healthcare duties. At the beginning of the study, we called these health workers non-specialist health workers (NSHWs). However several interviewees and programme founders within our study found the negative term 'non-specialist' demeaning. We therefore chose a new term which we have referred to already above: primary-level health workers (PHWs). Both these terms will appear in different publications in this thesis but both include the following health workers:

- professionals (those without specialist mental health training) (doctors, nursing staff, social workers and other allied health professionals)

- non-professional cadres (such as LHWs) who do not have tertiary paraprofessional or professional training, but perform a broad range of paid or voluntary healthcare delivery and often work at community level (Lewin et al., 2010). This category does not include caregivers who care only for one person (or a select group of people) with mental illness and who are not used in a broader healthcare context.

PHWs have been part of WHO's global primary healthcare strategy since 1975 as an attempt to overcome specialised human resource shortages and to improve access to services (Lewin et al., 2008; WHO/UNICEF, 1978). The task-shifting model mentioned above, aims to delegate appropriate tasks to less specialised workers, requiring many new resources (WHO, 2007b). Task-shifting extends existing cadres' roles or creates new competency-based cadres (Celletti et al., 2010). Task-sharing is the preferred term in this thesis as it implies the need for teams of specialists and non-specialists, whereby roles are shared across the team and where specialists support PHWs to deliver shifted roles. Task-shifting has a connotation that specialists are only substituted by non-specialists (Dawson et al., 2014).

It has been suggested that PHWs can deliver equally effective and acceptable general healthcare (Lewin et al., 2008; Babigumira et al., 2009; Bellanger and Or, 2008; Evans et al., 2009; Loubiere et al., 2009; Lewin et al., 2010), though there are doubts about their sustainability (Walt and Gilson, 1990; Bhutta et al., 2010). Task-sharing seems to be more successful within systems that have sufficient checks and balances at work and appropriate work legislation (WHO, 2007b). It also necessitates adequate support for PHWs which is why this study also explores the roles of specialists, coordinators, managers and programme founders. Specialists include psychiatrists, psychologists, psychiatric social workers, psychiatric nurses and other mental health professionals.

1.3.6 Evidence for PHWs in mental healthcare

1.3.6.1 Evidence of effectiveness

The evidence from randomised and non-randomised trials for clinical outcomes is published in the second paper: the Cochrane review (chapter 4). PHWs and other professionals such as teachers, have some promising benefits in improving outcomes for general and perinatal depression, PTSD, alcohol-use disorders, and patient- and carer-outcomes for dementia.

Other evidence measures processes, not outcomes. Post-training questionnaires suggest knowledge acquisition improved attitudes and referral rates amongst multipurpose workers (MPWs - a type of CHW in India) - (Nagarajaiah et al., 1987) and initiation of screening/educational activities by PHC doctors (Narayana Reddy et al., 1987; Sriram et al., 1990b; Nagarajaiah et al., 1994b; Isaac et al., 1982; Nagarajaiah et al., 1994a; Sriram et al., 1990a). However conflicting research shows PHWs have been ineffective at delivering mental healthcare: low recognition rates of depression/ anxiety by PHC doctors (Patel, 1996), inadequate use of antidepressants (Patel and Andrade, 2003), and the frequent use of ineffective medications such as vitamin injections (Linden et al., 1999).

1.3.6.2 <u>Evidence of acceptability and feasibility of task-sharing</u>

A recent systematic review found that despite task-sharing being widely adopted following evidence of effectiveness, task-sharing could overcome human resources shortages in LMICs without several factors being addressed. PHWs experienced distress and were demoralised; they were uncertain about their levels of competence; they were poorly accepted by other healthcare professionals, and were unsatisfied with their remuneration or incentives. Despite some limitations (included studies had small sample sizes and acceptability and feasibility were secondary outcomes), the review argues that increased investment in mental health, particularly regarding improving training and supervision, remuneration, management and accountability, is essential to overcome these barriers (Padmanathan and De Silva, 2013). A further study in five countries (Ethiopia, India, Nepal, South Africa and Uganda) published since this review has argued for similar changes to improve acceptability and feasibility of task-sharing, however also emphasises increasing the numbers of human resources and better access to medications (Mendenhall et al., 2014).

1.4 Statement of the problem in India

1.4.1 Epidemiology of MNS disorders in India

Though prevalence rates of mental disorders are lower in India than the USA or Africa, they are substantially higher when compared with other Asian countries (Ganguli, 2000; Math et al., 2007). The lower rates in the Indian population may be due to underreporting due to stigma and under-diagnosis of two common mental disorders and substance abuse, two major contributors to mental disease burden in India and worldwide (Math et al., 2007; Math and Srinivasaraju, 2010). It has been postulated this may also reflect better coping skills, lifestyle factors, social support, cultural factors or genetic reasons though none of these have been subjected to rigorous examination (Math and Srinivasaraju, 2010). Mental health however contributes very substantially to the public health burden in India. Recent census data revealed that suicide accounts for 3% of all deaths over the age of 15 years, which occur predominantly in women 15 to 29 years old, which means suicide has now overtaken

maternal mortality as a cause of death in women of child-bearing age in India (Patel et al., 2012). Substance-abuse is also a widespread problem in India.

1.4.2 Health and mental healthcare systems in India

1.4.2.1 <u>The primary healthcare system</u>

Much effort has been put into developing a vast health infrastructure to promote social development through improving health status (Khandelwal et al., 2004) particularly since 1946, when the Government of India appointed a Health Survey and Development Committee, headed by Sir Joseph Bhore. Their report (Bhore, 1946) which was never fully implemented (Bhatia, 1993), suggested preventative and curative services as well as social and infrastructure development to improve health.

India's current health strategy is based on the decentralised primary care approach proposed in India's 1983 National Health Plan which focused solely on medical treatment rather than addressing the wider remits of healthcare. In fact, until recently the Indian primary health system could be described as selective primary care, that is a minimal package of cost-effective medical interventions which are brought together as a cluster: the focus of primary care has been to address primarily maternal and child health, as well as TB and other infection treatment and control programmes. The number of national health programmes implemented at primary care level has now expanded to 13, and mental healthcare is one of them.

There are various challenges to the primary care system. Firstly, in spite of its large network throughout India there has been poor commitment to developing it to make it a fully functional structure. Secondly, throughout the years, various initiatives to train rural lay health workforce emerged:

- village health workers and auxiliary nurse midwives (ANMs) (mid 1960s)
- multipurpose workers (MPWs) (1970s) retrained disease control programme staff
- community health volunteers, health guides and dais (traditional birth attendants) in the 1970-80s.

Poor commitment and funding to these programmes lead to their demise. Further Five Year Plans (1980-90s) also failed to improve infrastructure of health services and sanitary conditions.

The current Indian health system now faces several ongoing challenges:

- Continuing poor financial and implementation commitments to the entire Indian health strategy. Only 5.2% of India's total annual government spending budget is spent on healthcare, over 70% of which is out of pocket (Khandelwal et al., 2004).
- Primary care services remain poor and inequitable with only 20-30% of the population having access to these services (Sibbald, 2008). In terms of infrastructure, there are currently about 23,000 primary health centres, 130,000 sub-centres and 150,000 health-care institutions. However these are often far from communities (for example more than 10 km away). There are also problems of drug supply availability (IIPS, 2006).
- There are persistent gaps in manpower and infrastructure at PHC level and absenteeism of health staff at PHC level (GOI, 2009a). 18% of primary health centres are without a doctor. The number of allopathic doctors, nurses, and midwifes (11·9 per 10 000 people) is about half the WHO benchmark of 25·4 workers per 10 000 population, and is about a quarter if one takes those with valid qualifications (Rao et al., 2009).
- The absenteeism and the multiple requirements of the national health programmes (both of clinical and administrative report-writing duties) have led to overburdening primary care staff.
- Insufficient transparency and community ownership is present (GOI, 2009b).
- There are few inter-sectoral linkages of primary care with vertical health programmes (such as the mental health programme) and costs are escalating due to the expansion of the primary care network and inflation (Khandelwal et al., 2004).

The above issues have lead to poor quality of care in many areas, with subsequent underutilisation of primary health centres (Gupte, 1993; Nair et al., 2004). In fact

private and informal sectors of healthcare in India have remained primary providers. 70% of health workers are employed by the private sector (80% of allopathic doctors and 50% of nurses and midwives) (Rao et al., 2009). Given the weaknesses of the public sector the private sector has continued to grow significantly (Bhatia, 1993). Private inpatient and outpatient care was utilised by 40% of rural and urban populations in 1986, whereas 25 years later, in 2012, it had increased to nearly 70% (IMS, 2013). Unfortunately the private sector remains unmonitored and unaudited despite some glaring malpractices (Antia, 1993; Bhat, 1993).

In response to a dysfunctional and selective primary care system, a nation-wide ambitious National Rural Health Mission (NRHM) strategy was implemented in 2005 advocating for integrated community care and ensuring action on a range of social determinants of health (such as sanitation, education, nutrition, gender equality etc) (GOI, 2005) (Figure 1.5).

Figure 1.5: NRHM structure, based on (GOI, 2009b)

BLOCK LEVEL HOSPITAL
obstetric/surgical emergencies (24/7)
(100000 population/100 villages)

CLUSTER OF GPS - PHC LEVEL
Medical officer, 3 nurses, 1 lay health volunteer (24/7 clinics)
(30-40 villages)

GRAM PANCHAYAT - SUB HEALTH CENTRE LEVEL
3 Auxiliary Nurse Midwives (ANMs), 1 multipurpose worker (some states have a rural medical practitioner) (clinics and outreach)
(5-6 villages)

VILLAGE LEVEL
1 Accredited Social Health Activist (ASHA) (outreach), 1 anganwadi.
(facility-based and outreach)

The NRHM is the largest public health programme India has ever had. Since its inception, improvements have been noticed: from increased usage of primary health centres, to capacity building, with much greater numbers of community based workers, partly achieved through public-private partnerships (GOI, 2008; Rao et al., 2011; GOI, 2009b). In addition to improving the training for existing health assistants, a new community-based human resource, the 'Accredited Social Health Activist' (ASHA) was created to improve rural access to services with 690,000 trained so far. Furthermore, though currently still controversial and not widespread, the NRHM are experimenting with medical education programmes to train rural medical practitioners (a new cadre currently only utilised in two states). The NRHM has been successful in increasing the number of community resources: the auxiliary nurse midwives (ANMs) who are lay graduate women with 1 year training, and ASHAs (not necessarily literate, with 1 month training). However the NRHM evaluation after its first 5 years revealed their targets had not been met. The rates of immunisations, antenatal and postnatal checks and institutional deliveries slightly improved but were still low (less than 50%), and the distance to facilities has hardly changed particularly in some of the most deprived states in the North and North-East of India (GOI, 2011a).

In addition, since 2011, in the 12th Five-Year Plan (5 yearly strategy plan for spending the national budget) India committed to attain universal health coverage by 2022 so that the aim for health for all (pledged 60 years ago) is met: that all Indian citizens will have access to "affordable, accountable, appropriate health services of assured quality as well as public health services addressing the wider determinants of health, with the government as a guarantor and enabler, although not necessarily the only provider of health and related services" (GOI, 2011b). The 12th Five Year Plan aims to capitalise existing schemes, such as the NRHM and several other programmes such as 1/ the Janani Suraksha Yojana, launched in 2005 to promote institutional deliveries through providing financial incentives to expectant mothers; 2/ the Rashtriya Swasthya Bima Yojna scheme (2007) to provide insurance coverage in hospitals to families below the poverty line; and 3/ the Jan Aushadhi programme (2008): a public-private partnership scheme to provide generic affordable medicines and surgical equipment through pharmacies in every district (Reddy et al., 2011).

Though they remain controversial because of the concern that government sector will start to rely on private healthcare, private public partnerships are developing at different input levels: some help with health system functioning (offering health system strengthening mechanisms), and others are geared towards healthcare provision (offering specialist services brought to primary care). Many of these currently remain unevaluated.

1.4.2.2 Mental services, policies and financial resources in India

1.4.2.2.1 History, development and distribution of mental health services

India has been ahead of most LMICs in setting up mental health services (Weiss et al., 2001). In 1982 a National Mental Health Programme (NMHP) was initiated, to promote community mental healthcare through an inter-sectoral approach (Murthy, 2005). Part of the strategy was to integrate mental healthcare into the existing primary care structure, training existing primary health centre staff to diagnose and treat mental disorders, supervised by district level mental health specialists, through task-shifting. In 1996 the district model for mental healthcare, the District Mental Health Programme (DMHP), was initiated (Agarwal, 2005) and was modelled on a community programme set up in Bellary district in Northern Karnataka. This programme – which is no longer functional - is still upheld as a model for the DMHP (Kapur, 2005). The history of primary mental health services' development and policy is detailed in the third research paper (chapter 5).

Evaluations have shown that India is far off track for DMHP coverage (123 out of 664 districts) (GOI, 2014; WHO, 2011). In addition, despite the NMHP having structured recommendations within each five-year plan for increasing the accessibility, affordability, adaptability and acceptability of its mental health services, India still does not have a mental health policy. A current policy is however currently being created.

As with general healthcare, a majority of India's mental healthcare is provided by the private for profit sector. This sector has grown in the post-independence era, also to fill a vacuum of mental health services due to the dearth of government mental services. This sector remains still relatively inaccessible to a rural population: 33% work

in large state capitals. However 67% of private psychiatrists work in towns (though only 7% of these practice in district towns in rural areas) (Kala, 2005). Some private psychiatrists, particularly those linked to NGOs or academic institutions, may visit rural areas to provide outreach care. Unfortunately this sector, as other private health sectors is financially and clinically unregulated and expenditure on private consultations leads to catastrophic expenditure for many families in the absence of insurance systems (Khandelwal et al., 2004).

1.4.2.2.2 A shortage of specialist human resources: a major barrier to mental healthcare

In India, the treatment gap is large: no more than 10% of those who need mental healthcare receive it (Murthy, 2005). Several factors have been elicited: insufficient, inaccessible and unaffordable services and structures, the stigma attached to mental disorders preventing people from seeking care, and a lack of political support. Amongst one of the most important barriers to mental healthcare delivery however is the shortage of specialist human resources (Khandelwal et al., 2004). There are barely 4000 psychiatrists for a population of 1.2 billion. Most are located in the private sector and in major cities. There is also a 40-60 fold deficit in the number of clinical psychologists, social workers, and nurses (WHO, 2011). This shows a shortfall of a factor of 200 compared to the coverage of mental health specialists expected in a HIC.

1.4.2.2.3 A mix of models of mental healthcare delivery

There are several private and public institutions and facilities for the delivery of psychiatric care. Government-run mental healthcare provision is focused on secondary and tertiary care hospital settings, and involved in primary care (the DMHP programme) through training PHC doctors and more recently the community-level health workers, the ANM and ASHA.

Active and innovative models of mental healthcare have grown from the voluntary sector which may have potential for scaling up (Patel and Thara, 2003). These include half-way homes (most of which are run by NGOs), and also many models of community-delivered mental healthcare which bypass primary care. These include programmes where psychiatric services have direct links to community-level workers

and also a range of groups set up by users or carers to provide self-help and support (Thara et al., 2004).

In addition, patients often seek folk-healing, religious treatments in places of worship (Hindu, Muslim and Christian), and indigenous medicine (Ayurveda, Unani and Siddha) are widely utilised as is yoga for mental disorders (Thara et al., 2004). These have little evidence as yet in Western medical scientific thought partly because these have not been interrogated comprehensively, though some evidence suggest they may have some benefits (Raghuram et al., 2002; Murthy, 1998). However policy makers have not encouraged its integration. More details of these models will be found in the fourth research paper (chapter 6).

1.4.2.2.4 The integration of mental healthcare into primary care

The barriers to the integration of mental healthcare into primary care in LMICs (see above) also apply to India. There are several health system issues which are particularly problematic in India: poor access to medications in some areas, little acceptability and utilisation of health services due to people's mistrust and bad experiences of these services and inadequate funding. In addition, primary care human resources are expected to deliver mental healthcare: too few primary care workers, inadequate training and support to take on mental health roles, and poor remuneration. These issues are at the core of the problems also associated with trying to achieve universal health coverage in India (Sengupta, 2013). These barriers hinder using the primary care structure as a reliable and effective method of delivering mental healthcare (GOI, 2009b).

Not only does primary care need strengthening but so do the mental health support structures. The DMHP has not built sufficient capacity to fulfil its objective of integrating mental health into primary care. Their strategy has been to retain a cheap (but unfortunately not evidence-based) intervention to provide training to PHC doctors in mental healthcare with no support system in place for them apart from a referral system. Inter-sectoral linkages are also poorly developed. The DMHP operates in relative isolation from the NRHM despite primary mental healthcare being a core feature.

Because universal health coverage is one of the main health delivery priorities in India, the delivery of mental healthcare should be thought with this in mind. Recommendations will need to focus on the feasibility of integrating mental healthcare in a way which is feasible and sustainable for universal coverage. This study will therefore explore some of the questions regarding the integration of mental healthcare within a universal healthcare delivery mechanism. For example should mental healthcare be fully integrated into primary care, ie using only existing human resources, or should it feature as a partial integration, perhaps with a new cadre either solely for mental health or a chronic disease/non-communicable disease worker (Beaglehole et al., 2008).

Chapter 2 is the first research paper that provides further background information to complement this introduction: a situational analysis of human resources for mental health worldwide. We then describe the rationale for this research, as well as its aims, objectives and a justification of a mixed methods approach (chapter 3). The following three chapters are results papers from this thesis. Chapter 4 is a systematic review of the effectiveness of PHWs in delivering care for MNS disorders in LMICs. Chapter 5 describes the development of mental health services in India using an oral history approach. Chapter 6 explores and compares the models of mental healthcare delivery and their human resources in 72 programmes across India using a case-study approach. Chapter 7 summarises and triangulates these findings and provides implications for research and practice.

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Chapter 2

Human resources for mental health care: current situation and strategies for action

(research paper 1)

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SECTION A – Student Details

Student	Nadja van Ginneken
Principal Supervisor	Vikram Patel
Thesis Title	The roles of primary-level health workers in delivering mental healthcare in India

If the Research Paper has previously been published please complete Section B, if not please move to Section C

SECTION B – Paper already published

Where was the work published?	The Lancet		
When was the work published?	Online publication: 16 October 2011; paper version: 5 November 2011		
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For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I contributed to the systematic reviews methodology, search strategy, identification of papers, data extraction and synthesis. I was the lead author for the Indian case study (panel 2) which was informed by my oral history research. I commented on drafts of the paper.

Student Signature: ⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽⎽ Date: ⎽⎽⎽3/01/15.⎽⎽⎽⎽⎽⎽⎽

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Global Mental Health 5

Human resources for mental health care: current situation and strategies for action

Ritsuko Kakuma, Harry Minas, Nadja van Ginneken, Mario R Dal Poz, Keshav Desiraju, Jodi E Morris, Shekhar Saxena*, Richard M Scheffler*

A challenge faced by many countries is to provide adequate human resources for delivery of essential mental health interventions. The overwhelming worldwide shortage of human resources for mental health, particularly in low-income and middle-income countries, is well established. Here, we review the current state of human resources for mental health, needs, and strategies for action. At present, human resources for mental health in countries of low and middle income show a serious shortfall that is likely to grow unless effective steps are taken. Evidence suggests that mental health care can be delivered effectively in primary health-care settings, through community-based programmes and task-shifting approaches. Non-specialist health professionals, lay workers, affected individuals, and caregivers with brief training and appropriate supervision by mental health specialists are able to detect, diagnose, treat, and monitor individuals with mental disorders and reduce caregiver burden. We also discuss scale-up costs, human resources management, and leadership for mental health, particularly within the context of low-income and middle-income countries.

Introduction

"At the heart of each and every health system, the workforce is central to advancing health"[1]

The *World Health Report 2006*[1] focused global attention on the shortage of health workers. Many countries of low and middle income face a health workforce crisis, and the scarcity of human resources and training is similarly overwhelming for mental health.[2–5] Practical guidelines to assist policy makers, health planners, and educators to address shortfalls in human resources for mental health are available;[6–8] efforts are increasing to focus on this issue; and evidence from countries of low and middle income is emerging that will have many implications for policy on human resources for mental health.

The mental health workforce described in this report includes three groups of individuals. The first is composed of specialist workers, such as psychiatrists, neurologists, psychiatric nurses, psychologists, mental health social workers, and occupational therapists. The second group is formed of non-specialist health workers, such as doctors, nurses and lay health workers, affected individuals, and caregivers. In the third group, other professionals are included, such as teachers and community-level workers.

Here, we discuss the current status and needs of human resources for mental health. We also review available evidence about actions and strategies to strengthen human resources for mental health in low-income and middle-income countries, with the objective to inform development of policies in this area.

Identification of data sources

Evidence of the current status of human resources for mental health was obtained from WHO's 2011 *Mental Health Atlas*.[9] WHO has been gathering data on

mental health resources approximately every 5 years since 2000 from almost all countries of the world.[3,9,10] The latest data were published in 2011 and were obtained with a questionnaire containing standard definitions for all variables, from 183 countries covering 99·3% of the world's population. Median change scores were calculated to assess the alteration in the number of psychiatrists per 100 000 population from *Atlas 2005*[3] to *Atlas 2011*.[9] Information on estimated need and shortages of psychiatrists, psychosocial care providers,

Key messages

- Human resources for mental health are inadequate in most countries of low and middle income and are likely to worsen unless substantial investments are made and effective strategies are implemented
- Mental health care can be delivered effectively in primary care settings, through community-based programmes and task shifting approaches that engage and support skilled non-specialist health professionals, lay workers, affected individuals, and caregivers in mental health service delivery
- Mental health specialists should, and will, continue to have essential roles in delivery of services and in training, supervision, and mentoring of non-specialist workers
- The specific composition of the mental health workforce should be expected to vary across countries, according to differing population needs, mental health service delivery systems, and resources
- Effective leadership and management of human resources for mental health will be essential to address key challenges such as mobilisation of financial resources, recruitment, and retention, and equitable distribution of the workforce

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and nurses in mental health settings in 58 low-income and middle-income countries was obtained from a large study published by WHO.[11] The computations were based on 2005 data available from the 2005 WHO Assessment Instrument for Health Systems (WHO-AIMS) and the 2004 WHO Global Burden of Disease Report for the 58 countries. We are not aware of any other data sources that are comparable to these in scope and coverage.

We searched Medline and PubMed to identify peer-reviewed publications from 1990 to December, 2010, on effectiveness of mental health care and training for various service providers. Our search methodology incorporated three validated strategies to capture publications related to "health services and policy" and "mental health" in "LMICs [low-income and middle-income countries]"[12–15] combined with selected index-text and free-text terms relating to non-specialist health workers and mental health. We also hand-searched relevant journals (*Human Resources for Health, Bulletin of the World Health Organization, Health Research in Policy and Systems*, and *International Journal of Mental Health Systems*) and scanned reference lists of relevant publications and websites of pertinent organisations (eg, WHO, Global Forum for Health Research).

We included studies that assessed the effectiveness of mental health care interventions delivered by specialist and non-specialist workers for detection, treatment, and prevention of mental disorders; and training on workforce capacity. Studies eligible for our report included randomised controlled trials and non-randomised trials (such as controlled clinical trials, controlled before-and-after studies, and interrupted time-series studies). For detection of mental disorders, cross-sectional studies in

which diagnoses made by non-specialist health workers were compared directly with those made by specialists were also eligible for inclusion. Studies taking place in areas of conflict were excluded. No language restrictions were made.

Finally, we developed brief case examples from three countries—Sri Lanka, India, and Indonesia—to show how shortages in human resources for mental health are being addressed in these settings. To gain an historical perspective on mental health care in India, mental health experts and senior bureaucrats were interviewed by one of us (NvG; details available on request).

Current state of human resources for mental health

Figure 1 shows the median number of human resources for mental health reported in *Atlas 2011*,[9] separated by income groups of countries. Globally, nurses were the largest workforce category in the mental health system, with a median of 4·95 nurses per 100 000 population, followed by psychiatrists (1·27 per 100 000 population). Although numbers of psychologists and social workers were much smaller, occupational therapists were especially rare, with not one occupational therapist working in the mental health system in at least 50% of low-income countries. Psychiatrists were far more prevalent in high-income countries, with the median number 172 times greater than in low-income countries.

Figure 2 and table 1 show changes in human resources for mental health over the years. Between *Atlas 2005*[3] and *Atlas 2011*,[9] the median change in number of psychiatrists was greatest in high-income countries, with a median increase of 0·65 per 100 000 population, whereas in low-income countries the number fell by 0·01 per 100 000 population.

The estimated total number of mental health care workers needed in the 58 countries of low and middle income in 2005 was 362 000, representing 22·3 workers per 100 000 population in low-income countries and 26·7 workers per 100 000 in middle-income countries, comprising 6% psychiatrists, 54% nurses in mental health settings, and 41% psychosocial care providers. These data reflect an overall shortage of 239 052 mental health workers (17·3 workers per 100 000 population in low-income countries and 14·9 per 100 000 population in middle-income countries; table 2). Based on this result, a shortage of 1·18 million mental health workers was reported for all 144 countries of low and middle income. Almost all countries of low and middle income face shortages in at least one of the three categories of workers. The largest shortages were seen in Vietnam, with 1·70 psychiatrists and 11·52 psychosocial health providers per 100 000, and in Uruguay, with 22·20 nurses per 100 000. All low-income countries and about two-thirds of middle-income countries had far fewer mental health workers to deliver a core set of mental health interventions than were needed.
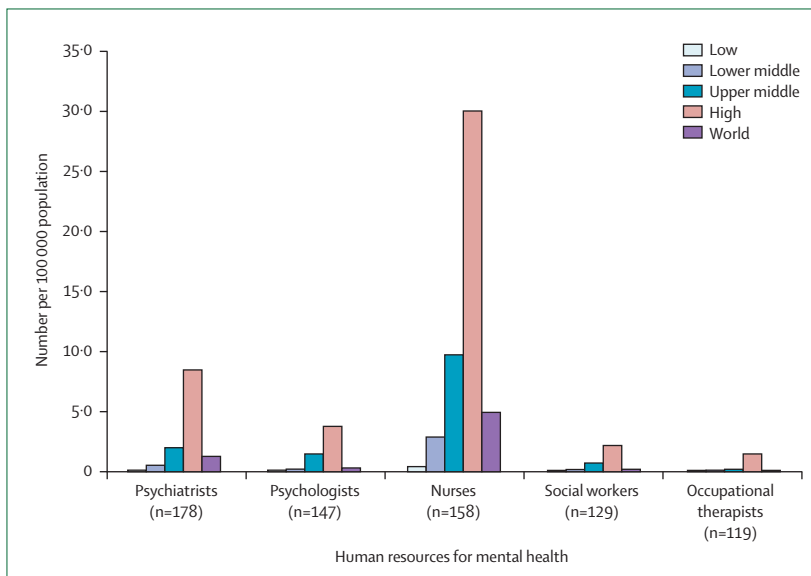
Figure 1: **Human resources for mental health per 100 000 population, by country income group**
Income groups defined by the World Bank, 2010.

Strategies for increasing human resources for mental health

Task shifting

Task shifting (also known as task sharing), defined as "delegating tasks to existing or new cadres with either less training or narrowly tailored training",[16] is an
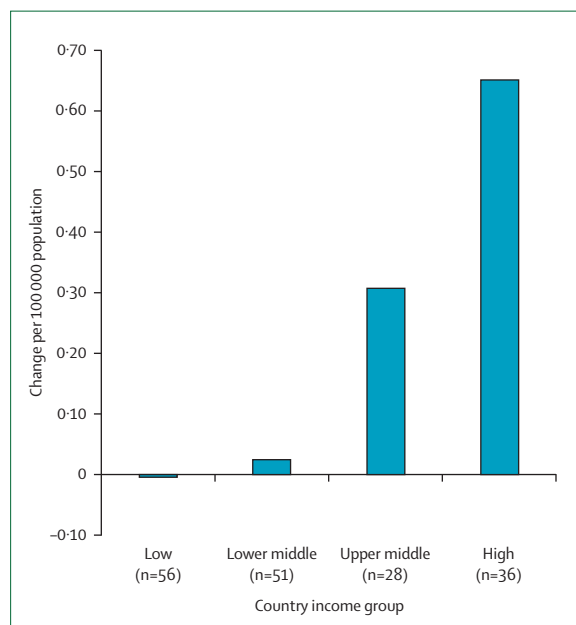
Figure 2: Median change from *Atlas 2005* to *Atlas 2011* in number of psychiatrists per 100 000 population, by country income group
Income groups defined by the World Bank, 2004.

essential response to shortages in human resources for mental health. This process can entail: employment of mental health care providers in different sectors; intersectoral collaborations with other professionals, such as teachers and prison staff, to strengthen mental health awareness, detection of mental disorders, referrals, and service delivery; or both of these.

With our literature search, we retrieved 63 studies on strategies for increasing human resources for mental health, of which 42 evaluated interventions with respect to patient or caregiver outcomes (webappendix pp 1–7) and 24 evaluated training according to staff performance outcomes (webappendix pp 8–11). Three studies addressed both. 23 reports were from south Asia, 13 from Africa, ten from Latin America and the Caribbean, five from the Middle East, five from China, four from Turkey, two from east Asia, and one from Russia. Most studies were quasi-experimental in design, and 20 were randomised or cluster-randomised controlled trials.

The need for mental health specialists, particularly psychiatrists and neurologists, will continue even if task shifting is implemented extensively.[17] Existing evidence shows that the roles of these specialists can change, with clinical roles focused on complex psychiatric cases and diagnoses whereas less complex cases can be managed by trained non-specialist health workers. Mid-level mental health workers (eg, medical officers for mental health) have also helped to reach rural areas where psychiatrists are typically unavailable (panel 1).

Psychosocial workers also have an important role. In India, social workers have facilitated support groups for

see thesis appendix 1 for webappendix

See **Online** for webappendix

	Psychiatrists			Nurses*			Psychologists			Social workers			Occupational therapists		
	2001	2005	2011	2001	2005	2011	2001	2005	2011	2001	2005	2011	2001	2005	2011
Low	0.06	0.05	0.05	0.16	0.16	0.42	0.04	0.04	0.02	0.03	0.04	0.01	..	..	0.00
Lower middle	0.90	1.05	0.54	1.00	1.05	2.93	0.60	0.60	0.14	0.30	0.28	0.13	..	..	0.01
Upper middle	2.40	2.70	2.03	5.70	5.35	9.72	0.70	1.80	1.47	1.42	1.50	0.76	..	..	0.23
High	9.00	10.50	8.59	33.50	32.95	29.15	26.70	14.00	3.79	25.50	15.70	2.16	..	..	1.51
World	1.00	1.20	1.27	2.00	2.00	4.95	0.40	0.60	0.33	0.30	0.40	0.24	..	..	0.06
Number	182	183	178	164	172	158	164	173	147	147	157	129	..	..	119

Data are from references 3, 9, and 10. *Defined as psychiatric nurses in *Atlas 2005* and as nurses in a mental health setting (broader) in *Atlas 2011*.

Table 1: Median number of health professionals per 100 000 population in *Atlas 2001*,[10] *Atlas 2005*,[3] and *Atlas 2011*,[9] by country income group

	Psychiatrists			Nurses			Psychosocial health providers			Total full-time employed staff		
	Supply	Shortage	Wage bill (x1000 US$)	Supply	Shortage	Wage bill (x1000 US$)	Supply	Shortage	Wage bill (x1000 US$)	Supply	Shortage	Wage bill (x1000 US$)
Low income	0.26	1.04	48 588	5.15	7.90	136 652	1.35	8.40	162 523	6.76	17.34	347 764
Middle income	2.15	0.46	31 845	5.70	9.37	282 871	11.43	5.05	151 423	19.28	14.88	466 139
Both low and middle income	1.18	0.76	80 433	5.42	8.61	419 523	6.25	6.77	313 947	12.85	16.14	813 903

Data are population-weighted averages from reference 11.

Table 2: Estimated supply and shortage of mental health workers per 100 000 population and total scale-up costs (wage bill) to eliminate shortage of mental health workers in 58 countries of low and middle income in 2005, by country income group

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patients and caregivers as part of a multidisciplinary mental health team,[19] and in Chile they have provided psychoeducation (education of the patient and other relevant parties about the illness, its treatment, and relapse prevention), and monitoring.[20] Psychologists have also applied effective psychoeducation interventions to reduce caregiver burden and improve attitudes of caregivers in Chile.[21,22]

In most studies, psychiatrists, neurologists, and psychosocial workers have provided effective short-term training, supervision, and monitoring for non-specialist health workers, enabling detection of mental disorders, referral, treatment, psychoeducation, and follow-up care, with positive outcomes for patients.[20,23–25] Non-specialist health workers have contributed to services such as clinics, halfway homes, and community outreach services and have played a part in detection, diagnosis, treatment, and prevention of common and severe mental disorders, epilepsy, mental retardation, and dementia as part of a complex stepped-care intervention[20,23,26,27] or single intervention, such as group interpersonal therapy,[28] cognitive behavioural therapy,[29] and psychoeducational programmes for caregivers.[30]

The roles of non-specialist health workers differ according to the worker's level of training. For example, trained nurses, social workers, and lay workers can take on follow-up and educational and promotional roles.[20,31,32] Primary care doctors with mental health training have been involved in identification, diagnosis, treatment, and referral of complex cases.[2,32] Furthermore, lay health-workers have provided support for caregivers, befriended affected individuals, ensured adherence to treatment, and helped to detect mental health problems.[29,31,33,34] An example of the role of community support officers in Sri Lanka is presented in panel 1.

Findings of most studies show substantial improvements in patients' outcomes—ie, better recovery and reduced dysfunction and severity. In India, infants of mothers with maternal depression (both antenatal and postnatal depression) benefited from a decline in symptom severity.[29,34] Although training community health workers to screen for dementia was not effective in detecting people with dementia in one study,[35] other interventions with non-specialist health workers have reduced caregiver burden.[33] Although results are promising, these approaches need to be studied further in routine service settings.

Family caregivers contribute to detection, treatment-seeking, and management of family members with mental disorders, and evidence on educational programmes for caregivers, particularly those caring for patients with neurological disorders and in low-income and middle-income countries, is increasing.[36,37] In Iran, parents of children admitted with schizophrenia were better equipped to manage their child's behaviour and to provide a supportive role to produce improved outcomes in their child after a 1-month training programme.[38] Eight educational sessions once a week were effective to reduce caregiver distress and challenging behaviours of people with dementia.[39] Nine psychoeducation sessions every month for caregivers of individuals with schizophrenia also resulted in better outcomes for patients (psychopathology and disability levels), caregiver support, and caregiver satisfaction.[40]

People who use mental health services can provide similar support to others, share personal experiences, and participate in self-help and mutual aid initiatives.[25,41] Although some organisations for mental health provide psychoeducation and skill-building sessions to affected individuals and their families for home-based care, self-help, and entrepreneurship (Kleintjes S, Groote Schuur Hospital, Cape Town, South Africa; personal communication), no rigorous evaluations have been done of their effect in countries of low and middle income. The role of affected individuals and caregivers needs to be better investigated, assessed, and, possibly, expanded.

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Panel 2: Case example from India

India, with a population in excess of 1·1 billion, faces enormous challenges with respect to provision of mental health care. Integration of mental health into general health care, and training of general doctors in mental health, has been implemented since 1961, but community-based care was not introduced until 1982 in the national mental health programme.[67] Primary care doctors were trained, a mental health primary care model was developed (based on the 1985–90 Bellary model),[68] and a district mental health programme was launched in four districts in 1997. However, state government targets to train 20% of all doctors with a 2-week programme over 5 years have not been achieved. The district mental health programme is currently in operation in only 123 of 640 districts, and total coverage is anticipated to be achieved by 2017. Even then, there will be an insufficient number of psychiatrists to meet the requirements of the district mental health programme model.

The national mental health programme also lacks adequate guidance and leadership. No mental health policy existed before the programme, and the 1987 Mental Health Act (which established the central and state mental health authorities) has been largely non-functional. Experts have identified apathy, an absence of leadership, and issues of political power (at state and government level) as relevant barriers to development of mental health policy and legislation to support the expansion of human resources for mental health.

Governmental funding for mental health has risen substantially in the past decade. In the 10th national plan (2002–07), US$22 million (100 crores) was allocated to the national mental health programme, mainly to upgrade psychiatric hospitals and psychiatric facilities in government general hospitals and medical colleges; funding rose tenfold in the 11th 5-year plan (2007–12). The current training infrastructure produces about 320 psychiatrists, 50 clinical psychologists, 25 psychiatric social workers, and 185 psychiatric nurses annually—too few for effective care in the country. The national mental health programme and private-sector focus has remained on specialist mental health services, and allocated budgets have been spent largely on boosting numbers of specialists, by supporting medical colleges, and by introducing additional seats in all the psychiatric specialties. Less progress has been made in developing non-specialist health workers. Bureaucrats and experts suggest specialists have augmented managerial and supervisory responsibilities towards a greatly expanded non-specialist workforce, but they warn that psychiatrists (in government and the private sector) are resistant to taking on managerial roles (van Ginneken, unpublished). Current service provision by non-specialists is—according to these experts—of poor quality, and they suggest improving the training with less didactic initial training and regular ongoing formal and informal training. They also suggest assessing the feasibility and effect of care provided by non-specialists. Four key challenges exist for the government.

- Delays in efforts to increase significantly the numbers of specialist and non-specialist mental health-care providers.
- Little partnership with other government organisations to improve access to health care (eg, national rural health mission).
- Absence of mental health policy. Both national and district mental health programmes, for all their shortcomings, have been driven by the Government of India, with comparatively little interest by state governments. Responses to Supreme Court directives have, unfortunately, adopted outdated models of mental hospitals.
- Insufficient capacity to use available funds effectively. Barriers include excessive bureaucracy and scant interest by programme planners and the public health system.

Collaboration between government and non-governmental organisations and private practitioners could help to achieve greater and more diverse human resources for mental health. The Karuna Trust in Karnataka, Ashagram in Guwahati, and The Banyan in Chennai have shown the feasibility of delivering community-based mental health care outside the public primary care setting, using lay health workers and families.

For more on **The Banyan** see http://www.thebanyan.org

Education of mental health service providers

Ongoing development of a workforce with appropriate skills is essential to strengthen human resources for mental health. Training should be relevant to the mental health needs of the population and include in-service training (ie, continuing education) and strengthening of institutional capacity to implement training programmes effectively. However, training programmes for psychiatrists are present in only 55% of low-income countries, 69% of countries of lower middle income, and 60% of those of upper middle income.[5] Approaches to psychiatric education also vary across countries.[42–45] In Nigeria, a specialist training programme in psychiatry has been in place for more than 25 years, yet only half of the country's tertiary mental health facilities have enough psychiatrists to provide accredited training.[5]

Training of non-specialist health workers also needs scaling up. We noted in our review of published work that overall short-term training by specialist mental health professionals with ongoing monitoring and supervision can improve confidence, detection, treatment, and treatment adherence of individuals with mental disorders and reduce caregiver burden. Our findings were less convincing for detection of neurological conditions.[35,46] The sustainability of knowledge and skills gained remains uncertain, and further examination of effective supervision and mentorship is needed.

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Scale-up costs to remove shortages in human resources for mental health

The annual wage bill to eliminate shortages in human resources for mental health in countries of low and middle income will be considerable. Not including costs for training or improvement of facilities needed, the estimated bill was about US$814 million in 2005 ($894 million in 2009): $80 million for psychiatrists, $420 million for nurses in mental health settings, and $314 million for psychosocial care providers (table 2). The highest cost estimates were in Nigeria for all workforce categories: $14·8 million for psychiatrists, $49·6 million for nurses, and $53·7 million for psychosocial health providers, a total of $118·2 million.

Mobilisation of financial resources to develop human resources for mental health is one of the biggest challenges for development of effective mental health systems.[47] All countries of low and middle income have inadequate funding for mental health.[3] Cost-effectiveness studies for scaling-up of non-specialist health workers are scarce,[48] and further studies are necessary to inform planning of human resources for mental health.

Strategic changes in payment systems are as important as financing in bringing about system change.[49] For example, increasing the role of psychiatrists as supervisor and trainer and boosting the number of other mental health workers will need payment arrangements that recognise these changed roles. These alterations will also be important for shifting of practice from institutions to community services.

Recruitment

Negative attitudes of health professionals is an important challenge to overcome, and even when training programmes are available, very few students are choosing a career in psychiatry.[50,51] In Kenya, medical students were surveyed on their attitudes towards psychiatry.[52] Although almost 75% of respondents had overall favourable attitudes, only 14% would consider psychiatry as a career choice. In Brazil, primary health care providers detect mental disorders of their clientele but believe that diagnosis and treatment should remain the responsibility of mental health specialists.[53] Misconceptions about mental disorders, fear, perceived low status of mental health professionals, and inadequate training contribute to the reluctance of many health workers to provide mental health care in Ghana, South Africa, Uganda, and Zambia.[54–57] Educational interventions for primary care professionals improve attitudes towards mental illness,[53,58–60] and similar strategies for medical students to increase recruitment need further investigation.

Management of attrition

Emigration of mental health professionals from countries of low and middle income,[18] and rural-to-urban migration, seriously constrain development of human resources for mental health. Professional isolation and better training and career opportunities are key reasons for emigration.[61] The UK, the USA, New Zealand, and Australia employ almost 9000 psychiatrists from India, the Philippines, Pakistan, Bangladesh, Nigeria, Egypt, and Sri Lanka.[18] Without this migration, many source countries would have more than double (in some cases five to eight times) the number of psychiatrists per 100 000 population.

Establishment of local training programmes is especially important to reduce the likelihood of out-migration. International collaborations have been an important strategy in scaling-up of human resources for mental health.[62] By providing training in Ethiopia,[63] the number of psychiatrists rose from 11 to 34 between 2003 and 2009. The success of the initiative has led to its expansion to cover 14 different health programmes (Toronto Addis Ababa Academic Collaboration).

Retention and equitable distribution of human resources for mental health remain a challenge. Innovative financial incentive strategies, institutional capacity building that promotes career development, opportunities to receive and provide mentorship, and favourable workplace conditions are areas that need to be strengthened to minimise attrition.

Leadership

Effective leadership is judged necessary for scaling-up of the mental health workforce,[64–66] but little evidence exists that addresses this issue adequately. The case example from India highlights the result of poor leadership when funding for mental health was increased substantially (panel 2).

The University of Melbourne has been running an international mental health leadership programme since 2001.[69] This 4-week course provides training in mental health policy and systems, mental health workforce, and mental health and human rights for researchers, psychiatrists, mental health professionals, and decision makers. Shorter 2-week leadership courses have been developed subsequently in Indonesia, India, and Nigeria. Anecdotal evidence suggests that the courses and ongoing support for alumni have a positive effect in their home countries (panel 3).

Concluding remarks

Human resources for mental health continue to be grossly inadequate in most countries of low and middle income. The shortage is likely to worsen unless substantial investments are made to train a wider range of mental health workers in much higher numbers. Task shifting seems to be an effective and feasible approach but it too will entail substantial investment, innovative thinking, and effective leadership.

Here, we have shown examples of innovative and effective strategies to expand mental health services to primary care settings and into the community. The variability in roles of different mental health workers across settings highlights the importance of focusing on a

For more about the **Toronto Addis Ababa Academic Collaboration** see http://www.taaac.com

Panel 3: Case example from Aceh, Indonesia

The province of Aceh, Indonesia, had been embroiled in decades of military conflict when, on Dec 26, 2004, it was struck by the Indian Ocean earthquake and tsunami. 11 coastal districts were devastated. The death toll was estimated at more than 160 000, with more than 500 000 people displaced. All forms of physical and social infrastructure, including the health system in the capital Banda Aceh and the affected districts, were thrown into chaos. International response was swift and a massive influx of assistance, money, and technical expertise took place.

Immediately after the tsunami, the Ministry of Health asked WHO for assistance in preparing a mental health response to the disaster. WHO's recommendations[70] were adopted in full by the Ministry of Health as the mental health plan for Aceh in 2005. A key component of the recommendations was to build a comprehensive mental health system. In subsequent months, a model of community-focused mental health services was agreed.

Psychiatric morbidity was already high in Aceh as a result of the long-running military conflict,[71] but it rose after the tsunami.[72] Among the major impediments to development of a mental health system was the scarcity of human resources for mental health.[73] The 250-bed mental hospital in Banda Aceh was the only mental health service for a population of 4 million people. The hospital was staffed by five psychiatrists and general nurses, with no nurses trained in mental health, psychologists, or other mental health specialists. Primary care doctors working in the well developed (though seriously damaged) primary health-care system had no training in psychiatry. Only patients with psychotic disorders were recognised as suffering from a mental disorder and were referred to the mental hospital for treatment. Psychiatric drugs were largely unavailable in primary health-care centres. Expansion of human resources for mental health was identified as a key strategy for building up a community-focused mental health system for the province. The strategy entailed development and delivery of short-course psychiatric training for primary care doctors (who were then designated as GP+),[74] more extensive training for nurses who would then function as community mental health nurses,[75] and recruitment, training, and support of village mental health volunteers.

In 2005, five psychiatrists were working in the mental hospital in Banda Aceh, and no other mental health professionals were present in the province. In 2009, nine psychiatrists, 27 psychologists, 628 community mental health nurses (of whom 94 were supervisors and trainers), and 5961 village

mental health volunteers were working in 923 of Aceh's 6381 villages (Minas H; unpublished).

The approach taken to strengthen human resources for mental health in Aceh has been consistent with WHO's health-workforce framework developed in the *World Health Report 2006*.[1] A provincial mental health policy is in place, and several districts have developed a district mental health policy. Data for the mental health workforce have improved steadily, although a good deal more work needs to be done to develop a workforce data system that would be adequate for planning, recruitment, deployment, and further skill development for workers. 13 of 23 districts have an identified budget for mental health, and all 23 districts employ community mental health nurses through the core district health budget and provide support for the extensive village volunteers programme. Education and training has been a major part of the strategy for development of the provincial mental health system. In partnership with Gadjah Mada University (Yogyakarta), the Syah Kuala University in Banda Aceh has established a clinical psychology training programme and is attracting many Acehnese students. Training and support for village mental health volunteers has seen rapid growth in the number of these essential community-level workers.

A key area of continuing deficiency is the scarcity of an Aceh-based training programme for psychiatrists, although several psychiatric residents are about to graduate in 2011 from training programmes in other parts of Indonesia. The provincial and district governments of Aceh, continuously supported by the Indonesian Ministry of Health, have shown exemplary leadership in their sustained commitment to development of the most comprehensive community-based mental health system in Indonesia. Many of the key people involved in building up of the Acehnese mental health system have received training from the international mental health leadership programme based in Melbourne, Australia. The whole enterprise of building a community-based mental health system, and a community mental health workforce, has been a series of partnerships including: provincial and district governments of Aceh; the Indonesian Ministry of Health; Acehnese, other Indonesian, and international universities; UN agencies, including WHO, UNICEF, and the International Organization for Migration; and local and international non-governmental organisations.

For more on the **international mental health leadership programme** see http://www.cimh.unimelb.edu.au/pdp/imhlp

skill-mix rather than a staff-mix approach to increase human resources for mental health.[16] Training programmes will need to be accompanied by effective supervision to maintain skills, and ongoing career development opportunities will be vital to minimise attrition.

Involvement of a broad set of workforce categories is likely to facilitate scaling-up of mental health care in low-income and middle-income countries. The specific composition of the mental health workforce should vary across settings, to be aligned with existing delivery system and resource structures.

Future directions

Global efforts to address widespread shortages in the health workforce have entailed development of a technical framework to assist governments and health managers to

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work on and implement a comprehensive strategy to achieve an effective and sustainable health workforce.[1] The Human Resources for Health Action Framework,[76] which consists of six interconnected components necessary in human resource development (policy, health workforce management, finance, education, partnerships, and leadership), could provide a useful approach to address shortages in human resources for mental health.

Skilled health management and support workers, who comprise up to a third of the health workforce, are vital for overseeing the implementation of strategic directions while policy makers manage resource allocation and monitor targets and outcomes. Managers and support workers are responsible for planning and implementation of human resources for health, management of the work environment and conditions, information systems for human resources for health, workforce performance, and staff retention. Greater investments in health management capacity will be an important component for increasing human resources for mental health.

Additional evidence is needed of the effectiveness and cost-effectiveness of task shifting for identification and management of mental disorders by non-specialist health workers. Information and data are also needed on training requirements and application of newly acquired knowledge and skills in everyday practice. Evidence of the effectiveness of involvement of affected individuals or caregivers in service delivery and a better understanding of push and pull factors for migration of mental health specialists are both needed for effective planning of human resources for mental health.

Stronger intersectoral collaborations than we have at present will also contribute to reduction of the shortage in human resources for mental health, and this area must be investigated further.[77] With our literature search, we retrieved only one study that looked at the effect of training school teachers for raising mental health awareness among school children, parents, and neighbours.[19] We did not identify with our search any studies assessing the role of community resources, such as traditional or alternative care providers. This issue needs careful investigation since, in many countries of low and middle income, alternative care is generally sought before care from a mental health specialist or primary care practitioner.

Despite emerging evidence on mental health systems in low-income and middle-income countries, development and evaluation of human resources for mental health are difficult and complex tasks that will continue to pose substantial challenges in the coming years. A systemic approach is needed, with interdisciplinary and multi-sectoral collaborations and strong partnerships between government ministries, researchers, non-governmental organisations, health professionals, affected individuals or caregivers, and communities, if important long-term gains are to be made. Adequate attention to these aspects is essential to achieve the objective of scaling-up of care for people with mental disorders.

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Chapter 3

Research rationale and methodological approach

3.1 Rationale for this research

This proposal fills several gaps of knowledge:

- Little analysis or description of Indian models of primary-level health worker (PHW)-delivered mental healthcare exists (Cohen, 2003; Murthy, 2008) nor PHWs' or specialists' tasks and roles within these models.
- an historical understanding of primary mental healthcare development in India
- policy makers' and implementers' opinions on the future of mental health services

A better understanding of current programmes models and human resources set within an historical context would provide policy makers with an analysis of what innovations and ideas have potential at scale for major changes to rural mental healthcare provision. This would therefore inform policy development on appropriate implementation and sustainability of scaling up community mental health services using PHWs in India. This research may also highlight opportunities for the convergence of the National Rural Health Mission (NRHM) and National Mental Health Programme (NMHP) in terms of policy and practice.

Given the issues with the public health system, this study sets out to explore not just the government primary healthcare (PHC) structure but also the alternatives that are available across India within the non-governmental organisation (NGO) sector in particular. This research focuses on PHW-delivered mental healthcare in both the government and non-governmental sector, and how these services may interact with other specialists or specialist services. We excluded private-for-profit organisations as the profit-making business model aims to maximise profits which may become more important than healthcare provision itself. The not-for-profit NGO sector on the other hand may also sell goods and services but the purpose of which is to provide income to cover their activities' costs (Green and Matthias, 1996). As with the government sector, the NGO sector retains its main focus on healthcare provision. We also excluded the non-allopathic treatment sectors (healers, religious treatments, other

medical traditions) to remain focused on the care that can be offered by the Western medical tradition.

The description and analysis of PHWs will be contextualised within current health systems' challenges. The above models of mental healthcare delivery at primary and community care level will also be analysed in terms of their level of integration with the general health system, i.e. to what extent these programmes are vertical/ separate specialist-led services or function within general health services. Also we will describe to what extend these models are similar or not to those in HIC (as described in section 1.2.4 above).

Within the mental health field in low- and middle- income countries (LMICs), notably also in India, several programmes and experts have requested existing models to be scaled-up. Part of this study's purpose is thus also to discuss different models of PHW-delivered mental healthcare in light of their feasibility for scaling-up.

3.2 Aims and objectives

The research hypothesis is that PHWs can be effective in delivering mental healthcare. The aim of this research was to explore the history, effectiveness and feasibility of PHW-delivered mental healthcare in remote areas in India, to better inform the process of health system organisation and delivery of mental health services at primary care and community levels.

The proposed project examines global evidence for effectiveness of PHWs in mental healthcare, then focuses on India, as an example of a LMIC with government and non-governmental primary and community mental healthcare initiatives.

Objectives:

1. Review the effectiveness of PHWs in primary and community mental healthcare in LMICs (Cochrane review – chapters 2 and 3).

2. Explore the history and development of mental healthcare within primary care in India (oral history paper – chapter 5).

3. Describe and compare current Indian models of PHW-delivered mental healthcare and characteristics and roles assigned to their specialist and non-specialist workforce (Human resources and models – chapter 6)

4. Assess the effectiveness and feasibility of integrating mental healthcare within the primary and community health systems in India (discussion).

Effectiveness is defined as the ability of PHWs to produce a desired result in terms of patient- and service-related outcomes. This research also proposes to look at the efficacy (the effectiveness in clinical trial settings) through the systematic review (Fox-Rushby and Cairns, 2005).

Feasibility is defined as something that is possible and practical to achieve, within the limitations or resources that are currently or could be made available in that setting (New Oxford Dictionary of English, 2010). This study explores available resources, historical context, and acceptability (such as political will or cultural factors) in assessing the feasibility of PHW-delivered mental healthcare.

3.3 Study design and description of data collection methods

Details of each method (systematic review, oral history and qualitative methods) are presented in the three main papers. In this section, we outline the rationale for a mixed methods approach and the method for drawing together the information from these three perspectives to reach the conclusions presented in the discussion.

To address the research objectives, quantitative, historical and qualitative methods drew on several data sources (figure 3.1). Mixed-methods research is recommended for exploring complex interventions (Campbell et al., 2000; Campbell et al., 2007). Mental health interventions are often complex as they require multiple independent and interdependent components and multidisciplinary staff to address clinical care and social support.

Figure 3.1: Framework of methods and research questions

1. QUANTITATIVE COCHRAN SYSTEMATIC REVIEW (38 studies, chapter 4)	**2. ORAL HISTORIES OF FORMER AND CURRENT MENTAL HEALTH PLANNERS AND IMPLEMENTERS IN INDIA (1947-NOW) (17 interviews, chapter 5)**
• What is the effectiveness of PHWs in mental healthcare provision in LMICs?	• What are the origins of the District Mental Health Programme (DMHP) and how has it evolved? • What are the reasons for the current DMHP failures and achievements? • How have PHWs roles evolved?

3. QUALITATIVE CASE STUDIES IN INDIA (chapter 6)

In-depth case studies of DMHP PHC-based mental health services in Karnataka (South India) (2 case studies: interviews, observation, documentary analysis)	**Shorter case studies in governmental and NGO programmes across India (70 case studies: interviews, site visits, documentary analysis)**
• What mental health roles do PHWs have in PHCs? • What roles do specialists and coordinators play in the context of community mental health services? • What is the sustainability of this model and its human resources?	• What are the models of delivery of mental health services using PHWs in India? • What types of PHWs, specialists and coordinators are used and what are their roles? • What is the scalability and feasibility of these models and human resources within the DMHP?

GOALS (chapter 7)

• Answer **main research questions**: What are the feasible and effective
  • models of mental healthcare provision involving PHWs in India?
  • PHW roles within these models
• Provide recommendations to inform policy and existing community/ primary care initiatives.

Table 3.1 is a synthesis of how each method addresses the objectives. The systematic review aimed to cover a global quantitative summary of effectiveness of PHWs in an attempt to see what was generalisable beyond context, though quantitative aggregated data lacked applicability to specific contexts. Thus, the qualitative case studies broadened our understanding of the realities of the existing community mental healthcare delivery by PHWs. They also questioned the 'why' of certain organisational or infrastructural realities, and of PHWs' and specialists' roles. This study contextualised and drew out issues that impact upon efficacy. The data analysis drew out the tensions and challenges between the local and global findings of PHWs' roles in mental healthcare.

The historical work enhanced the analysis of current programmes through providing a better understanding of the historical context. The use of multiple methods also offered rigorous identification of all relevant data. The history interviews also highlighted important projects worth including in the qualitative analysis.

Table 3.1: How the methodology addresses the objectives

Objectives (objective number)	Systematic review	Historical analysis	Case studies
Effectiveness of PHW interventions (1)	1*		
Feasibility of PHW interventions (1)		2*	1*
Historical context (2)	2*	1*	2*
Current PHW roles and models (3)	2*		1*
Policy implications (4)	2*	2*	2*

1*: primary source; 2*: secondary source

As outlined in figure 3.1., the qualitative data aimed to describe models of mental healthcare delivery and health workers roles with two separate methods to allow for both breadth (shorter case studies – i.e. semi-structured interviews and site visits) but also depth of understanding (in depth longer case studies which included observation of health workers and other staff). All case study data were collected, coded and analysed side-by-side. Comparing and cross-checking these data to constantly test emerging hypotheses increased the credibility and validity of emerging patterns or conflicts between programmes (Bernard, 2006).

The process of triangulating primary material in India (oral histories and case studies which both involved triangulating interviews, and documentary analysis, and in addition observations for case studies) and quantitative data from trials in LMICs provided more data reliability because it allowed the researcher to check whether similar interpretations were achieved through different angles and perspectives of data collection. Multiple methods also provided greater opportunities for information saturation, and thus richness in identifying the potential barriers and solutions to scaling-up PHWs in mental healthcare. Triangulating this data also helped draw out the feasibility and acceptability of potential models of PHW-delivered mental healthcare at country level (India). The discussion therefore drew together these materials to discuss what factors within PHW models of mental healthcare delivery may or may not be generalisable to be implemented at local, national or international levels. We looked for conceptual generalisability (such as issues of acceptability, what seems to influence better delivery of care etc) rather than generalisability of context or fact (such as exact number of health workers, specifics of training programmes etc) as the latter would require multiple in-depth quantitative evaluations and pilot studies for scalability (Green and Thorogood, 2004). Conceptual generalisability was an essential preliminary step to deciding which concepts or elements of models are important before the specifics of models are framed for testing at scale. Within this endeavour we also assessed the transferability of findings, to draw out which elements were context-specific and which may be more widely applicable.

This research got ethical approval from the London School of Hygiene, Sangath and the Indian Medical Research Council (appendix 2). Appendices 3 and 4 provide the consent forms, information sheets and data collection tools for chapters 5 and 6. Appendix 5 provides the permissions from copyright holders to use manuscripts and images in the thesis.

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Chapter 4

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries

(research paper 2)

RESEARCH PAPER COVER SHEET

PLEASE NOTE THAT A COVER SHEET MUST BE COMPLETED FOR EACH RESEARCH PAPER INCLUDED IN A THESIS.

SECTION A – Student Details

Student	Nadja van Ginneken
Principal Supervisor	Vikram Patel
Thesis Title	The roles of primary-level health workers in delivering mental healthcare in India

If the Research Paper has previously been published please complete Section B, if not please move to Section C

SECTION B – Paper already published

Where was the work published?	Cochrane Database of Systematic Reviews		
When was the work published?	November 2013		
If the work was published prior to registration for your research degree, give a brief rationale for its inclusion			
Have you retained the copyright for the work?*	Yes	Was the work subject to academic peer review?	Yes

If yes, please attach evidence of retention. If no, or if the work is being included in its published format, please attach evidence of permission from the copyright holder (publisher or other author) to include this work.

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Where is the work intended to be published?	
Please list the paper's authors in the intended authorship order:	
Stage of publication	Choose an item.

SECTION D – Multi-authored work

For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I conceived the review, led the protocol development, was the main contributor to extracting data and assessed risk of bias (and checked all), performed the statistical analysis and GRADE assessments and wrote the final version. The other authors contributions are listed in the Cochrane review.

Student Signature: _Signature_ **Date:** 3/1/15

Supervisor Signature: _____ **Date:** _____

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)

van Ginneken N, Tharyan P, Lewin S, Rao GN, Meera SM, Pian J, Chandrashekar S, Patel V

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[Intervention Review]

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries

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A B S T R A C T

Background

Many people with mental, neurological and substance-use disorders (MNS) do not receive health care. Non-specialist health workers (NSHWs) and other professionals with health roles (OPHRs) are a key strategy for closing the treatment gap.

Objectives

To assess the effect of NSHWs and OPHRs delivering MNS interventions in primary and community health care in low- and middle-income countries.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (including the Cochrane Effective Practice and Organisation of Care (EPOC) Group Specialised Register) (searched 21 June 2012); MEDLINE, OvidSP; MEDLINE In Process & Other Non-Indexed Citations, OvidSP; EMBASE, OvidSP (searched 15 June 2012); CINAHL, EBSCOhost; PsycINFO, OvidSP (searched 18 and 19 June 2012); World Health Organization (WHO) Global Health Library (searched 29 June 2012); LILACS; the International Clinical Trials Registry Platform (WHO); OpenGrey; the metaRegister of Controlled Trials (searched 8 and 9 August 2012); Science Citation Index and Social Sciences Citation Index (ISI Web of Knowledge) (searched 2 October 2012) and reference lists, without language or date restrictions. We contacted authors for additional studies.

Selection criteria

Randomised and non-randomised controlled trials, controlled before-and-after studies and interrupted-time-series studies of NSHWs/ OPHR-delivered interventions in primary/community health care in low- and middle-income countries, and intended to improve

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)   **1**

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outcomes in people with MNS disorders and in their carers. We defined an NSHW as any professional health worker (e.g. doctors, nurses and social workers) or lay health worker without specialised training in MNS disorders. OPHRs included people outside the health sector (only teachers in this review).

Data collection and analysis

Review authors double screened, double data-extracted and assessed risk of bias using standard formats. We grouped studies with similar interventions together. Where feasible, we combined data to obtain an overall estimate of effect.

Main results

The 38 included studies were from seven low- and 15 middle-income countries. Twenty-two studies used lay health workers, and most addressed depression or post-traumatic stress disorder (PTSD). The review shows that the use of NSHWs, compared with usual healthcare services: 1. may increase the number of **adults who recover from depression or anxiety, or both,** two to six months after treatment (prevalence of depression: risk ratio (RR) 0.30, 95% confidence interval (CI) 0.14 to 0.64; low-quality evidence); 2. may slightly reduce symptoms for **mothers with perinatal depression** (severity of depressive symptoms: standardised mean difference (SMD) -0.42, 95% CI -0.58 to -0.26; low-quality evidence); 3. may slightly reduce the symptoms of **adults with PTSD** (severity of PTSD symptoms: SMD -0.36, 95% CI -0.67 to -0.05; low-quality evidence); 4. probably slightly improves the symptoms of **people with dementia** (severity of behavioural symptoms: SMD -0.26, 95% CI -0.60 to 0.08; moderate-quality evidence); 5. probably improves/slightly improves the mental well-being, burden and distress of **carers of people with dementia** (carer burden: SMD -0.50, 95% CI -0.84 to -0.15; moderate-quality evidence); 6. may decrease the amount of alcohol consumed by **people with alcohol-use disorders** (drinks/drinking day in last 7 to 30 days: mean difference -1.68, 95% CI -2.79 to -0.57); low-quality evidence).

It is uncertain whether lay health workers or teachers reduce PTSD symptoms among children. There were insufficient data to draw conclusions about the cost-effectiveness of using NSHWs or teachers, or about their impact on people with other MNS conditions. In addition, very few studies measured adverse effects of NSHW-led care - such effects could impact on the appropriateness and quality of care.

Authors' conclusions

Overall, NSHWs and teachers have some promising benefits in improving people's outcomes for general and perinatal depression, PTSD and alcohol-use disorders, and patient- and carer-outcomes for dementia. However, this evidence is mostly low or very low quality, and for some issues no evidence is available. Therefore, we cannot make conclusions about which specific NSHW-led interventions are more effective.

P L A I N   L A N G U A G E   S U M M A R Y

The effect of non-specialist health workers on people with mental, neurological and substance-abuse disorders in developing countries

Background

In developing countries, most people with mental, neurological and substance-abuse (MNS) disorders do not receive adequate care mainly because of a lack of mental health professionals. Non-specialist health workers, but also other professionals with health roles, such as teachers, may therefore have an important role to play in delivering MNS health care.

Researchers in The Cochrane Collaboration carried out a review of the effects of using non-specialist health workers or other professionals with health roles to help people with MNS disorders in developing countries. After searching for all relevant studies in scientific databases, they found 38 studies published before October 2012. Their findings are summarised below.

What is a non-specialist health worker?

Any type of health worker (like a doctor, nurse or lay health worker) who is not a specialist in mental health or neurology but who may have had some training in these fields. We also looked at teachers, as they can be particularly important in the care of children and youths.

What the research says

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The studies in this review were from 22 developing countries. In most studies, lay health workers delivered the mental health care, and addressed depression or anxiety (or both), or post-traumatic stress disorder. The review shows that the use of non-specialist health workers, compared with usual healthcare services:

· may increase the number of **adults who recover from depression or anxiety (or both)** two to six months after treatment;

· may slightly reduce symptoms for **mothers with depression;**

· may slightly reduce the symptoms of **adults with post-traumatic stress disorder** (non-specialists and teachers were used in one study);

· probably slightly improves the symptoms of **people with dementia**;

· probably improves/slightly improves the mental well-being, burden and distress of **carers of people with dementia**;

· may decrease the quantity of alcohol consumed by **problem drinkers**.

It is uncertain whether lay health workers or teachers reduce **post-traumatic stress disorder symptoms among children**. There were too few studies to draw any conclusions about the cost-effectiveness of using non-specialist health workers or teachers, or about their impact on people with other MNS conditions such as epilepsy, schizophrenia, and alcohol and drug abuse problems. In addition, very few studies measured unintended consequences of non-specialist health worker-led care - such effects could impact on the appropriateness and quality of care.

Quality of the evidence

Overall, non-specialist health workers and teachers have some promising benefits in improving people's outcomes for general and perinatal depression, post-traumatic stress disorder and alcohol-use disorders, and patient and carer outcomes for dementia. However, this evidence is of low or very low quality in some areas, and for some issues no evidence is available. Therefore, we cannot make conclusions about which specific interventions using non-specialist health workers to help people with MNS disorders are more effective.

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)

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Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)

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4

SUMMARY OF FINDINGS FOR THE MAIN COMPARISON *[Explanation]*

What are the effects of NSHW-led psychological interventions for treating depression in adults in low- and middle-income countries?

Patient or population: Adults with depression
Settings: Low- and middle-income countries (Taiwan, Pakistan, Uganda)
Intervention: NSHWs conducting psychological interventions
Comparison: Usual care

Outcomes	Illustrative comparative risks* (95% CI)		Effect estimate (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Usual care	NSHWs				
Prevalence of depression (adults), short term (0-8 weeks) measured using various depression rating scales[1]	300 per 1000	91 per 1000	**RR 0.30** (0.14 to 0.64)	1082 (3 studies)	⊕⊕◯◯ **low**[2,3]	-

*The basis for the **assumed risk** is the mean control group risk across studies for pooled results and the control group risk for single studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **DSM:** Diagnostic and Statistical Manual of Mental Disorders; **NSHW:** non-specialist health worker; **RCT:** randomised controlled trial; **RR:** risk ratio.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Bolton 2003 C-RCT Uganda: DSM-IV criteria A, C and E; Rahman 2008 CRCT Pakistan: Hamilton Depression Rating scale; Chen 2000 RCT Taiwan: Taiwanese Beck Depression Inventory.
[2] Serious study limitations: Two of the three studies were at risk of bias. Bolton 2003 C-RCT Uganda was judged unclear for allocation concealment, and quasi-randomisation of individuals within clusters (though randomisation was in clusters) could have introduced bias; Chen 2000 RCT Taiwan was unclear for sequence generation and allocation concealment, all outcomes were self reported, there was

possible contamination and the dropout rate after randomisation was high, with no analysis of differences in dropouts versus non-dropouts. These two studies contributed 62% of the weight in the pooled analysis. Downgraded by 1.

[3]Serious inconsistency: I^2 was 81%. However, the inconsistency related to the magnitude of benefit favouring collaborative care rather than in the direction of effect. Downgraded by 1.

BACKGROUND

Description of the condition

The global burden of mental, neurological and substance-abuse (MNS) illnesses is high. The latest global burden of disease estimates have shown that mental, behavioural and neuropsychiatric disorders all feature in the top 30 causes of all years lived with disability, the highest contributors being major depression (ranked second), anxiety (ranked seventh) and substance-use disorders (ranked twelfth) (Vos 2012). The contribution of major depressive disorders to worldwide disability-adjusted life years (DALYs) has increased by 37% from 1990 to 2010 and is predicted to rise further (Murray 2012; Prince 2007). Furthermore, self inflicted injuries and alcohol-related disorders are likely to increase in the ranking of disease burden due to the decline in communicable diseases and because of a predicted increase in war and violence. The disease burden due to Alzheimer's disease is also increasing, linked to the demographic transition towards an ageing population (Vos 2012).

These illnesses also come with substantial economic costs. One recent report on the global economic burden of non-communicable diseases (NCDs) suggests that by the early 2030s, mental health conditions alone will account for the loss of an additional USD16.1 trillion with dramatic impact on productivity and quality of life (Bloom 2011). Data remain poor on the macro-economic costs for low- and middle-income country (LMIC) settings (Hu 2006). However, the economic and social costs for individuals and families are substantial. High direct costs are incurred in countries where health spending is met largely through private, as opposed to public, spending and where health insurance and employer-met health payments are insubstantial (Patel 2007a). High indirect costs are also incurred due to informal care-giving and lost work opportunities, as well as due to untreated disorders and their associated disability (Chisholm 2000a; WHO 2003a).

The gap between those who could benefit from MNS health interventions and those who receive such care is very large (WHO 2008; WHO 2010); in LMICs up to 90% of people needing care do not receive it (Demyttenaere 2004; Saxena 2007). This is despite the existence of a range of cost-effective interventions in mental health care (Patel 2007b; WHO 2010). Major barriers to closing the treatment gap are the huge scarcity of skilled human resources, large inequities and inefficiencies in resource distribution and utilisation, and the significant stigma associated with psychiatric illness (Saxena 2007). Some papers have advocated for scaling up evidence-based services and for the task-shifting of mental health interventions to non-specialists as key strategies for closing the treatment gap (Jacob 2007; Lancet 2007; Patel 2007b; Prince 2007; Saraceno 2007; Saxena 2007).

Description of the intervention

Non-specialist health workers (NSHWs) are first-level providers who have received general rather than specialist mental health training. Cadres included are professionals (doctors, nurses and other general paraprofessionals) and non-professionals (such as lay providers). NSHWs do not include, for example, psychiatrists, neurologists, psychologists, psychiatric nurses or mental health social workers. Other professionals with health roles (OPHRs), such as teachers and community-level workers, are a further human resource used in delivering mental health care and are also included in this review. These OHPRs have an important role, particularly in the promotion of mental health and the detection of mental disorders (Patel 2007b; Patel 2008b; WHO 2003b).

NSHWs and OPHRs have been used in various services, including those delivered by governmental, private and non-governmental organisations (NGOs) in clinics, half-way homes and communities. They have been involved in a variety of activities and roles, including detecting, diagnosing, treating and preventing common and severe mental disorders, epilepsy and mental retardation. Their roles differ according to their level of training. For example, lay health workers (LHW) have been involved in supporting carers, befriending, ensuring adherence and in detection of mental health problems (Chatterjee 2003; Dias 2008 RCT India; Rahman 2008 CRCT Pakistan). Nurses, social workers and lay workers may also take on follow-up or educational/promotional roles (Araya 2003 RCT Chile; Chatterjee 2003; Patel 2008b). In addition, doctors with general mental health training have been involved in the identification, diagnosis, treatment and referral of complex cases (Murthy 1987; Patel 2008b; Saxena 2007).

How the intervention might work

In many LMICs, training and retaining sufficient numbers of specialists is not feasible in the near future. It is, therefore, important in these settings to consider options for expanding access to mental health services. The use of NSHWs, who are far more numerous and affordable than specialists, is one such option that is of high relevance to LMICs.

Training these NSHWs to deliver MNS interventions may be a way of expanding provision of mental health services as well as making these services more accessible to communities. It has been suggested that interventions that rely on NSHWs could deliver general health and mental health interventions that are at least as effective and acceptable as those delivered by specialist health workers (Chatterjee 2003; Lewin 2008; McKenzie 2004; Thornicroft 2004; WHO 2001; Wiley-Exley 2007). In addition, NSHW interventions often have lower up-front costs compared with reliance on professional specialist health workers. However, it is possible that these savings may be cancelled out by higher downstream resource use (Chisholm 2000a), and this review will, therefore, include data on the costs and cost-effectiveness of NSHW

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interventions.

The review is limited to LMICs where the need for NSHWs is greater than in high-income settings. The prevalence of psychiatrists and psychiatric nurses is much lower in LMICs (the median number of psychiatrists is 172 times lower in low-income countries (LICs) than high-income countries (HICs) (Kakuma 2011; Mental Health Atlas 2011)) and the organisation and resourcing of mental health services is poorer. These differences in the organisation of mental health services between LMICs and HICs, with poorer countries having little or no mental health service structures in primary care or the community, means that the problem of providing mental health care is different in such settings. NSHWs may need to work with little or no support from specialist mental health services and fewer options for referral. Consequently, NSHWs interventions might be expected to function differently in many LMICs compared with HICs.

Why it is important to do this review

The continuing shortage of specialist human resources for health in LMICs has made the need to involve non-specialists in MNS healthcare provision more urgent. Reliable evidence is needed on the effectiveness of NSHWs and OPHRs in scaling up mental health interventions, including for the detection, treatment and rehabilitation of MNS disorders. This systematic review will provide the evidence needed to inform policy development for the sustainable scaling up of mental health services in LMICs (Cohen 2003; Murthy 2008).

The intention of this review is to examine which non-specialised cadres of healthcare providers can effectively deliver different aspects of treatment interventions.

O B J E C T I V E S

To assess the effectiveness of the delivery of mental, neurological and substance abuse (MNS) interventions by non-specialist health workers (NSHWs) and other professionals with health roles (OPHRs) in LMICs. This includes the effects on patient and health delivery outcomes of NSHWs and OPHRs:

- delivering acute MNS interventions;

- delivering long-term follow-up and rehabilitation for people with MNS disorders;

- detecting MNS disorders.

For each of these areas, we have also examined the impacts of delivery by NSHWs and OPHRs on the resource use and costs associated with MNS healthcare provision in LMICs.

M E T H O D S

Criteria for considering studies for this review

Types of studies

We included randomised controlled trials (RCT), non-randomised controlled trials (NRCT), controlled before-and-after (CBA) studies and interrupted time series (ITS) studies. We only included CBAs with at least two control sites and two intervention sites. We included controlled and non-controlled ITS that had at least three time points before the intervention and three time points after the intervention (as per the Cochrane Effective Practice and Organisation of Care (EPOC) review group criteria) (Ballini 2010). We only included studies conducted in LMICs, as defined by the World Bank.

We also included economic studies conducted as part of included effectiveness studies. We considered full economic evaluations (cost-effectiveness analyses, cost-utility analyses or cost-benefit analyses), cost analyses or comparative resource utilisation studies. We extracted and reported only cost and resource usage outcomes from these studies.

Types of participants

We included children (aged below 18 years) or adults with any MNS seeking first-level care/primary care or who were detected in the community in LMICs. Additionally we included carers of people with MNS disorders (i.e. any relative or friend of any age who defined themselves as a key supporter to a person with an MNS disorder) as some interventions may be directed at the carers rather than at patients themselves - for example interventions to alleviate carer burden.

(See Table 1 for further definitions of participants, 'LMIC' and 'primary care'.)

Types of interventions

Clinical (medical and psychological) and service interventions delivered in primary care or the community by NSHWs or OPHRs, and intended to improve MNS disorders were included (see Table 1 for definitions of OPHR and NSHW and types of interventions). We did not include social interventions (such as income generation or general social support) if the trial did not also include a specific MNS intervention.

We included interventions delivered for any MNS disorder. Acute interventions delivered by NSHWs/OPHRs could include various forms of psychotherapy or pharmacological treatment. Long-term interventions delivered by NSHWs/OPHRs could include roles in follow-up or rehabilitation of people with chronic severe mental

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disorders, and roles in detecting and dealing with relapse/recurrence, compliance issues, side effects of treatment or psychosocial problems.

We considered the following comparisons:

- provision of MNS care by NSHWs/OPHRs with some MNS care training compared with usual/no care;
- provision of MNS care by NSHWs/OPHRs trained and supervised in MNS care (i.e. the highest level of training for NSHWs) compared with mental health specialists in primary care and the community;
- provision of MNS care by NSHWs/OPHRs with some MNS care training compared with non-trained NSHWs/OPHRs.

We included studies where a specialist teaches NSHW/OPHRs about psychiatric illness and its management. The only interventions of this type that we excluded were those where there were no patient outcomes (i.e. where they only assessed knowledge or attitude changes, such as pre-post training interventions).

We included studies that considered the effect of detection, screening or case-finding of MNS disorders by NSHWs or OPHRs on subsequent patient and health provider outcomes, compared with NSHWs/OPHRs not actively detecting cases, or where specialists did the detection.

The identification methods used by NSHWs could include 'naturalistic' detection (i.e. detection in the course of a routine clinical consultation), or detection using a validated screening/detection tool (e.g. in the context of a trial). We did not examine diagnostic accuracy between these NSHWs and specialists, as this was likely to be confounded by the screening/detection tools used. Therefore, it would be difficult to differentiate between the effect of the screening tool and the skills of the health worker (specialist or non-specialist).

Types of outcome measures

We organised these outcomes into categories drawing on the Cochrane Consumers and Communication Review Group's outcome taxonomy (La Trobe 2008), and consultation with co-reviewers and service users from the Movement for Global Mental Health discussion board. Where studies reported more than one measure for each relevant outcome, we abstracted the primary or main measure (as defined by the study authors). We separately documented the other measures used, as necessary.

We grouped outcomes into two sets of time points:

- up to six months post intervention (to detect illness recovery/symptom reduction);
- six to 12 months post intervention (which indicates medium- to long-term avoidance of recurrence and chronicity).

For depression and other common mental disorders, we did not group results up to three months post intervention. This time point would normally elicit whether the length of a depressive episode would be shortened compared with spontaneous recovery

(which occurs for 50% of people with depression at three months after treatment initiation and for 65% of people with depression at six months) (Spijker 2002). However, most of these studies had very variable lengths of interventions (zero to 18 months) and it was difficult to ascertain how long the depression had been present when treatment started (we could assume that people who have not recovered naturally within three months seek help). Pooled results up to three months post intervention would, therefore, not reflect whether the intervention shortened recovery from depression to less than or equal to a spontaneous recovery.

Primary outcomes

1. Improvement of symptoms (e.g. level of anxiety, depression, psychosis).
2. Psychosocial functioning and impairment (e.g. levels of self esteem, perception of coping, level of dependency, self care ability).
3. Quality of life outcomes (including disability).

We changed the definitions of outcomes 2 and 3 during our analysis from those stated in the protocol, as many scales measured both impairment and functioning and were considered part of the same spectrum. Quality of life outcomes were deemed different from outcomes related to psychosocial functioning as the former encompass a summary of many other aspects of life in addition to psychosocial functioning.

For the detection component of the review, we aimed to consider the outcomes for the patient, the carer, the health provider, or a combination of these people, not the accuracy of diagnosis among NSHWs, compared with specialists, as this is likely to be confounded by the screening/detection tools used. Therefore, it would be difficult to differentiate between the effect of the screening tool and the skills of the health worker (specialist or non-specialist). We did not base inclusion decisions on whether a reference or validated standard measure (either a screening instrument or psychiatric assessment) had been used in studies to differentiate between those correctly and incorrectly diagnosed by NSHWs, but this featured as part of the assessment of the quality of evidence (within study limitations).

Secondary outcomes

1. For studies evaluating the detection of mental disorders and the delivery of acute and chronic mental health interventions

Patient/carer-oriented outcomes and societal outcomes

- Patient or carer satisfaction and involvement in decision-making processes.

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- Patient health behaviour outcomes: such as rates of patient adherence or treatment/follow-up compliance, utilisation of primary level services.
- Adverse clinical outcomes: such as adverse effects rates, suicide/deliberate self harm rates, relapse or recurrence, hospital admission/readmission rates.
- Patient social outcomes: return to work, offending rates, perception of social inclusion.
- Carer outcomes: such as mental health outcomes, quality of life and functioning.

Health provider and service delivery related outcomes

- Measures of changes in management (such as referral rates, prescribing patterns and appropriateness).
- Measures of health worker behaviour (such as improvement in knowledge/skills, attitude/acceptability, retention rates, absenteeism).
- Measures of service delivery change (such as number of supervision sessions, effect on other health services provided).

2. For studies of costs and resource use

We considered:
- direct and indirect costs to the patient and health services (including opportunity costs);
- resource use (such as the patient's lost productivity, and health service personnel's time allocated/number of consultations).

The economic outcome measures considered were informed by the training material of, and discussion with, the Campbell & Cochrane Economics Methods Group (CCEMG 2010). We included only measures related to resource use and costs in this review. We recognise that costs and resource use are intertwined but divided the outcomes in this way to make it clear which outcomes we intended to assess.

Search methods for identification of studies

Electronic searches

We searched the following electronic databases for primary studies:
- the Cochrane Central Register of Controlled Trials (CENTRAL) 2012, Issue 6 (including the Cochrane EPOC Group Specialised Register (searched 21 June 2012);
- MEDLINE, 1946 to June week 1 2012, OvidSP (searched 15 June 2012);
- MEDLINE In-Process & Other Non-Indexed Citations 14 June 2012, OvidSP (searched 15 June 2012);
- EMBASE, 1980 to 2012 week 23, OvidSP (searched 15 June 2012);

- CINAHL (Cumulative Index to Nursing and Allied Health Literature), 1980 to 19 June 2012, EBSCOhost (searched 19 June 12);
- PsycINFO, 1806 to June week 2 2012, OvidSP (searched 18 June 2012);
- Latin American and Caribbean Health Sciences database (LILACS), Virtual Health Library (VHL) (searched 9 August 2012);
- WHO Global Health Library (World Health Organization Library Information System (WHOLIS, AIM (AFRRO), IMEMR (EMRO), IMSEAR (SEARO, WPRIM, WPRO) (searched 29 June 2012);
- Science Citation Index and Social Sciences Citation Index, ISI Web of Knowledge (searched 2 October 2012).

The EPOC Trials Search Co-ordinator (TSC) (Marit Johansen), in consultation with the authors, developed the search strategies. Search strategies were comprised of keywords and controlled vocabulary terms (selected index terms and free-text terms relating to NSHWs and mental health).

We applied no language limits. We searched all databases from database start date to date of search.

We used a combination of two methodology search filters to limit retrieval to appropriate study designs: a modified version of the Cochrane Highly Sensitive Search Strategy (sensitivity- and precision-maximising version - 2008 revision) to identify RCTs (cf. *Cochrane Handbook for Systematic Reviews of Interventions* Section 6.4d); and an EPOC methodology filter to identify NRCT designs.

Searching other resources

Grey Literature

- OpenGrey www.opengrey.eu/ (searched 9 August 2012).

Trial Registries

- *meta*Register of Controlled Trials (*m*RCT) (www.controlled-trials.com/mrct/) (searched 8 August 2012).
- International Clinical Trials Registry Platform (ICTRP), WHO (apps.who.int/trialsearch/) (searched 9 August 2012).

We also searched:
- the reference lists of existing reviews (De Vet 2008);
- other grey literature (unpublished material), through contacting experts;
- conducted cited reference searches for all included studies in ISI Web of Knowledge.

We did not search for economic analyses. We retrieved potentially eligible economic analyses when screening records generated from

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the various searches reported above, but only selected those performed alongside identified effects studies. We contacted the authors of all included effects studies for information on any published or unpublished economic studies related to their trials. We also scanned the reference lists of eligible trials and economic analyses (where these were reported separately to the eligible trials), and other related reviews and papers, for further eligible studies. See Appendix 1 for all search strategies used.

Data collection and analysis

Selection of studies

Four review authors (NvG, GR, MSM, JP) and a Chinese researcher for the Chinese included study double-screened all records obtained from the searches. We retrieved full-text copies of all articles identified as potentially relevant by at least one review author. Two review authors checked each full paper for inclusion criteria. We resolved disagreements on inclusion by discussion. If no agreement was reached, we asked a third review author to make an independent assessment (SL). Where appropriate, we contacted the study authors for further information.

Data extraction and management

Five review authors (NvG, GR, MSM, JP, PT) and the Chinese and Spanish researchers independently extracted descriptive and outcome data for each paper using an adapted version of the EPOC data collection checklist. Two review authors together or by one and cross-checked by another (except the Chinese paper, which relied on one researcher's data extraction only) extracted data. Review authors obtained any missing data by contacting trial authors. Review authors entered the final agreed descriptive extracted data into the relevant tables of characteristics in Review Manager 5 (RevMan 2012). One review author (NvG) entered the checked outcome data into Review Manager 5 for meta-analysis and this was checked by PT (RevMan 2012).

We extracted the following information for all included studies, in the form that this was reported in the original text:
- details of the intervention: the type and length of each of the clinical, psychosocial and service interventions; a full description of cadre(s) of NSHW/OPHRs consulting with the patient, including details of their training and supervision/support; and the length, frequency and type of intervention delivered by each NSHW/OPHR; description of the specialist providing care (type, experience, training in using reference standard);
- participants: a full description of the participants (sex, age, socioeconomic status, ethnicity), including details of the MNS condition being treated;
- setting: country; type of health service (e.g. government funded, NGO, etc.), organisation of the primary care and specialist services; specialist outreach or generalist;

- results: organised into patient, provider and process outcomes (see above).

Assessment of risk of bias in included studies

Five review authors (NvG, GR, MSM, JP, PT) and the Chinese researcher working in pairs independently assessed each study for risk of bias. NvG and PT independently checked assessments for all studies. We followed the Cochrane EPOC group format (Ballini 2010) (which follows the Cochrane Collaboration approach (Higgins 2009)) to assess risk of bias for each of the study designs (RCT, CBA, NRCT, ITS). For two of the EPOC risk of bias criteria, we did the following:
- divided detection bias into two categories, assessing whether subjective (requiring a judgement, such as clinical improvement) and objective outcomes (such as number of hospitalised days, etc.) were assessed blindly;
- assessed attrition bias for two types of outcome: efficacy outcomes and safety outcomes (e.g. adverse events and unintended consequences).

For economic studies, we adapted the Consensus on Health Economic Criteria (CHEC) criteria list (see Appendix 2) to include an extra question on the sources of data used, and we excluded some questions that were already covered as part of the main risk of bias assessment described above.

We incorporated risk of bias assessments by generating 'Risk of bias' summary graphs and figures using Review Manager 5 (RevMan 2012).

Measures of treatment effect

Measures of intervention effect regarding clinical (medical and psychological) and service interventions

For dichotomous outcomes, we used risk ratios (RR). For continuous outcomes, we used the mean difference (MD), standardised mean difference (SMD) or mean change difference (MCD). We expressed all effect estimates with their 95% confidence intervals (CI). For SMDs, we used the *Cochrane Handbook for Systematic Reviews of Interventions* to interpret their clinical relevance: 0.2 represented a small effect, 0.5 a moderate effect, and 0.8 a large effect (Cohen 1988). We attempted to establish minimally important differences per outcome (as suggested in Guyatt 2013) but this was not possible due to the wide variety of instruments used.

Measures of effect of detection of MNS disorders interventions

We aimed to report the effects of detection of MNS disorders by NSHWs or OPHRs by assessing patient outcomes, looking at the proportion of patients who recovered or improved over a specific length of time as described in the included studies. We

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aimed to measure health worker outcomes by examining changes in prescribing rates, referral rates and treatment initiation rates.

Unit of analysis issues

Where possible, we re-analysed studies that randomised or allocated clusters (patients, health professionals, healthcare settings or geographical areas) but did not account for clustering in their analysis (Ukoumunne 1999). We adjusted the results for clustering by multiplying the standard errors of the estimates by the square root of the design effect where the design effect is calculated as DEff = 1 + (M - 1) ICC, where M is the mean cluster size and ICC is the intracluster correlation coefficient. All of the included studies reported the ICCs that we needed.

We combined the adjusted measures of effects of cluster-randomised trials with the results of non-cluster trials, if it was possible to adjust adequately the results of the cluster trials. There were too few studies per meta-analysis to perform sensitivity analyses comparing the effects estimates with and without the inclusion of the cluster trials.

We contacted authors when we needed additional information for the analysis.

Dealing with missing data

For missing or unclear information, we contacted the study investigators for clarification or additional information. We were able to access all required authors for the purpose of statistical information. Some remaining missing information on the qualitative description of the interventions that we did not get despite several attempts at following up with study authors, is highlighted in the Characteristics of included studies tables. To reduce the risk of overly positive answers, we use open-ended questions (as recommended in the *Cochrane Handbook for Systematic Reviews of Interventions*, Higgins 2009).

Where possible, we extracted data to allow an intention-to-treat (ITT) analysis in which all randomised participants were analysed in the groups to which they were originally assigned. If ITT data were not present, where possible, we did a full ITT analysis where we considered four scenarios in which the people reassigned to the control and intervention groups either had the condition or not. For studies that reported continuous data but did not report standard deviations, we either calculated these from other available data such as standard errors, or imputed these using the methods suggested in Higgins 2009. We did not make any assumptions about loss to follow-up for continuous data and we analysed results for those who completed the trial.

Assessment of heterogeneity

We first made a qualitative assessment of the extent to which the studies assessing a particular comparison where similar to one another. This included an assessment of the settings, the interventions, the participants and outcomes to determine whether meta-analysis was appropriate. We obtained an initial visual overview of statistical heterogeneity through scrutinising the forest plots, looking at the overlap between CIs around the estimate for each included study. To quantify the inconsistency across studies, and thus the impact of heterogeneity on the meta-analysis, we used the I^2 statistic, and defined an I^2 greater than 50% as indicative of substantial heterogeneity. We then considered these assessments when interpreting the results of a pooled analysis: the importance of an observed I^2 was interpreted in light of 1. the magnitude and direction of effects and, 2. the strength of evidence for heterogeneity (e.g. a CI for the I^2, or the P value from the Chi^2 test).

Assessment of reporting biases

To reduce possible publication bias, we employed strategies to search for and include relevant unpublished studies. These strategies included searching the grey literature and prospective trial registration databases to overcome time-lag bias.

We used funnel plots for the outcomes with more than four studies to visualise whether there was asymmetry. None of them showed asymmetry. We performed no statistical testing for funnel plot asymmetry as none of the pooled outcomes included more than 10 studies.

Data synthesis

We grouped the studies for comparison by type of disorders (common mental disorders, severe mental disorders, neurological and substance-abuse disorders); by mix of healthcare providers (NSHW-led, collaborative, NSHWs and OPHRs); and by types of community intervention (pharmacological, non-pharmacological and mixed approach). We did this as these categories fit with current models of service delivery in LMICs.

The number of comparisons was larger than anticipated at the protocol stage and we have outlined each comparison in the results section below. For each comparison (groups of disorders), we created tables of summary statistics according to study designs (RCTs, NRCTs and CBAs). These tables included study design, baseline and follow-up summary statistics, effect estimates and their statistical significance. We used forest plots to display the data graphically.

Where the outcomes assessed and the settings and interventions were very diverse (as agreed by at least two review authors), we did not consider it appropriate to combine the results quantitatively. For these results, we have presented a descriptive summary of data. For all data syntheses, we used the generic inverse-variance model of analysis as this allows the analysis of continuous and dichotomous data and allows clustered and non-clustered data to be combined. We based the choice of whether to use a fixed-effect or random-effects model on the extent to which studies were similar, or homogeneous, based on their PICOS characteristics (population, intervention, comparators, outcomes and settings). No studies were homogeneous enough to apply the fixed-effect model.

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We reported the results separately for RCTs and for NRCTs. No ITS studies were included in the review. We used effect estimates adjusted for confounding (baseline differences in control and intervention groups) where possible, and used the methods described in Reeves 2009 to guide data synthesis.

Economic data

We conducted all the elements of the economics component of this review according to current guidance on the use of economics methods in the preparation and maintenance of Cochrane reviews (Shemilt 2009). We classified the included economic evaluations based on an established system (Drummond 2005). We summarised the characteristics and results of included economic evaluations using additional tables, supplemented by a narrative summary that compared and evaluated methods used and principal results between studies.

We displayed resource use and cost data in a table, along with unit cost data (where available). A unit cost was defined as the cost of each specific resource input calculated by multiplying the measured number of units (quantities) of an item of resource use (e.g. the number of hours of time provided by a senior teacher) by an applicable unit cost (e.g. the salary cost of one hour of senior teacher time). We reported the currency and price year applicable to measures of costs and unit costs in each original study. Measures of costs are highly likely to vary across and within study settings, and over time. This is the product of variations in the underlying quantities of resource use and variations in the underlying unit costs.

Because the data on resource use and costs were very heterogeneous, meta-analysis was not appropriate and we presented the findings narratively. We discussed the limitations of this approach below.

Subgroup analysis and investigation of heterogeneity

Within each comparison, the following subgroups were considered: by category of health worker (professionals: e.g. doctors, nurses), OPHRs and non-professionals (LHWs); by types of community intervention (e.g. collaborative versus psychological interventions in comparison 3); and by setting (government versus non-government). We were not able to perform subgroup analyses to check if the intervention effect varied with different population characteristics as the number of included studies for each comparison was not sufficient. Where applicable, we have described subgroup differences narratively under Main results.

For random-effects meta-analyses, we used the formal Chi^2 test and I^2 statistic for subgroup differences in RevMan 2012 to detect statistically significant subgroup differences.

Sensitivity analysis

It was not possible to compare intervention effects according to risk of bias using meta-regression due to insufficient data. We conducted sensitivity analyses based on attempting to reduce clinical heterogeneity.

Summarising and interpreting results

We used the GRADE approach to assess the quality of evidence related to each of the key outcomes (Schünemann 2009). We used the GRADE profiler (GRADE 2007), to import data from Review Manager 5 (RevMan 2012) and create 'Summary of findings' tables.

For assessments of the overall quality of evidence for each outcome that included pooled data from RCTs only, we downgraded the evidence from 'high quality' by one level for serious (or by two for very serious) study limitations (risk of bias), indirectness of evidence, serious inconsistency, imprecision of effect estimates or potential publication bias. Data from observational studies started at low quality. None were upgraded to moderate or high quality as no pooled estimates revealed a large magnitude of effect, negligible concerns about confounders or a strong dose-response gradient.

We used these assessments, along with the evidence for absolute benefit or harm of the interventions and the sum of available data on all critical and important outcomes from each study included for each comparison, to draw conclusions about the effectiveness of NSHWs in mental healthcare provision in LMICs. 'Summary of findings' tables consisted of critically important clinical and functional outcomes identified in the selected trials.

When judging the importance of SMDs, we acknowledged that 0.2 represents a slight effect, 0.5 a moderate effect, and 0.8 a significant effect; and chose a threshold of 0.5 to indicate a minimum clinically important difference (Guyatt 2008; Higgins 2011).

R E S U L T S

Description of studies

Results of the search

We included 38 studies in this review. Including the four consecutive searches performed in January 2011, May 2011, June 2012 and August 2012, we screened 11,825 titles and abstracts (excluding duplicates), of which we sourced 739 full texts to check inclusion criteria and we sourced 90 relevant references to screen their bibliographies (Figure 1).

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Figure 1. Study flow diagram.

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┌─────────────────────────────────────┐    ┌─────────────────────────────────────┐
│ 12,545 records identified through    │    │ 16 additional records identified      │
│ database searching                   │    │ through other sources                 │
└─────────────────────────────────────┘    └─────────────────────────────────────┘
                    │                                        │
                    └──────────────────┬─────────────────────┘
                                       │
                    ┌──────────────────────────────────────┐
                    │ 11,825 records after duplicates removed │
                    └──────────────────────────────────────┘
                                       │
                    ┌──────────────────┐      ┌──────────────────────┐
                    │ 11,825 records   │─────▶│ 11,086 records        │
                    │ screened         │      │ excluded based on     │
                    │                  │      │ abstracts             │
                    └──────────────────┘      └──────────────────────┘
                                       │
                                       │      ┌───────────────────────────┐
                                       │      │ 701 full-text articles     │
                                       │      │ excluded:                  │
                                       │      │                            │
                                       │      │ - 11 ongoing studies       │
                                       │      │                            │
                                       │      │ - 17 awaiting classification│
                                       │      │                            │
                                       │      │ - 289 excluded with        │
                                       │      │ relevance to this review   │
                                       │      │ (reasons listed in         │
                                       │      │ Characteristics of         │
                                       │      │ Excluded Studies)          │
                                       │      │                            │
                                       │      │ - 384 excluded (several    │
                                       │      │ inclusion criteria not met │
                    ┌──────────────────────────────┐ │ or not relevant)     │
                    │ 739 full-text articles         │─▶│                      │
                    │ assessed for eligiblity        │ └───────────────────────────┘
                    └──────────────────────────────┘
                                       │
                    ┌──────────────────────────────────────┐
                    │ 38 studies included in qualitative     │
                    │ synthesis (total of 55 with supporting │
                    │ references)                            │
                    │                                        │
                    │ 3 of these 38 contain economic data    │
                    └──────────────────────────────────────┘
                                       │
                    ┌──────────────────────────────────────┐
                    │ 31 studies included in quantitative    │
                    │ synthesis (meta-analysis)              │
                    └──────────────────────────────────────┘
```

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Included studies

Study design

Of the 38 included studies, 17 were RCTs, 10 were cluster RCTs, nine were CBA studies and two were NRCTs. Analysis was by ITT in eight studies (Bolton 2007 RCT Uganda; Ertl 2011 RCT Uganda; Hirani 2010 CRCT Pakistan; Jenkins 2012 C-RCT Kenya; Jordans 2010 C-RCT Nepal; Tiwari 2010 RCT China; Tol 2008 C-RCT Indonesia; Tol 2012 C-RCT SriLanka), and was unclear in one (Neuner 2008 NRCT Uganda). It was not possible to do an ITT for the remaining studies (see Dealing with missing data).

Setting

Fifteen included studies were conducted in seven LICs: Burundi (one study), Kenya (two studies), Nepal (one study), Pakistan (three studies), Rwanda (two studies), Sri Lanka (two studies) and Uganda (four studies). Twenty-three studies were from 15 middle-income countries: Argentina (one study), Bosnia (one study), Chile (three studies), China (three studies), Hungary (one study), India (two studies), Indonesia (two studies), Jamaica (one study), Kosovo (one study), Malaysia (one study), Palestinian Territories (two studies), Russia (one study), Thailand (two studies), Turkey (one study) and Vietnam (one study). These LIC and middle-income country assignments are based on the World Bank's classification of countries by gross national income per capita in 2010. In this section, as well as following sections (participants, interventions, etc.), the numbers when added up may exceed 38 due to double counting. There were 16 studies from rural, 23 from urban and five from refugee camp settings. Most interventions were delivered in community groups/centres (11 studies). Others were delivered at home (nine studies), in primary healthcare (PHC) centres (eight studies), in schools (seven studies) and in other health clinics (three centres).

Participants

Twenty-seven studies included adults. Of the studies including children, 10 included children up to the age of 12 years, and eight focused on adolescents (aged 12 to 17 years). Most studies covered common mental disorders (18 included depression, anxiety, maternal depression) and PTSD (12 studies). See 'Effects of interventions' for details of these by analysis groups.

Interventions

NSHWs and OPHRs: various cadres were used: LHWs (22 studies), doctors (nine studies), nurses (six studies), teachers (six studies) and social workers (three studies). The educational level of the LHWs was poorly documented, but of the 15 studies that did specify this, eight selected LHWs with a minimum of secondary school education, three used illiterate LHWs and three included LHWs who had primary school education and who were or were not literate. Remuneration was generally poorly described. The training and supervision of these providers are described in detail under 'Effects of interventions'.

Interventions: many studies combined different types of interventions. The eight interventions providing pharmacotherapy also provided follow-up to check adherence, the effect of medication and side effects (provided by a LHW (four studies), a nurse/clinical officer (one study), a social worker (one study) or a doctor (two studies). Twenty-five studies had some form of psychosocial intervention (which included psycho-education, various support and general counselling/coping skills interventions and stimulation programmes for children). Sixteen studies used specific psychological interventions on their own or as part of a collaborative care model (e.g. cognitive behavioural therapy (CBT), interpersonal therapy (IPT), motivational interviewing). One study evaluated economic skills building as a second arm to the trial, which were expected to have an effect on mental health outcomes. No studies examined detection by NSHWs or OPHRs and none reported health worker outcomes. More details on these are provided under 'Effects of interventions'.

Economic studies

Three economic studies were conducted alongside included RCTs (Araya 2003 RCT Chile; Jordans 2011 (which is linked to Tol 2008 C-RCT Indonesia; Tol 2012 C-RCT SriLanka) and Zambori 2002 CBA Hungary). One further study noted that the financial burden and severity of schizophrenia decreased marginally for both intervention and control groups, but did not reach statistical significance; however, it did not measure costs (Paranthaman2010CBAMalaysi). In addition, one study mentioned they had collected cost data but results were not yet available before the end of the search period (Patel 2010 C-RCT India). This was subsequently published (Buttorff 2012). We aim to include these data in a future update.

Excluded studies

We excluded 701 studies, of which 289 were of interest to this area of study but did not fulfill all inclusion criteria. These 289

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studies, together with their reasons for exclusion, are documented in Characteristics of excluded studies.

Thirteen studies that included economic data on MNS conditions, but were not linked to studies included in this review, are reviewed in Appendix 3.

Risk of bias in included studies

The most often identified biases across studies were allocation concealment, random sequence generation, reliability of primary outcomes and blinding of outcome assessment (Figure 2; Figure 3).

Figure 2.   Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.

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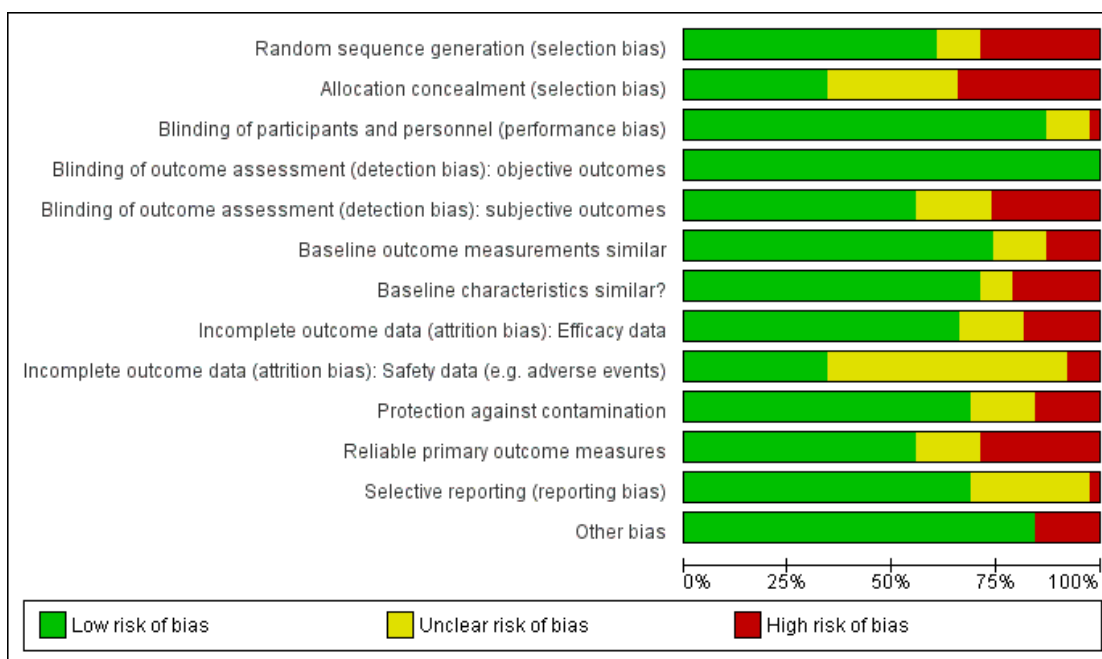
Figure 3. **Risk of bias summary: review authors' judgements about each risk of bias item for each included study.**

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Allocation

Only 13 of the 38 included studies met the 'low risk of bias' criteria for allocation concealment. Of the remaining studies, 13 explicitly did not conceal allocation (of which 10 were not RCTs). For 12 studies, the risk of bias was unclear due to poor reporting.

Eleven studies did not utilise randomised sequence generation. One RCT was also at high risk of bias with regard to allocation sequence generation because they had a combination of random and non-random sequence generation (Sutcliffe2009RCT Thailand). Several studies did not have similar subjective or objective outcome measurements (such as numbers of days in hospital) at baseline between the two arms (subjective outcomes: seven unclear and 10 not similar; objective outcomes: five unclear and five not similar) or did not have similar baseline characteristics (seven not similar and three unclear). The studies in which two or three of the baseline characteristics were not similar included the following CBA studies (Loughry 2006 CBA Palestin; Lyketsos1999CBA Argentina; Paranthaman2010CBAMalaysi; Thabet 2005 CBA Palestine; Zambori 2002 CBA Hungary), and RCTs (Li 1989 RCT China; Sutcliffe2009RCT Thailand).

Blinding

We divided the blinding domain into blinding of participants and personnel, and blinding of outcome assessment. All studies reported blinding of outcome assessment, one study did not blind participants/personnel (Neuner 2008 NRCT Uganda), and for four studies it was unclear if participants/personnel were blinded (Dybdahl 2001 RCT Bosnia; Ertl 2011 RCT Uganda; Loughry 2006 CBA Palestin; Lyketsos1999CBA Argentina).

Incomplete outcome data

We considered incomplete outcome data separately for efficacy and for adverse outcomes. For most studies, outcome data were complete. However, for six studies, this was unclear and seven had incomplete outcome data. Twenty-two studies did not clearly report whether they had data on adverse outcomes, and an additional four studies stated explicitly that they had not collected adverse outcome data (or we obtained this information from the authors). This made analysis of adverse outcomes difficult for most comparisons.

Selective reporting

For 26 of the 38 studies, there appeared to be no selective reporting, based on the outcomes listed in the methods section of these papers, and from contacting authors where there was doubt. In only one study was it clear that there had been selective reporting (Dias 2008 RCT India). In 11 studies, this was not clear (see Characteristics of included studies tables).

Other potential sources of bias

Risk of contamination was quite common among both RCTs and CBA studies. We assessed six studies as unclear because insufficient information was available regarding whether contamination across groups was likely and conclusive information on this from the authors could not be obtained (Chen 2000 RCT Taiwan; Dias 2008 RCT India; Dybdahl 2001 RCT Bosnia; Gavrilova 2009 RCT Russia; Hirani 2010 CRCT Pakistan; Li 1989 RCT China). We assessed an additional six studies as being at high risk of contamination (Araya 2003 RCT Chile; Berger2009 CRCT SriLanka; Bolton 2007 RCT Uganda; Loughry 2006 CBA Palestin; Neuner 2008 NRCT Uganda; Sutcliffe2009RCT Thailand).

For a number of studies, it was not clear whether the primary outcome measures were reliable: in 11 studies, these measures were not validated in the study context; and we assessed an additional six studies as 'unclear' because insufficient information was available on the validity of the measures.

Other sources of bias that were detected included:

- the control and intervention arms potentially delivering interventions that were too similar, as mentioned by the authors (Sutcliffe2009RCT Thailand);
- high likelihood of confounding: for example, due to incentives being provided to patients (Brown 2009 CBA Rwanda), or a teetotal religious festival occurring between baseline and follow-up that may have had a greater impact on alcohol consumption than the motivational interviewing intervention in Noknoy 2010 RCT Thailand.

Economic studies - risk of bias assessment with the adapted CHEC list criteria

All studies had significant risks of bias (Table 2), although we considered no study at high risk of bias on more than seven of the 23 adapted CHEC list criteria. The risk of biases identified were potentially important for the interpretation of costing, such as not discounting costs (Araya 2003 RCT Chile; Jordans 2011), not including the appropriate costs or outcomes and not valuing some outcomes appropriately.

Effects of interventions

See: **Summary of findings for the main comparison** NSHW-led psychological interventions compared with usual care in treating depression in adults in low- and middle-income countries (RCTs); **Summary of findings 2** Collaborative care model (NSHWs

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plus specialist) compared with usual care in treating common mental disorders in adults in low- and middle-income countries (RCTs); **Summary of findings 3** NSHWs compared with usual care for treating maternal depression (RCTs); **Summary of findings 4** NSHWs compared with specialists in treating depression in adults in low- and middle-income countries (CBAs); **Summary of findings 5** NSHW-led psychological interventions compared with usual care in treating adults with PTSD (NRCT); **Summary of findings 6** NSHWs compared with usual care in improving dementia patients' and carers' outcomes in low- and middle-income countries (RCTs); **Summary of findings 7** NSHW-led brief alcohol interventions compared with usual care for adults with alcohol-use disorders (RCTs); **Summary of findings 8** NSHWs/OPHRs compared with usual care in conducting interventions for children with post-traumatic stress disorder and depression (RCTs)

This review covered a wide range of NSHWs delivering a wide range of healthcare interventions for a variety of MNS disorders. However, no MNS detection studies were found that reported patient outcomes. We grouped studies by MNS disorders as different interventions and roles of NSHWs will in particular differ between severe and common mental disorders. These broad groups have, in turn, been subdivided into types of interventions that made clinical sense to group together (e.g. studies on depression have been divided into those involving collaborative care, where NSHWs are only one aspect of a complex intervention, and those involving psychological interventions provided by just one type of NSHW). We have further grouped studies by study design, and according to their comparator group (usual care or specialist care). We performed meta-analyses for eight groupings covering common mental disorders, PTSD, dementia and alcohol abuse. All analyses include the primary outcomes specified for this review, and some secondary outcomes. Below are the meta-analysis groupings that we have reported:

1. NSHW-led psychological interventions versus usual care in treating common mental disorders in adults (RCTs);

2. collaborative care model (NSHWs plus specialist) versus usual care in treating common mental disorders (RCTs and cluster RCTs);

3. NSHWs versus usual care in treating maternal depression (RCTs);

4. NSHWs versus specialist care in treating common mental disorders (CBA studies);

5. NSHWs versus usual care in delivering PTSD interventions to adults (RCTs);

6. NSHWs versus usual care in improving dementia patients' and carers' outcomes (RCTs);

7. NSHW-led brief alcohol interventions versus usual care in delivering interventions to adults with alcohol-use disorders (RCTs);

8. NSHWs/OPHRs versus usual care in delivering interventions for children with PTSD and depression (RCTs).

We could not pool the remaining studies, as they were individual studies of different disorders (severe mental disorders, epilepsy, drug abuse and child mental disorders other than PTSD and depression). We reported the results of these studies narratively in the text and in Table 3.

Comparison 1. Non-specialist health workers-led psychological interventions versus usual care in treating common mental disorders in adults (RCTs)

Setting: we identified seven studies from four countries: China (two studies) (Chen 2000 RCT Taiwan; Tiwari 2010 RCT China), Jamaica (one study) (Baker-H 2005 CRCT Jamaica), Pakistan (three studies) (Ali 2003 RCT Pakistan; Hirani 2010 CRCT Pakistan; Rahman 2008 CRCT Pakistan), and Uganda (one study) (Bolton 2003 C-RCT Uganda). Interventions were delivered in urban settings (Ali 2003 RCT Pakistan; Baker-H 2005 CRCT Jamaica; Chen 2000 RCT Taiwan; Hirani 2010 CRCT Pakistan), rural settings (Bolton 2003 C-RCT Uganda; Rahman 2008 CRCT Pakistan), and both (Tiwari 2010 RCT China).

Participants: participants were mostly from deprived backgrounds, though those in Ali (2003) were lower middle class and those in Chen (2000) were split equally between high-, middle- and low-income groups. Six studies included only women with depression (Ali 2003 RCT Pakistan; Hirani 2010 CRCT Pakistan; Tiwari 2010 RCT China), or perinatal depression (Baker-H 2005 CRCT Jamaica; Rahman 2008 CRCT Pakistan). Studies including women tended to exclude adult women over the age of 50 years.

Intervention: *NSHWs:* there were four LHW-led interventions (Ali 2003 RCT Pakistan; Baker-H 2005 CRCT Jamaica; Bolton 2003 C-RCT Uganda; Hirani 2010 CRCT Pakistan). The LHWs in these studies all had primary or no education, and some had high school or further education (Bolton 2003 C-RCT Uganda; Rahman 2008 CRCT Pakistan). The group also includes one nurse-led (Chen 2000 RCT Taiwan), and one social worker-led (Tiwari 2010 RCT China), intervention. Most of the NSHWs were women, though Bolton had sex-specific health workers for sex-specific groups. In two studies, the NSHWs were employed by the government (Baker-H 2005 CRCT Jamaica; Rahman 2008 CRCT Pakistan), and the others were salaried or volunteers within NGOs.

Training duration and intensity very varied from three days (Hirani 2010 CRCT Pakistan), to four weeks (Baker-H 2005 CRCT Jamaica). Though information was often incomplete, most studies that reported the content of the training had a mixture of didactic and practical training.

Supervision was highly varied in terms of organisation and intensity from ad-hoc checking (Ali 2003 RCT Pakistan; Tiwari 2010 RCT China), to structured meetings every two weeks (Baker-H 2005 CRCT Jamaica). All training and supervision was done by the principal investigators or specialists (psychiatrists and psychol-

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ogists), or both.

Description of interventions: LHWs provided psychological interventions: CBT-like problem solving (Ali 2003 RCT Pakistan; Rahman 2008 CRCT Pakistan), and group interpersonal therapy (G-IPT) (Bolton 2003 C-RCT Uganda). LHWs also provided general counselling and economic skills building in one study (Hirani 2010 CRCT Pakistan). In two trials, non-medical professionals delivered psychosocial counselling and problem solving (Chen 2000 RCT Taiwan; Tiwari 2010 RCT China). Interventions were delivered in community centres or groups (Baker-H 2005 CRCT Jamaica; Bolton 2003 C-RCT Uganda; Hirani 2010 CRCT Pakistan; Tiwari 2010 RCT China), in healthcare settings (Chen 2000 RCT Taiwan), and in homes (Ali 2003 RCT Pakistan; Rahman 2008 CRCT Pakistan).

Interventions varied in duration (30 to 120 minutes), in frequency (weekly to monthly, often with increasing intervals between sessions, e.g. Rahman 2008 CRCT Pakistan), and in total time (one month (Chen 2000 RCT Taiwan) to one year (Baker-H 2005 CRCT Jamaica)). Three interventions included manuals for training and for conducting the intervention (Baker-H 2005 CRCT Jamaica; Bolton 2003 C-RCT Uganda; Rahman 2008 CRCT Pakistan).

Comparison groups included usual care without the addition of a NSHW (Ali 2003 RCT Pakistan; Bolton 2003 C-RCT Uganda; Hirani 2010 CRCT Pakistan), or usual care where the NSHW was already present but was not trained to deliver the intervention (Baker-H 2005 CRCT Jamaica; Chen 2000 RCT Taiwan; Rahman 2008 CRCT Pakistan; Tiwari 2010 RCT China).

Results

1. Prevalence of depression

LHW-led psychological interventions may reduce depression prevalence within six months (RR 0.30, 95% CI 0.14 to 0.64, 3 studies, 1082 participants) but this evidence was of low quality due to heterogeneity (I^2 = 81%; P value = 0.005) and selection bias (Summary of findings for the main comparison) (Bolton 2003 C-RCT Uganda; Chen 2000 RCT Taiwan; Rahman 2008 CRCT Pakistan). ITT analyses (looking at the four possible scenarios where re-assigned participants are either assigned with improved outcomes or not) showed that these results varied from RR 0.20 (95% CI 0.09 to 0.45) to RR 1.11 (95% CI 0.56 to 2.21) indicating uncertainty of this result. Chen (2000) and Bolton (2003) varied widely through these four scenarios from favouring NSHW to favouring usual care, probably because of their relatively small sample size and large dropout rate. Rahman (2008) was least susceptible to change in figures, indicating possibly more reliable results (Figure 4).

Figure 4. Forest plot of comparison: 1 NSHW-led psychological interventions versus usual care in treating CMDs in adults (RCTs), outcome: 1.1 Prevalence of depression (adults) (completers).
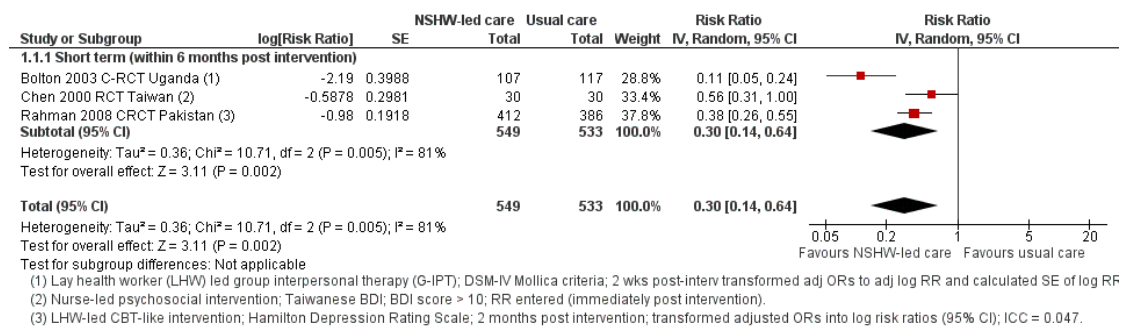
2. Severity of common mental disorder symptoms (including anxiety and depression)

Seven studies reported severity of common mental disorder symptoms (including anxiety and depression). LHW-led psychological interventions (Ali 2003 RCT Pakistan; Bolton 2003 C-RCT Uganda; Hirani 2010 CRCT Pakistan; Rahman 2008 CRCT Pakistan), were pooled with nurse and social worker-led interventions (Chen 2000 RCT Taiwan; Tiwari 2010 RCT China). It is uncertain whether these interventions lead to appreciable clinical benefit in common mental disorder symptom severity at six months post-intervention, because despite an apparent clinical appreciable benefit (SMD -0.75, 95% CI -1.29 to -0.21, 1470 participants), the evidence was of very low quality due to high

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heterogeneity (I^2 = 94%; P value < 0.00001) and selection bias. (Note that a small clinically appreciable benefit was set at SMD < 0.2, and a moderate benefit at SMD of 0.5 to 0.8) (Cohen 1988) (Table 4). One study, Bolton 2003, was an outlier (possibly because their LHWs performed single-sex group interventions). When this study was excluded the heterogeneity reduced and suggested LHWs may have a clinically appreciable benefit (SMD -0.42, 95% CI -0.53 to -0.30, low-quality evidence).

Two studies suggested that there is probably a reduction in depression symptom severity at eight to 12 months post intervention (SMD -0.47, 95% CI -0.60 to -0.34, moderate-quality evidence) (Figure 5) (Baker-H 2005 CRCT Jamaica; Rahman 2008 CRCT Pakistan).

Figure 5. Forest plot of comparison: 1 NSHW-led psychological interventions versus usual care in treating common mental disorders in adults (RCTs), outcome: 1.6 Severity of common mental disorder symptoms (includes anxiety and depression).
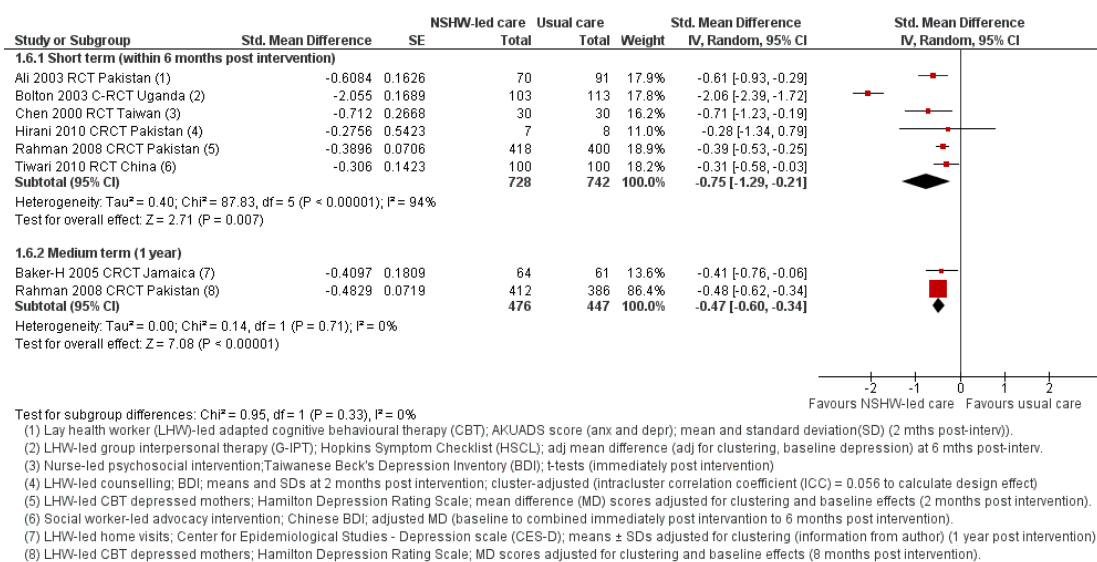
One CBA study, Brown 2009 CBA Rwanda's intervention of adult mentoring of youths who were heads of households, showed no difference in depression symptom severity at two years (see Table 2). Two CBA studies performed in rural post-conflict areas suggested it is uncertain whether LHW- and OPHR-led interventions decrease the severity of common mental disorder symptoms (SMD -0.32, 95% CI -0.60 to -0.04, very-low-quality evidence) (Bass 2012 CBA Indonesia; Scholte 2011 CBA Rwanda). See Characteristics of included studies and Table 5 for more details.

3. Functional impairment of adults with common mental disorders

Four studies assessed functional impairment of which three were LHW-led interventions (Bolton 2003 C-RCT Uganda; Hirani 2010 CRCT Pakistan; Rahman 2008 CRCT Pakistan), and one was social worker-led (Tiwari 2010 RCT China). It is uncertain whether these interventions lead to a reduction in functional impairment within zero to six months of interventions (SMD -0.33, 95% CI -0.80 to 0.13, 4 studies, 1243 participants, very-low-quality evidence due to very serious risk of bias, inconsistency and imprecision). Findings from a CBA study assessing a similar LHW

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intervention suggested that it is uncertain whether this reduces functional impairment (Bass 2012 CBA Indonesia).

However, LHW-led interventions probably reduce functional impairment of patients with common mental disorders in the medium term (12 months) (SMD -0.56, 95% CI -0.70 to -0.42, 1 study, 798 participants, moderate-quality evidence). The improvement at 12 but not six months may suggest that it takes longer for functional recovery.

Comparison 2. Collaborative care model (non-specialist health workers plus specialist) versus usual care in treating common mental disorders (including depression and anxiety) (RCTs)

Setting: we identified five studies from Chile (Araya 2003 RCT Chile; Fritsch 2007 RCT Chile; Rojas 2007 RCT Chile), India (Patel 2010 C-RCT India), and Kenya (Jenkins 2012 C-RCT Kenya). Both Patel (2010) and Jenkins (2012) were interventions located in a combination of urban and rural settings. The Chilean trials were conducted in deprived urban areas. All trials were conducted in government-funded PHC facilities. The Patel trial presented combined and separate results for government- and privately funded facilities.

Participants: In all studies, participants were adults (over 16 (Jenkins 2012 C-RCT Kenya) and over 17 (Patel 2010 C-RCT India) years; over 18 years for other studies) with common mental disorders (including anxiety or depression, or both) or just depression. Araya (2003), Fritsch (2007) and Rojas (2007) included only women. Most participants were of low socioeconomic status.

Interventions: *Types of NSHWs:* these collaborative care models involved existing PHC staff, including private and government PHC doctors (Araya 2003 RCT Chile; Fritsch 2007 RCT Chile; Jenkins 2012 C-RCT Kenya; Patel 2010 C-RCT India; Rojas 2007 RCT Chile), non-medical professional staff (nurses, social workers, midwives) (Araya 2003 RCT Chile; Jenkins 2012 C-RCT Kenya; Rojas 2007 RCT Chile), and LHWs (Fritsch 2007 RCT Chile; Patel 2010 C-RCT India; Rojas 2007 RCT Chile).
Training and supervision of NSHWs: doctors received four to six hours of training in all studies (except for Jenkins (2012) where it was not specified how many hours frontline staff received). LHWs training varied from two hours to two months. Those with longer training (Patel 2010) were expected to deliver a wider range of services. In all studies, NSHWs received some supervision (weekly to monthly/ad hoc) though those in Jenkins (2012) received no supervision and had poor medication supply.
Description of interventions: collaborative care models involved a multidisciplinary team consisting of one or several NSHWs and specialists. Doctors and nurses in Jenkins (2012) diagnosed pa-

tients, provided medical treatment and follow-up/referral as per the existing government health delivery model. Araya (2003), Rojas (2007) and Patel (2010) used a stepped care intervention where doctors prescribed antidepressants and provided usual physical care and referred if there was high suicide risk. Jenkins' (2012) PHCs had poor medication supply. LHWs and non-medical professionals provided several services such as psychoeducation, medication adherence/follow-up (in person or by telephone) and IPT (Araya 2003 RCT Chile; Fritsch 2007 RCT Chile; Patel 2010 C-RCT India; Rojas 2007 RCT Chile). The intensity of these interventions varied from ad hoc (Fritsch 2007 RCT Chile; Jenkins 2012 C-RCT Kenya; Patel 2010 C-RCT India) to eight weekly psychoeducation sessions (Rojas 2007 RCT Chile). Comparison groups were the same settings where NSHWs did not receive training/supervision (Araya 2003 RCT Chile; Fritsch 2007 RCT Chile; Jenkins 2012 C-RCT Kenya; Rojas 2007 RCT Chile), and same settings without the addition of a lay counsellor, and where current staff received a training manual (enhanced usual care) (Patel 2010 C-RCT India).

Results

The primary analysis performed was of prevalence, severity and functional impairment of common mental disorders. Where trials only reported depression scores, these were combined within the common mental disorder analysis (including both anxiety and depression). Data reported at six months post intervention (if available) were chosen to represent the medium-term time point, otherwise an earlier time point (zero to five months) was combined.

1. Prevalence of common mental disorders

Three studies reported prevalence of CMDs (CMD scores: Patel 2010 C-RCT India; depression scores: Araya 2003 RCT Chile; Patel 2010 C-RCT India; Rojas 2007 RCT Chile). Across all facilities (private and government), the use of NSHWs may reduce the prevalence of CMDs within two to six months (RR 0.63, 95% CI 0.44 to 0.90, 2380 participants, low quality of evidence due to serious study limitations and inconsistency (I^2 = 79%; P value = 0.001) (Figure 6; Summary of findings 2). For government facilities only (where data from Patel 2010 C-RCT India was substituted for just the government health facilities data), the effect size was similar (RR 0.57, 95% CI 0.42 to 0.78, 1528 participants, low-quality evidence). There is probably no reduction in prevalence at 12 months in 'all facilities' (RR 0.95, 95% CI 0.68 to 1.33, 1 study, 2009 participants, moderate-quality evidence due to imprecision) or in government facilities alone (RR 0.72, 95% CI 0.39 to 1.34, 1 study, 1104 participants; low-quality evidence due to very serious imprecision).

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Figure 6.   Forest plot of comparison: 2 Collaborative care model (NSHWs plus specialist) versus usual care in treating common mental disorders (CMD) (RCTs), outcome: 2.1 Prevalence of common mental disorders (CMDs - includes anxiety and depression) (completers combined) all facilities and in public and private facilities.

Study or Subgroup	log[Risk Ratio]	SE	Collab care Total	Enhanced usual care Total	Weight	Risk Ratio IV, Random, 95% CI	Risk Ratio IV, Random, 95% CI
2.1.1 All facilities short term (within 6 months post intervention)							
Araya 2003 RCT Chile (1)	-0.8551	0.1632	104	107	31.4%	0.43 [0.31, 0.59]	
Patel 2010 C-RCT India (2)	-0.2231	0.1383	944	1017	33.9%	0.80 [0.61, 1.05]	
Rojas 2007 RCT Chile (3)	-0.3417	0.1303	106	102	34.7%	0.71 [0.55, 0.92]	
Subtotal (95% CI)			1154	1226	100.0%	0.63 [0.44, 0.90]	

Heterogeneity: Tau² = 0.08; Chi² = 9.48, df = 2 (P = 0.009); I² = 79%
Test for overall effect: Z = 2.57 (P = 0.01)

2.1.2 Public facilities short term (within 6 months post intervention) (subgroup)							
Araya 2003 RCT Chile (4)	-0.8551	0.1632	104	107	32.8%	0.43 [0.31, 0.59]	
Patel 2010 C-RCT India (5)	-0.5276	0.1857	545	564	29.8%	0.59 [0.41, 0.85]	
Rojas 2007 RCT Chile (6)	-0.3417	0.1303	106	102	37.5%	0.71 [0.55, 0.92]	
Subtotal (95% CI)			755	773	100.0%	0.57 [0.42, 0.78]	

Heterogeneity: Tau² = 0.05; Chi² = 6.05, df = 2 (P = 0.05); I² = 67%
Test for overall effect: Z = 3.55 (P = 0.0004)

2.1.3 Private facilities short term (within 6 months post intervention) (subgroup)							
Patel 2010 C-RCT India (7)	0.1133	0.2546	399	424	100.0%	1.12 [0.68, 1.84]	
Subtotal (95% CI)			399	424	100.0%	1.12 [0.68, 1.84]	

Heterogeneity: Not applicable
Test for overall effect: Z = 0.45 (P = 0.66)

2.1.4 All facilities medium term (at 1 year post intervention)							
Patel 2010 C-RCT India (8)	-0.0513	0.1717	791	1218	100.0%	0.95 [0.68, 1.33]	
Subtotal (95% CI)			791	1218	100.0%	0.95 [0.68, 1.33]	

Heterogeneity: Not applicable
Test for overall effect: Z = 0.30 (P = 0.77)

2.1.5 Public facilities medium term (at 1 year post intervention) (subgroup)							
Patel 2010 C-RCT India (9)	-0.3285	0.3169	540	564	100.0%	0.72 [0.39, 1.34]	
Subtotal (95% CI)			540	564	100.0%	0.72 [0.39, 1.34]	

Heterogeneity: Not applicable
Test for overall effect: Z = 1.04 (P = 0.30)

2.1.6 Private facilities at 1 year post intervention							
Patel 2010 C-RCT India (10)	0.2231	0.2549	387	414	100.0%	1.25 [0.76, 2.06]	
Subtotal (95% CI)			387	414	100.0%	1.25 [0.76, 2.06]	

Heterogeneity: Not applicable
Test for overall effect: Z = 0.88 (P = 0.38)

0.5 0.7 1 1.5 2
Favours collab care   Favours usual care

(1) Collab model for persistent recurrent depression;HRDS scores<8 (ie recovered) at 6 months; transformed to fit with Patel prevalence=total - nb recovered
(2) stepped care for CMDs; CIS-R; 6 month prevalence of CMDs adjusted RRs
(3) collab care for post natal depression; nb of patients with EPDS 6 point reduction 3 mths post-int (=6 mths post baseline).prev of depression (total - nb recovered)
(4) Collab model for persistent recurrent depression;HRDS scores<8 (ie recovered) at 6 months; transformed to fit with Patel prevalence by doing total - nb recovered
(5) stepped care for CMDs; CIS-R; 6 month prevalence of CMDs adjusted RRs
(6) collab care post natal depr; nb of patients with EPDS 6 point reduction at 3 mths post-int (=6 months post baseline).prevalence of depression (total - nb recovered)
(7) stepped care for CMDs; CIS-R; 6 month prevalence of CMDs adjusted RRs
(8) stepped care for CMDs; CIS-R; adjusted RR for non-recovered completers
(9) stepped care for CMDs; CIS-R; numbers and totals for CMDs; adjusted RR for non-recovered (completers)
(10) stepped care for CMDs; CIS-R;adjusted RR for non-recovered (completers)

We conducted a sensitivity analysis to analyse CMD scores and depression scores separately. This revealed very similar results (depression: RR 0.61, 95% CI 0.40 to 0.94, 3 studies, 1092 participants, low-quality evidence; CMD: RR 0.80, 95% CI 0.61 to 1.05, 1 study, 1961 participants, moderate-quality evidence).

2. Severity of common mental disorders

Severity of CMDs was measured in five studies (CMD scores: Jenkins 2012 C-RCT Kenya; Patel 2010 C-RCT India, depression scores: Araya 2003 RCT Chile; Fritsch 2007 RCT Chile; Patel 2010 C-RCT India; Rojas 2007 RCT Chile). It is uncertain

whether collaborative care reduces the severity of CMDs in the short term (two to six months) despite a statistically significant small benefit (SMD -0.31, 95% CI -0.56 to -0.06, 5 studies, 3604 participants, very-low-quality evidence due to serious study limitations, serious inconsistency (I² = 91%; P value < 0.00001), and serious indirectness) (note that a small clinically appreciable benefit was set at SMD < 0.2) (Cohen 1988) (Table 6). Government facilities analysis shows a similar magnitude of effect (SMD -0.32, 95% CI -0.58 to -0.07, very-low-quality evidence). There is probably no medium term (12 months) reduction in CMD symptom

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severity (SMD -0.03, 95% CI -0.12 to 0.06, 1 study, 1905 participants, moderate-quality evidence) (Figure 7), possibly due to recurrence of depression at this point in time.

Figure 7. Forest plot of comparison: 2 Collaborative care model (NSHWs plus specialist) versus usual care in treating common mental disorders (RCTs), outcome: 2.2 Severity of symptoms of common mental disorders (completers combined) in all facilities and in public and private facilities.
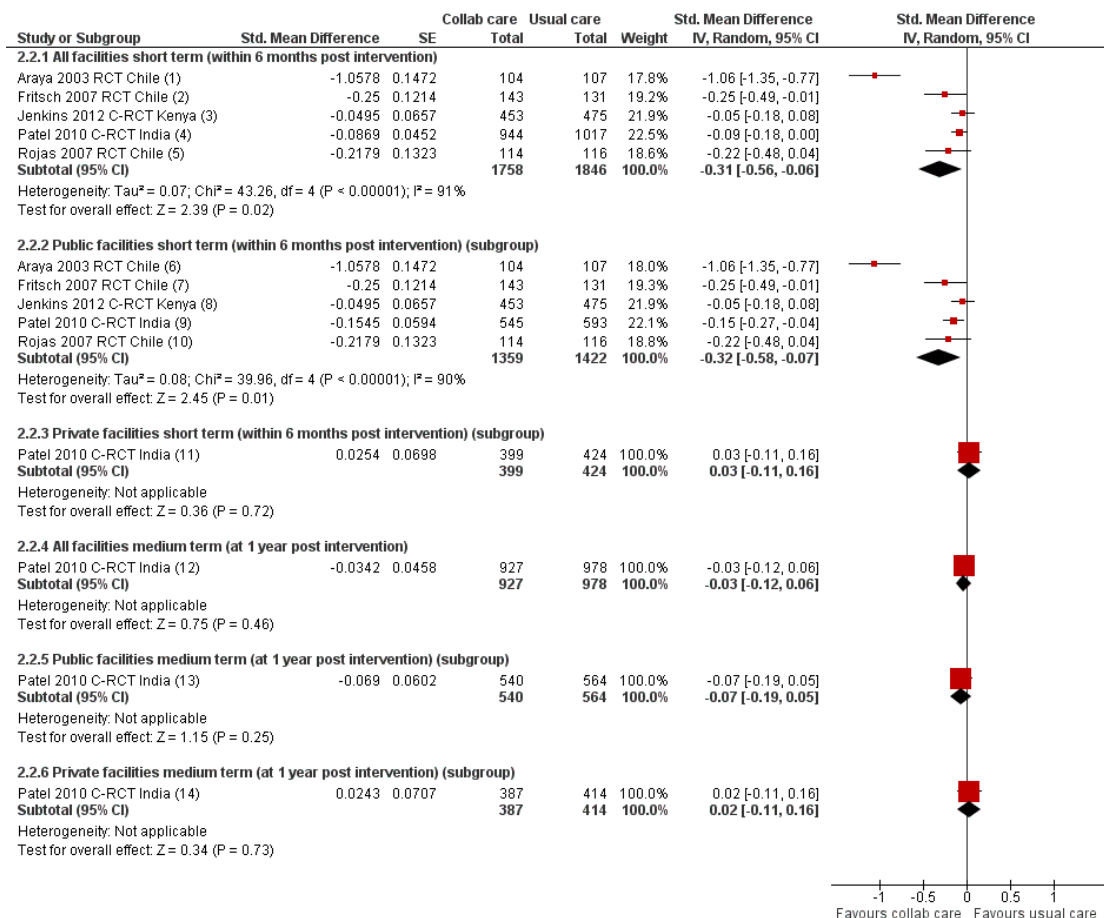
(1) collab care for persistent/recurrent depression; HDRS; adjusted MD (for baseline and clinic) and 95%CI at 6 months.
(2) as per Araya;HDRS; 6 month endpoint scores
(3) Collab care in public facilities (doctor/nurse) all mental disorders; GHQ-12; adjusted MD (for baseline scores and clustering) and 95%CI at 3 months post-intervention
(4) collaborative stepped care model for CMDs (lay counsellor, physician); CIS-R; MD and 95%CI at 6 mths (adjusted for clustering); patient numbers (denominator) are fro
(5) physician, nurse, midwife-led multicomponent intervention for post natal depression; Edinburgh Post Natal Depression Score; MD at 3 months post-interv
(6) collab care for persistent/recurrent depression;HDRS; adjusted MD (for baseline and clinic using random effects model) and 95%CI
(7) as per Araya; HDRS
(8) Collab care in public facilities (doctor/nurse) all mental disorders; GHQ-12; MD (adjusted for baseline scores and clustering) and 95%CI at 3 months post-intervention
(9) Collaborative stepped care model for CMDs (lay counsellor, physician); CIS-R; MD and 95%CI at 6 months(adjusted for clustering, N = CMD group.
(10) physician, nurse, midwife-led multicomp interv for post-natal depr; Edinburgh Post-Natal Depr Score; scores entered: MD not adjusted (adj only for MD at 3mths)
(11) Collaborative stepped care model for CMDs (lay counsellor, physician); CIS-R; MD and 95%CI at 6 months (adjusted for clustering, N = CMD group.
(12) Collab stepped care; CIS-R; MD cluster-adjusted entered at 12 months; N = CMD group
(13) Collab stepped care; CIS-R; cluster-adjusted means at 12 months entered; N = CMD group
(14) Collab stepped care; CIS-R; cluster-adjusted means at 12 months entered; N = CMD group

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The Araya trial results were an outlier for this outcome, with a much larger effect size reported (although with the same direction of effect). This may be because it was the only trial measuring major depression (moderate to severe depression). Other trials included mild depression in their inclusion criteria. This would explain the larger effect size as there is strong evidence that baseline severity of depression is a predictor of the effectiveness of depression treatments (Kirsch 2008). In a sensitivity analysis in which Araya was excluded, the reduction in symptoms no longer showed appreciable benefit (SMD -0.10, 95% CI -0.17 to -0.03, 3394 participants, low-quality evidence) and the results were consistent across studies (I^2 = 0%; P value = 0.39).

We conducted a sensitivity analysis to analyse CMD scores and depression scores separately. CMD scores suggested collaborative care models probably do not result in a clinically appreciable reduction in the severity of CMDs in either the short term (two to six months) (SMD -0.07, 95% CI -0.15 to 0, 2 studies, 2889 participants, moderate-quality evidence due to serious indirectness) or the medium term (one year). The short-term findings are inconsistent with the above prevalence findings. Possible explanations may be that the tools used to assess severity, particularly General Health Questionnaire (GHQ)-12 in Jenkins, may not be appropriate for assessing severity, and that the sample size is smaller in this comparison, thereby giving a less precise estimate. In addition, CMDs could include many milder symptoms of anxiety and depression whereas depression scales would identify patients with more moderate to severe symptoms. The effect of the intervention would be expected to have a greater impact on those with more symptoms (Kirsch 2008).

We could not examine the difference between outcomes for government and private facilities for the severity of CMDs due to limited data.

3. Functional impairment and disability in adults with common mental disorders

Five studies (CMD scores: Jenkins 2012 C-RCT Kenya; Patel 2010 C-RCT India; depression scores: Araya 2003 RCT Chile; Fritsch 2007 RCT Chile; Rojas 2007 RCT Chile) reported functional impairment and disability in adults with CMD. Collaborative care probably does not reduce functional impairment over 12 months (SMD -0.02, 95% CI 0.11 to 0.07, 1 study, moderate-quality evidence).

It is uncertain whether collaborative care reduces functional impairment in CMDs at six months (SMD -0.22, 95% CI -0.44 to -0.01, very-low-quality evidence because of serious risk of bias, serious inconsistency (I^2 = 87%; P value < 0.00001) and serious indirectness).

The Araya trial results were outliers for this outcome, with a much larger effect size reported (although with the same direction of effect). As above, this may because included patients had more severe symptoms and, therefore, more likely to respond to an intervention. In a sensitivity analysis in which Araya was excluded, there was no longer any appreciable clinical benefit for reducing

functional impairment (SMD -0.05, 95% CI -0.12 to -0.02, 3394 participants) but the results were now consistent (I^2 = 0%; P value = 0.40). At 12 months, there was no difference in functional impairment scores with collaborative or with usual care (SMD -0.02, 95% CI -0.12 to 0.15, 1 study, moderate-quality evidence).

We conducted a sensitivity analysis to analyse CMD scores and depression scores separately. Depression scores were similar or no different but again showed very-low-quality evidence. CMD scores on their own suggested no reduction in functional impairment in people with CMDs at six months (SMD -0.03, 95% CI -0.1 to 0.04, 2889 participants, high-quality evidence) or at 12 months (one study).

Patel's study was the only study to report disability days. This showed that, over 12 months, collaborative care probably reduces the number of days of no or reduced work in the last month by 4.43 days (MD -4.43 days, 95% CI -8.37 to -0.48, moderate-quality evidence) in government facilities but seems to have no reduction in disability days in private facilities (MD 0.78 days, 95% CI -2.25 to 3.82).

4. Suicide attempts in adults with common mental disorders

Only one study reported suicide attempts in adults with CMDs (Patel 2010 C-RCT India). There was no difference in suicide attempts for those diagnosed with CMDs at one year (RR 0.56, 95% CI 0.24 to 1.32, 1905 participants) and within two to six months. The quality of evidence was low due to very serious imprecision.

Comparison 3. Non-specialist health workers versus usual care in treating maternal depression (RCTs)

This group of studies combined RCTs that were also included above as part of the 'NSHW-led' and 'collaborative' intervention comparisons and that assessed perinatal depression outcomes.

Setting: we identified four studies, which were conducted in urban settings in Chile (Rojas 2007 RCT Chile), Jamaica (Baker-H 2005 CRCT Jamaica), and Taiwan (Chen 2000 RCT Taiwan), and rural settings in Pakistan (Rahman 2008 CRCT Pakistan).

Participants: the trials recruited mothers at different times from the third trimester of pregnancy (Rahman 2008 CRCT Pakistan), up to 13 months' postpartum (Baker-H 2005 CRCT Jamaica). Participants in all of the trials were generally from lower socioeconomic backgrounds, except for Chen (2000) where there was an equal distribution of participants across all socioeconomic groups.

Interventions: *NSHWs*: these were mainly existing government employees or aides, including doctors, midwives and LHWs (Rojas 2007 RCT Chile), nurses (Chen 2000 RCT Taiwan), and LHWs (Baker-H 2005 CRCT Jamaica; Rahman 2008 CRCT Pakistan). In Baker-Henningham (2005), LHW training was much more intensive than in Rahman (2008) though in both studies LHWs also received refresher training. In Rojas (2007), the midwives only

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were given an eight-hour training session (other cadres' training was not specified). In all of the trials, weekly to monthly supervision was provided, apart from Chen (2000), where this was not specified.

Description of interventions: interventions were delivered at home (Baker-H 2005 CRCT Jamaica), in the community (Rahman 2008 CRCT Pakistan), in postnatal wards (Chen 2000 RCT Taiwan), and PHC clinics (Rojas 2007 RCT Chile). Interventions ranged from collaborative care (Rojas 2007 RCT Chile), to CBT-like intervention (Rahman 2008 CRCT Pakistan), to general adapted counselling (Baker-H 2005 CRCT Jamaica; Chen 2000 RCT Taiwan). They varied in intensity from four weeks (Chen 2000 RCT Taiwan), to weekly home visits over 12 months (Baker-H 2005 CRCT Jamaica).

Comparison groups from all four studies included usual care (existing NSHWs without training).

Results

1. Severity of maternal depressive symptoms

There was high-quality evidence that NSHW interventions improved the severity of perinatal depressive symptoms (SMD within three months: -0.50, 95% CI -0.63 to -0.36, 2 studies), and moderate-quality evidence that collaborative interventions slightly improved perinatal depressive symptoms within two to six months (SMD -0.22, 95% CI -0.48 to 0.04, 1 study). LHW interventions may have slightly improved perinatal depressive symptoms at 12 months (SMD -0.41, 95% CI -0.76 to -0.06, 1 study, low-quality evidence) (Table 7). A meta-analysis including all four studies showed that these interventions may have slightly reduced the severity of perinatal depressive symptoms (SMD -0.42, 95% CI -0.58 to -0.26, low-quality evidence due to very serious risk of bias). Results were similar if only the three short-term studies were combined (SMD -0.42, 95% CI -0.65 to -0.20). The statistical heterogeneity was low (I^2 = 29%; P value = 0.24) (Figure 8; Summary of findings 3).

Figure 8. Forest plot of comparison: 3 NSHWs versus usual care in treating maternal depression (RCTs), outcome: 3.1 Severity of symptoms in treating maternal depression.

(1) Nurse-led psychosocial intervention;Taiwanese BDI (Beck's depression inventory); t-tests (unadjusted) immediately post intervention
(2) LHW-led CBT; Hamilton depression rating scale; endpoint scores at 2 months post-interv adjusted for clustering, and baseline characteristics
(3) Physician, nurse, midwife-led multicomponent intervention. Edinburgh Post Natal Depression Score; MD 3 months post-intervention
(4) LHW-led home visits (psychosocial intervention); Centre for epidemiological studies depression scale (CES-D); Means_SDs adjusted for clustering (info from author)

Comparison 4. Non-specialist health workers versus specialist care in treating common mental disorders (controlled before-and-after studies)

Setting: two CBA studies compared NSHWs (primary care doctors/general practitioners (GPs)) to 'gold standard' care (psychiatrists) for pharmacotherapy. These were designed as equivalence studies and were conducted in urban settings in Argentina (Lyketsos1999CBA Argentina) and Hungary (Zambori 2002 CBA Hungary).

Participants: Adults with common mental disorders (anxiety and depression) (Zambori 2002 CBA Hungary), and major depressive disorder (Lyketsos1999CBA Argentina).

Interventions: *NSHWs:* GPs in Lyketsos (1999) received half a

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day of training and ad hoc supervision from support staff. GPs in Zambori (2002) did not receive either training or supervision in the context of the trial.

Description of interventions: the GPs provided usual care for depression (prescribing medications, supportive therapy and referring). In Lyketsos (1999), both GPs and control group psychiatrists were given a protocol for prescribing antidepressants.

Results

We could not combine any outcomes. Below is a summary of the studies.

1. Severity of depression

It is uncertain whether GPs are equivalent to specialists in delivering pharmacotherapy for depression (MD -0.90, 95% CI -1.20 to -0.60, 1 study, Lyketsos1999CBA Argentina) as the quality of evidence was very low (CBA study and very serious risk of bias) (Summary of findings 4).

2. Adverse events

It is uncertain whether GPs are equivalent to specialists when adverse events get reported (RR 0.85, 95% CI 0.67 to 1.07, 1 study, Lyketsos1999CBA Argentina) as the quality of evidence was very low (Table 8).

3. Number of days spent at hospital and on sick leave

It is uncertain whether GPs were equivalent to specialists in the number of days spent at hospital (MD -1.79 days, 95% CI -3.59 to 0.01 in favour of NSHWs) and on sick leave (MD 14.63 days, 95% CI -0.76 to 30.02, 1 study, Zambori 2002 CBA Hungary) as the quality of evidence was very low (very serious risk of bias and imprecision).

Comparison 5. Non-specialist health workers/other professionals with health roles-led psychological interventions versus usual care in delivering post-traumatic stress disorder interventions to adults (RCTs and NRCT)

Setting: we identified three studies, where participants lived in internally displaced camps (Dybdahl 2001 RCT Bosnia; Yeomans 2010 RCT Burundi) and refugee settlements (Neuner 2008 NRCT Uganda).

Participants: adults of both sexes who were diagnosed with PTSD, or with symptoms suggesting PTSD in mothers (Dybdahl 2001 RCT Bosnia).

Interventions: *NSHWs/OPHRs:* in Neuner (2008), LHWs with secondary school education were trained for six weeks in two counselling techniques (NET - narrative exposure therapy a psychological therapy, and general trauma counselling), which they delivered in different sessions. In Yeomans (2010), the LHWs had experience in trauma workshop facilitation (so only were given one-day training to adapt the workshop delivery) but little formal education. In Dybdahl (2001), preschool teachers were trained during a five-day workshop that used a range of group, role play and lecture teaching methods. There was intensive supervision in Neuner (2008) and Dybdahl (2001) (not specified in Yeomans (2010)).

Description of interventions: duration: Neuner and Yeomans interventions had four to six sessions (but at different intervals) whereas Dybdahl's intervention consisted of weekly sessions for five months (20 sessions). Content: three studies' interventions were manualised (Neuner - NET, Yeomans (both arms), Dybdahl). Neuner's non-manualised trauma counselling, Yeomans workshop with counselling and Dybdahl's interventions were similar (problem solving and coping strategies, interpersonal skills, relaxation techniques and healing through reconciling communities, psychoeducation (and childcare in Dybdahl)). Neuner's first intervention was a psychological therapy NET.

Neuner and Dybdahl's comparison groups were usual care (without any LHWs, and in Dybdahl they received free medical care). Yeomans' comparison group was usual care (with LHWs without training for this intervention).

Results

1. Prevalence of post-traumatic stress disorder symptoms

Neuner's (2008) LHW-led interventions may have reduced the prevalence of PTSD symptoms (NET intervention: RR 0.48, 95% CI 0.27 to 0.85; trauma counselling: RR 0.55, 95% CI 0.33 to 0.93; 1 study, low-quality evidence) (Figure 9).

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Figure 9. Forest plot of comparison: 5 NSHW-led psychological interventions versus usual care in treating adults with post-traumatic stress disorder (RCT and NRCT), outcome: 5.1 Prevalence of post-traumatic stress disorder (PTSD).
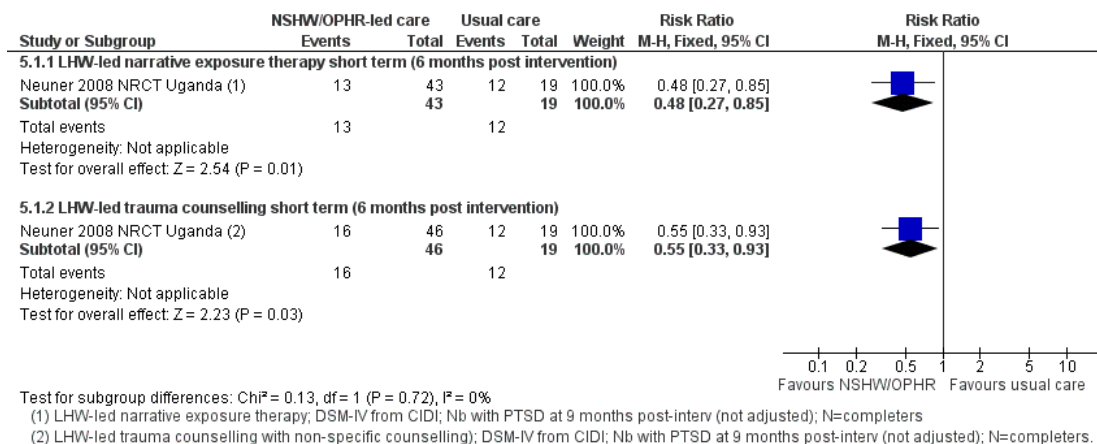
2. Severity of post-traumatic stress disorder symptoms

We pooled the three interventions that were most similar to each other (see description above). At assessment between two and six months post-intervention, teacher/LHW interventions may have slightly improved PTSD symptoms (SMD -0.36, 95% CI -0.67 to -0.05, 3 studies, 223 participants, I^2 = 22%, P value = 0.02, low-quality evidence) (Summary of findings 5). As Neuner and Yeomans had two intervention arms, we also combined these results in

four ways (Neuner NET + Yeomans no psychoeducation; Neuner NET + Yeomans psychoeducation; Neuner - trauma counselling + Yeomans no psychoeducation; Neuner - trauma counselling + Yeomans psychoeducation). The results were very similar, ranging from SMD -0.31, 95% CI -0.58 to -0.04 (Dybdahl + Neuner NET + Yeomans psychoeducation) to SMD -0.41, 95% CI -0.72 to -0.11 (Dybdahl + Neuner NET + Yeomans no psychoeducation) (Figure 10; Table 9).

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Figure 10. Forest plot of comparison: 5 NSHW-led psychological interventions versus usual care in treating adults with PTSD (RCT and NRCT), outcome: 5.2 Severity of PTSD symptoms (N = completers).

A sensitivity analysis excluding Neuner (2008) (as it uses quasi-randomisation) showed a lower effect size and imprecision in the first comparison (SMD -0.22, 95% CI -0.54 to 0.10, 2 studies, 151 participants, I^2 = 0%, P value = 0.03), with similar results for the other comparisons using the other intervention arms. A subgroup analysis excluding Dybdahl, which was teacher-led, and therefore retaining only LHWs suggested a slightly higher magnitude of effect (SMD -0.47, 95% CI -0.90 to -0.05, 2 studies, 148 participants, I^2 = 34%, P value = 0.03).

3. Severity of depressive symptoms

LHW-led psychological interventions may not have reduced depression severity (SMD -0.07, 95% CI -0.36 to 0.22, 1 study, both arms had similar results, 76 participants, low-quality evidence due to imprecision and study limitations) (Analysis 5.3).

Comparison 6. Non-specialist health workers versus usual care in improving dementia patients' and carers' outcomes (RCTs)

Setting: we found two studies, which were conducted in urban areas in India (Dias 2008 RCT India), and Russia (Gavrilova 2009 RCT Russia).
Participants: the interventions were directed at carers of people with dementia. The carers were generally aged between 50 and 60 years and had varying economic backgrounds.

Interventions: NSHWs: Dias 2008 RCT India used two types of LHWs (home care advisors and lay counsellors) trained intensively for one week whereas Gavrilova 2009 RCT Russia used newly qualified doctors trained for two days to deliver the intervention. The LHWs were supervised every two weeks by a specialist. The supervision provided to the doctors was not described.
Description of interventions: in both studies brief carer interventions were conducted, based on a larger 10/66 dementia initiative (Prince 2004). However, Gavrilova (2009) organised a short training package for carers only, whereas Dias (2008) implemented a collaborative care package (LHWs undertook psychoeducation, counselling and followed up on treatment effects during home visits.

Results

1. Patient outcomes

At six months post intervention, NSHW-led carer interventions for dementia probably led to slightly improved patient outcomes (including severity of behavioural symptoms (SMD -0.26, 95% CI -0.60 to 0.08, 2 studies) (Figure 11; Summary of findings 6), quality of life (MD -0.43, 95% CI -0.98 to 0.12, 1 study), and functional impairment (MD -0.24, 95% CI -0.67 to 0.20, 1 study) (moderate-quality evidence) (Table 10)).

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Figure 11.   Forest plot of comparison: 6 NSHWs versus usual care in improving dementia patients' and carers' outcomes (RCTs), outcome: 6.1 Severity of behavioural problem (patient).
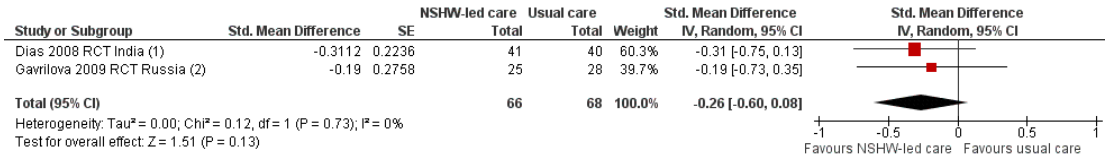
(1) LHW-led brief carer intervention. NPI-S (neuropsychiatric inventory - severity); adjusted effect sizes at 6 months post-interv
(2) Doctor-led brief carer intervention. NPI-S (neuropsychiatric inventory - severity); adjusted effect sizes (standardised MD) and CIs at 6 months post-interv.

2. Carer outcomes

NSHWs probably improved/slightly improved carer outcomes, including burden (SMD -0.50, 95% CI -0.84 to -0.15) (Figure 12), mental health status (SMD -0.42, 95% CI -0.76 to -0.08) and distress (SMD -0.47, 95% CI -0.82 to -0.13) (moderate-quality evidence). NSHWs probably led to little or no difference in carer quality of life. The study authors suggested that this result, which is out of keeping with the other carer outcomes, may be due to a type 2 error because the study was not statistically powered to detect differences of this size in the quality of life outcome.

Figure 12.   Forest plot of comparison: 6 NSHWs versus usual care in improving dementia patients' and carers' outcomes (RCTs), outcome: 6.5 Carer burden.
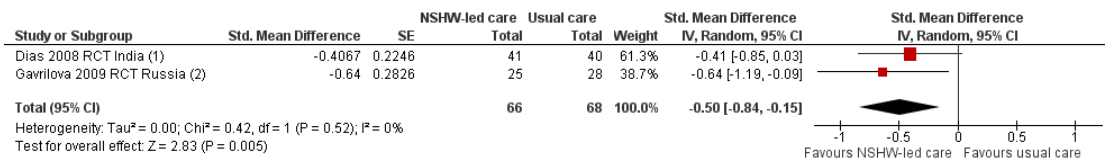
(1) LHW-led brief carer intervention. Zarit burden interview (ZBI); adjusted coefficient size at 6 months.
(2) doctor-led brief carer intervention. Zarit burden interview (ZBI); adjusted effect sizes (standardised MD) and CIs at 6 months post-interv

Comparison 7. Non-specialist health worker-led brief alcohol interventions versus usual care for people with alcohol-use disorders

Setting: we found two studies from rural Thailand (Noknoy 2010 RCT Thailand), and urban Kenya (Papas 2011 RCT Kenya).
Participants: adults with hazardous use of alcohol (AUDIT score ≥ 8) from primary care settings (Thailand) and patients (AUDIT score > 3) enrolled at a human immunodeficiency virus (HIV) clinic in Kenya. Patients with alcohol dependency were excluded in Noknoy (2010).
Interventions:
NSHWs: nurses in primary care clinics (Noknoy 2010 RCT

Thailand), and LHWs (Papas 2011 RCT Kenya). Training ranged from six hours (Thai nurses) to 175 hours (Kenyan LHWs). Thai nurses received no specific supervision whereas the Kenyan LHWs received 300 hours, weekly monitoring and telephone supervision in the later stages of the trial.
Description of interventions: Noknoy's (2010) intervention was less intensive (three sessions (baseline, two weeks, six weeks) - 15 minutes each) than Papas's (2011) (six sessions, once a week, 90 minutes per session). Noknoy's (2010) intervention was motivational enhancement therapy (MET), Papas's (2011) was a CBT intervention.
The comparison group was usual care. In Noknoy (2010), these were existing nurses without intervention training, and in Papas

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(2011), these were normal staff at the HIV clinic (without the LHW).

Results

1. Amount of alcohol consumed and frequency of binge drinking

At three to six months, NSHW-led interventions for alcohol-use problems may reduce the amount of alcohol consumed (MD -1.68 drinks/day, 95% CI -2.79 to -0.57, 2 studies, low-quality evidence) and may reduce the frequency of binge drinking (MD -0.50, 95% CI -1.14 to 0.14, 1 study, low-quality evidence due to risk of bias and imprecision) (Figure 13; Summary of findings 7).

Figure 13. Forest plot of comparison: 7 NSHW-led brief alcohol interventions versus usual care for adults with alcohol-use disorders (RCTs), outcome: 7.1 Amount of alcohol consumed (MD).
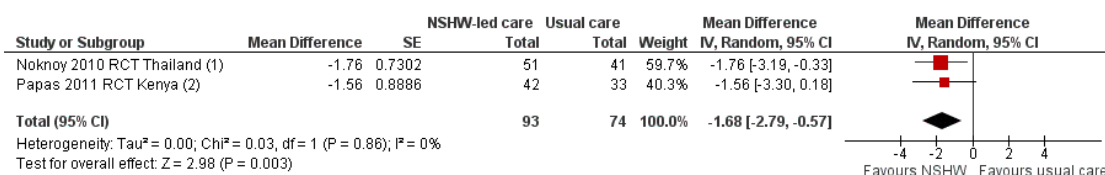
(1) Nurse-led motivational enhancement therapy (MET); number of drinks/ drinking day in previous week; 6 month outcome scores mean, SD (non adjusted)
(2) LHW-led adapted CBT and education; average drinks/drinking day (past 30 days); 3 month post-interv means and SD (unadjusted)

2. Adverse consequences

NSHW interventions for alcohol problems may not reduce road traffic accidents (RR 0.36, 95% CI 0.12 to 1.08, 1 study, 92 participants, low-quality evidence due to sparse data, study limitations and serious imprecision). It is uncertain whether these interventions increase withdrawal symptoms (RR 2.67, 95% CI 0.29 to 24.37, 1 study, 68 participants, very-low-quality evidence due to sparse data, study limitations and very serious imprecision) (Table 11).

Comparison 8. Non-specialist health workers/other professionals with health roles versus usual care in delivering interventions for children with post-traumatic stress disorder and depression (RCTs)

Setting: we identified eight studies, which were conducted in internally displaced people camps in Bosnia (Dybdahl 2001 RCT Bosnia), Indonesia (Tol 2008 C-RCT Indonesia), Kosovo (Gordon 2008 RCT Kosovo), Nepal (Jordans 2010 C-RCT Nepal), Sri Lanka (Berger2009 CRCT SriLanka; Tol 2012 C-RCT SriLanka), and Uganda (Bolton 2007 RCT Uganda; Ertl 2011 RCT Uganda). Most studies were undertaken in post-conflict or peri-conflict settings, except for Berger (2009), which followed a natural disaster. The settings were rural/semi-rural (Bolton 2007 RCT Uganda; Gordon 2008 RCT Kosovo; Jordans 2010 C-RCT Nepal; Tol 2008 C-RCT Indonesia), urban (Berger2009 CRCT SriLanka; Dybdahl 2001 RCT Bosnia), or urban and rural (Ertl 2011 RCT Uganda; Tol 2012 C-RCT SriLanka).

Participants: children with PTSD diagnoses or symptoms were included. Some also had depressive and anxiety symptoms, or conduct problems, or a combination. The ages of the children varied from five to six years (Dybdahl 2001 RCT Bosnia), to adolescents aged 14 to 18 years (Bolton 2007 RCT Uganda; Gordon 2008 RCT Kosovo). One study included child soldiers aged 12 to 25 years (Ertl 2011 RCT Uganda). Most children came from low-resource backgrounds.

Interventions: NSHWs: five studies used LHWs (of both sexes) and had manual-based training for their respective interventions (Bolton 2007 RCT Uganda; Ertl 2011 RCT Uganda; Jordans 2010 C-RCT Nepal; Tol 2008 C-RCT Indonesia; Tol 2012 C-RCT

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SriLanka). Supervision varied from being regular (Jordans 2010 C-RCT Nepal; Tol 2008 C-RCT Indonesia; Tol 2012 C-RCT SriLanka) to intensive (e.g. case discussions of their treatment sessions and their notes) (Ertl 2011 RCT Uganda).

OPHRs: three studies used existing high school or preschool teachers (Berger2009 CRCT SriLanka; Dybdahl 2001 RCT Bosnia; Gordon 2008 RCT Kosovo), who were given an additional three-day (Berger2009 CRCT SriLanka) to 10-day (Gordon 2008 RCT Kosovo) intensive training by researchers. Supervision was weekly (Berger2009 CRCT SriLanka; Dybdahl 2001 RCT Bosnia), or regularly (Gordon 2008 RCT Kosovo), by mental health professionals. There was no information on training for Dybdahl (2001).

Description of interventions: all interventions were delivered to groups in schools except for two in community groups (Bolton 2007 RCT Uganda; Dybdahl 2001 RCT Bosnia), and one in child soldiers in their home (Ertl 2011 RCT Uganda). All interventions were targeted at children except Dybdahl (2001) where the target group was mothers. Group interventions varied from 12 to 20 sessions spread over five weeks to five months. Jordans (2010), Tol (2008) and Tol (2012) had the same manual-based, classroom-room-based intervention (CBI). This intervention included elements of creative-expressive therapy, co-operative play and CBT. Berger (2009), Dybdahl (2001) and Ertl (2000) were similar psychosocial/psychological interventions (psychoeducation, group activities, coping skills training) though Ertl (2000) had two arms: NET and academic catch up. Bolton (2007) was a three-armed trial, comparing two LHW interventions (G-IPT and creative play) delivered to single-sex groups. Gordon (2008) used slightly different psychosocial techniques (imaginative mind-body techniques, meditation, etc.).

Results

1. Severity of post-traumatic stress disorder symptoms

Because of differences in outcome measures for short-term outcomes (MCDs could not be combined with MD), we present these outcomes separately. We followed this approach for all outcomes in this comparison.

In the short term (< six months post intervention), despite a large apparent clinical benefit (SMD -0.89, 95% CI -1.49 to -0.30, 3 studies (including Ertl's first intervention arm: NET - a psychological therapy), 298 participants), it is uncertain whether LHWs and teachers reduce the severity of PTSD symptoms due to very-low-quality evidence (very serious study limitations and serious inconsistency I^2 = 78%; P value = 0.003) (Figure 14; Summary of findings 8). Results were similar if Ertl's second intervention arm (academic catch-up - assisting children with their academic activities only) was combined (SMD -0.85, 95% CI -1.52 to -0.19, 295 participants, I^2 = 82%; P value = 0.003). In a planned subgroup analysis, interventions led by teachers were analysed separately to attempt to reduce heterogeneity (Berger2009 CRCT SriLanka; Dybdahl 2001 RCT Bosnia). However, it was still uncertain whether teacher-led interventions may reduce the severity of PTSD symptoms (SMD -1.20, 95% CI -1.52 to -0.88, 2 studies, 244 participants, (I^2 = 0%; P value = 0.64) because of very-low-quality evidence (serious study limitations and imprecision due to sparse data).

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Figure 14. Forest plot of comparison: 9 NSHWs/OPHRs versus usual care in conducting interventions for children with PTSD (RCTs), outcome: 9.3 Severity of PTSD symptoms - teacher-led interventions (children) (MDs).
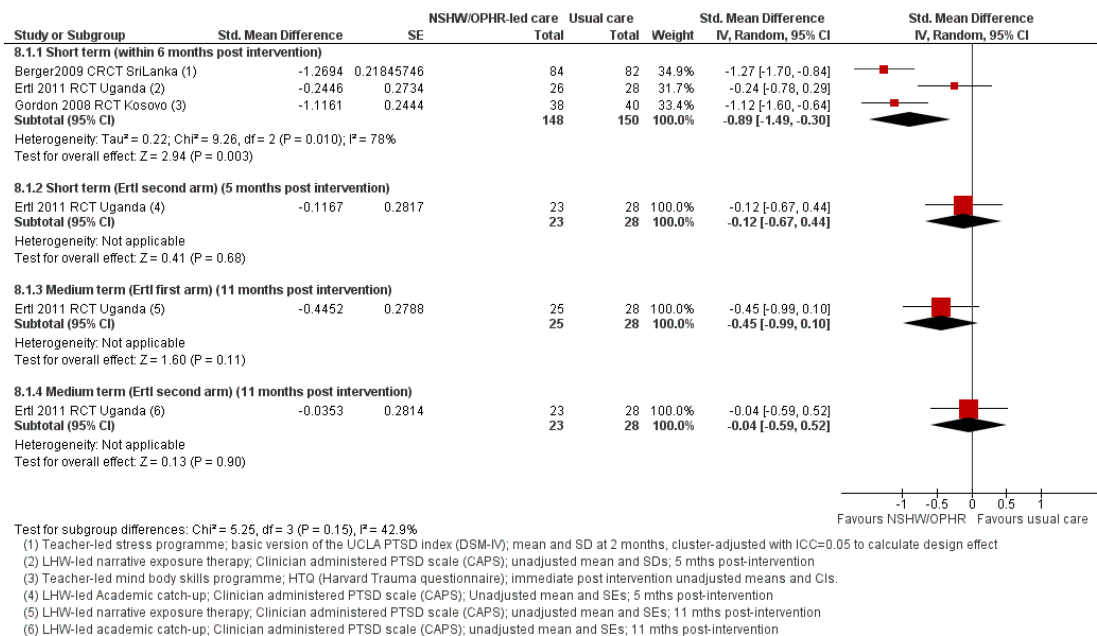
It is uncertain whether LHW-led CBI reduce PTSD symptoms (MCD -0.56, 95% CI -2.82 to 1.70, very-low-quality evidence due to very serious risk of bias, heterogeneity (I^2 = 82%; P value = 0.004) and serious imprecision). In one study (Tol 2012 C-RCT SriLanka), PTSD symptoms improved in girls in the control group (not in the intervention group), but there was no difference for boys (Analysis 8.3).

At 11 months, one study (Ertl 2000) suggested that NET or academic catch-up interventions probably does not reduce PTSD severity (SMD -0.45, 95% CI -0.99 to 0.10, 1 study, 53 participants, moderate-quality evidence due to serious imprecision and sparse data) (Figure 14; Table 12).

Two CBA studies also assessed teacher-led interventions for children with PTSD (aged six to 17 years) from displaced populations (Thabet 2005 CBA Palestine (short term - two months); Wolmer 2005 CBA Turkey (long term - three years post intervention). It is uncertain whether these interventions reduced PTSD severity (SMD -0.10, 95% CI -0.34 to 0.14, 329 participants, very-low-quality evidence) (Table 13).

2. Severity of depression symptoms

In the short term (< six months), interventions delivered by either teachers or LHWs may slightly reduce depressive symptoms compared with usual care (SMD -0.23, 95% CI -0.45 to -0.22, 4 studies, 504 participants, low-quality evidence due to very serious

study limitations) (Table 12). However, LHW-led CBI may have led to little or no difference in the severity of depression symptoms compared with usual care (MCD -0.18, 95% CI -0.33 to -0.03, low-quality evidence). In one CBA study, it was uncertain if interventions delivered by teachers reduced depressive symptoms (SMD -0.12, 95% CI -0.63 to 0.40) (Thabet 2005 CBA Palestine; very-low-quality evidence; Table 13).

In the medium term (11 months post intervention), LHW-led interventions may not have reduced depressive symptoms (SMD 0.02, 95% CI -0.52 to 0.56, 1 study, 53 participants, low-quality evidence due to very serious imprecision). Similarly, Loughry 2006 CBA Palestin's study, a LHW-led intervention for displaced children with PTSD, suggested that the effects are uncertain (SMD -0.27, 95% CI -0.50 to -0.04, very-low-quality evidence).

3. Severity of anxiety symptoms

It is uncertain whether LHW-led CBI reduced anxiety severity in children compared with usual care (MCD -0.34, 95% CI -0.75 to 0.07, 3 studies, very-low-quality evidence due to selection bias and imprecision). Tol 2012 C-RCT SriLanka undertook a subgroup analysis by sex that showed there may be little or no difference for boys (MCD -0.63, 95% CI -1.23 to -0.03, 245 participants, low-quality evidence).

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4. Functional impairment

In the short term (< six months), LHW/teacher-led interventions probably reduce functional impairment (SMD -0.61, 95% CI -1.13 to -0.08, 2 studies, 220 participants, moderate-quality evidence due to serious study limitations) (Analysis 8.9) and LHW-led CBI (MCD -0.81, 95% CI -1.48 to -0.13, 3 studies, 1092 participants) may have reduced functional impairment (low-quality evidence due to very serious study limitations) (Analysis 8.10). At 11 months, Ertl's LHW-led NET group probably also reduced functional impairment (SMD -0.69, 95% CI -1.25 to -0.14, 1 study, 53 participants, moderate-quality evidence due to serious imprecision).

Outcomes of studies not assigned to the above comparisons

The individual studies that could not be pooled are fully described in the Characteristics of included studies tables and their outcomes are summarised in Table 3 and Appendix 4.

These studies included the following comparisons:

1. NSHW versus usual care (life skills training) in improving drug abuse outcomes (RCT);
2. NSHWs versus usual care for treating schizophrenia (CBA study);
3. NSHWs versus specialist care in treating epilepsy (equivalence trial RCT);
4. OPHRs versus usual care in delivering a psychosocial/activities intervention for parents of children with intellectual disabilities (RCT).

Economic studies

Although literature is emerging on the effectiveness of NSHWs in delivering mental health services, very limited data are available on the unit costs and resource requirements. This is mainly due to the difficulties associated with conducting economic analyses, time lags from inputs to outcomes and many confounding variables. Table 14 shows the data from the three included studies that reported cost effectiveness or costs in relation to the care of depression in adults and PTSD in children. These studies underline the feasibility and potential cost effectiveness of NSHWs in providing mental health care, and report costs related to absenteeism and healthcare utilisation. However, all of the studies had significant risks of bias that cast doubt on the accuracy and reliability of these data. Not all relevant alternatives and costs (such as productivity loss) were considered or reported, some costs relied on estimates, future costs were not discounted properly and chosen time horizons were less than one year in Araya.

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ADDITIONAL SUMMARY OF FINDINGS [*Explanation*]

What are the effects of a collaborative care model (NSHW plus specialist supervision) for mental health care in adults with common mental disorders low- and middle-income countries?

Patient or population: Adults ($\geq$ 18 years) with CMDs (includes anxiety or depression, or both)
Settings: Middle-income countries (Chile, India)
Intervention: Collaborative care model (NSHW plus specialist supervision)
Comparison: Enhanced usual care

Outcomes	Illustrative comparative risks* (95% CI)		Effect estimate (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	**Corresponding risk**				
	Usual care	Collaborative care model				
Prevalence of CMDs, short term (2-6 months) measured using various CMD/depression rating scales[1]	205 per 1000	140 per 1000	**RR 0.63** (0.44 to 0.90)	2380 (3 studies)	⊕⊕◯◯ **low**[2,3]	In Patel 2010 C-RCT India; collaborative care reduced the prevalence of CMDs at 6 months in a subgroup of people treated at public health facilities (RR 0.57, 95% CI 0.42 to 0.78; 1528 participants). This effect was not seen in people treated at private facilities (RR 1. 12, 95% CI 0.68 to 1.84; 823 participants)

*The basis for the **assumed risk** is the mean control group risk across studies for pooled results and the control group risk for single studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **CIS:** Clinical Interview Schedule; **CMD:** common mental disorder; **EPDS:** Edinburgh Postnatal Depression Scale; **GP:** general practitioner; **HDRS:** Hamilton Depression Rating Scale; **ICD:** International Classification of Diseases; **NSHW:** non-specialist health worker; **RCT:** randomised controlled trial; **RR:** risk ratio.

[1]Araya 2003 RCT Chile: HDRS; Patel 2010 C-RCT India: CIS-R generated ICD-10 diagnosis for CMD; Rojas 2007 RCT Chile: EPDS with
     a 6-point reduction in score indicating recovery.
[2]Serious study limitations: In Araya 2003 RCT Chile, GPs provided both intervention and control treatments, so there was a high risk of
contamination. Downgraded by 1.
[3]Serious inconsistency: I^2 was 79% with Araya 2003 RCT Chile clearly an outlier, contributing to this unexplained inconsistency. However,
the inconsistency related to the magnitude of benefit favouring collaborative care rather than in the direction of effect. Downgraded by 1.

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What are the effects of NSHW-led interventions for treating maternal depression in low- and middle-income countries?					
Patient or population: Adult women with maternal depression **Settings:** Low- and middle-income countries (Chile, Jamaica, Pakistan, Taiwan) **Intervention:** NSHW-led interventions **Comparison:** Usual care					
Outcomes	**Illustrative comparative risks* (95% CI)**		**Estimate effect (95% CI)**	**No of Participants (studies)**	**Quality of the evidence (GRADE)**	**Comments**
	Assumed risk	**Corresponding risk**				
	Usual care	**NSHWs**				
Severity of symptoms of perinatal depression, (short and medium term: 0-12 months) measured using various depression rating scales[1]	-	The mean severity of symptoms of perinatal depression - medium term with NSHW-led interventions was **0.42 standard deviations lower** (0.58 to 0.26 lower)	SMD -0.42 (-0.58 to -0.26)	1213 (4 studies)	⊕⊕◯◯ **low**[2,3]	Note that a small clinically appreciable benefit was set at SMD < 0.2, and a moderate benefit at SMD of 0.5 to 0.8 (Cohen 1988)

*The basis for the **assumed risk** is the mean control group risk across studies for pooled results and the control group risk for single studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
BDI: Becks Depression Inventory; **CES-D:** Center for Epidemiologic Studies Depression Scale; **CI:** confidence interval; **EPDS:** Edinburgh Postnatal Depression Scale; **HDRS:** Hamilton Depression Rating Scale; **NSHW:** non-specialist health worker; **RCT:** randomised controlled trial; **SMD:** standardised mean difference.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Baker-H 2005 CRCT Jamaica CES-D; Chen 2000 RCT Taiwan Taiwanese BDI; Rahman 2008 CRCT Pakistan: HDRS; Rojas 2007 RCT Chile: EPDS.

[2] Serious study limitations: Baker-H 2005 CRCT Jamaica; Chen 2000 RCT Taiwan has study limitations and together contributed 24% weight to the pooled estimates. Removal of these trials altered the results to favour NSHW-led interventions strongly. Downgraded by 1.
[3] Serious imprecision: The 95% CI of the SMD indicated appreciable and non-appreciable benefit for NSHW-led interventions. Downgarded by 1.

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What are the effects of NSHWs compared with specialists in treating depression for mental health care in low- and middle-income countries?

Patient or population: Adults with depression
Settings: Middle-income countries (Hungary and Argentina)
Intervention: NSHWs providing pharmacological intervention
Comparison: Specialists providing pharmacological intervention

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	**Corresponding risk**				
	Specialists	**NSHWs**				
Severity of depression, short term (0-56 days) measured using HDRS Follow-up: 56 days	The mean score (SD) on the HDRS was 9.6 (2.1)	The mean severity of depression - short term (2 months post intervention) in the NSHW group was **0.9 lower** (1.2 to 0.6 lower)	**MD -0.90** (-1.20 to -0.60)	768 (1 study)	⊕○○○ **very low**[1,2]	Note that a small clinically appreciable benefit was set at SMD < 0.2, and a moderate benefit at SMD of 0.5 to 0.8 (Cohen 1988)

*The basis for the **assumed risk** is the risk in the control group. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CBA: controlled before-and-after; **CI:** confidence interval; **HDRS:** Hamilton Depression Rating Scale; **MD:** mean difference; **NSHW:** non-specialist health worker; **RR:** risk ratio; **SD:** standard difference; **SMD:** standardised mean difference.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Very serious study limitations: Lyketsos1999CBA Argentina was a CBA study so selection bias was likely. There was a risk of contamination and outcome assessments were done by same physicians doing the intervention. Downgraded by 2.
[2] Serious imprecision: The MD on the HDRS was <1 point and this is not clinically a meaningful difference on the HDRS; and the 95% CI of the MD indicated only non-appreciable benefits with NSHW intervention versus specialist intervention. However, the data came from only one study, so estimate is imprecise. Downgraded by 1.

What are the effects of NSHWs compared with usual mental health care in low- and middle-income countries for data from an NRCT in adults with PTSD?

Patient or population: Adults with PTSD
Settings: Low- and middle-income countries (Bosnia, Burundi, Uganda)
Intervention: NSHWs and OPHRs delivering psychological interventions (narrative exposure therapy, trauma counselling and workshops with psychoeducation)
Comparison: Usual care

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	**Corresponding risk**				
	Usual care	**NSHWs/OPHRs**				
Severity of PTSD symptoms in LHW/teacher-led psychological interventions (trauma counselling, workshop with psychoeducation, mother intervention) in the short term (2 weeks to 6 months) measured using various PTSD symptom scales[1]		The mean severity of PTSD with psychological interventions in the short term (within 6 months post-intervention) was **0.36 standard deviations lower** (0.67 to 0.05 lower)	**SMD** -0.36 (-0.67 to -0.05)	223 (3 studies)	⊕⊕○○ **low**[2,3]	

*The basis for the **assumed risk** is the median control group risk or mean control group risk across studies for pooled estimates and the control group risk for single studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **LHW:** lay health workers; **NRCT:** non-randomised controlled trial; **NSHW:** non-specialist health worker; **OPHR:** other professionals with health roles; **PTSD:** post-traumatic stress disorder; **SMD:** standardised mean difference.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1]Neuner 2008 NRCT Uganda: Post-traumatic Stress Diagnostic Scale; Yeomans 2010 RCT Burundi: Harvard Trauma Questionnaire; Dybdahl 2001 RCT Bosnia: Impact of Events Scale.

[2]Serious study limitations: Neuner 2008 NRCT Uganda no allocation concealment, randomisation had no sequence generation. High dropout rate and different between groups, different baseline characteristics and likely contamination; Yeomans 2010 RCT Burundi: unvalidated Harvard Trauma Questionnaire in the local context (only validated in Burundi) so may affect reliability of outcomes. Dybdahl 2001 RCT Bosnia: incomplete outcome reporting, Impact of Events Scale not previously validated in this setting. Downgraded by 1.

[3]Serious imprecision: The 95% CI of the effect estimates demonstrated appreciable and non-appreciable benefit with NSHW care. Downgraded by 1.

| What are the effects of NSHW-led care in improving dementia patients' and carers' outcomes for mental health care in low- and middle-income countries? | | | | | |

Patient or population: People with dementia and their carers
Settings: Middle-income countries (India, Russia)
Intervention: NSHWs delivering brief intervention
Comparison: Usual care

Outcomes	Illustrative comparative risks* (95% CI)		Estimate effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Usual care	NSHWs				
Severity of patient behavioural problems, short term (6 months) measured using the behavioural symptom scale (NPI-S)		The mean severity of patient behavioural problems with this brief carer intervention was **0.26 standard deviations lower** (0.60 lower to 0.08 higher)	SMD **-0.26** (-0.60 to 0.08)	134 (2 studies)	⊕⊕⊕◯ moderate [1,2]	Note that a small clinically appreciable benefit was set at SMD < 0.2, and a moderate benefit at SMD of 0.5-0.8 (Cohen 1988)

*The basis for the **assumed risk** is the mean control group risk across studies for pooled results and the control group risk for single studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **NPI-S:** Neuropsychiatric Inventory - Severity; **NSHW:** non-specialist health worker; **RCT:** randomised controlled trial; **SMD:** standardised mean difference.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] No serious study limitations: Gavrilova 2009 RCT Russia was unclear whether allocation concealed. Dias 2008 RCT India was at low risk of bias and contributed > 60% of the weight to the pooled estimates. Removal of the former study did not alter the results. Not downgraded.

[2] Serious imprecision: The 95% CI for the pooled estimates indicates appreciable benefit for NSHW care and non-appreciable benefit for usual care. Downgraded by 1.

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What are the effects of NSHWs in delivering brief alcohol interventions in RCTs for alcohol-use disorders?

Patient or population: People with alcohol-use disorders
Settings: Low- and middle-income countries (Thailand, Kenya)
Intervention: NSHWs in delivering brief alcohol interventions
Comparison: Usual care

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	**Corresponding risk**				
	Usual care	NSHWs				
Amount of alcohol consumed, short term (3-6 months) measured using the number of drinks/drinking day (in past week to 30 days)		The mean amount of alcohol consumed in the intervention groups was **1.68 lower** (2.79 lower to 0.57 lower)	**MD -1.68** (-2.79 to -0.57)	167 (2 studies)	⊕⊕◯◯ **low**[1,2]	

*The basis for the **assumed risk** is the mean control group risk across studies for pooled data or the control group risk for individual studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **MD:** mean difference; **NSHW:** non-specialist health worker; **RCT:** randomised controlled trial; **RR:** risk ratio.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Serious study limitations: Noknoy 2010 RCT Thailand: high dropout rate with no information on whether they are different to completers, no validated tools in the setting, so unreliable primary outcomes. Papas 2011 RCT Kenya: unclear about whether the non-blinding of outcome assessors would have impacted on study. Downgraded by 1.
[2] Serious imprecision: The 95% CI of the MD in number of drinks indicates marginal benefit and no appreciable benefit with interventions. The sample size was also low. Downgraded by 1.

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What are the effects of NSHWs/OPHRs conducting interventions for children with PTSD from RCTs in low- and middle-income countries?						

Patient or population: Children/adolescents with PTSD and related depressive/anxiety symptoms
Settings: Low- and middle-income countries (Bosnia, Kosovo, Sri Lanka)
Intervention: NSHWs/OPHRs delivering psychological and psychosocial interventions
Comparison: Usual care

Outcomes	Illustrative comparative risks* (95% CI)		Estimate effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Usual care	NSHWs/OPHRs				
Severity of PTSD symptoms in LHW/teacher-led interventions, short term (1-6 months) measured using various PTSD severity of symptom scales[1]		The mean severity of PTSD symptoms in children in teacher-led intervention groups was **1.2 standard deviations lower** (1.52 to 0.88 lower)	**SMD -0.89** (-1.49 to -0.30)	298 (3 studies)	⊕○○○ **very low**[2,3]	Note that a small clinically appreciable benefit was set at SMD <0.2, a moderate benefit at SMD of 0.5-0.8, and a large benefit > 0.8 (Cohen 1988)

*The basis for the **assumed risk** the mean control group risk across studies for pooled results and the control group risk for single studies. The **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **LHW:** lay health workers; **NSHW:** non-specialist health worker; **OPHR:** other professionals with health roles; **PTSD:** post-traumatic stress disorder; **RCT:** randomised controlled trial; **SMD:** standardised mean difference; **UCLA:** University of California at Los Angeles.

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Berger2009 CRCT SriLanka: UCLA PTSD scale; Gordon 2008 RCT Kosovo: Harvard Trauma Questionnaire; Ertl 2011 RCT Uganda: Clinician-administered PTSD scale (CAPS).

[2] Very serious study limitations: Gordon 2008 RCT Kosovo no allocation concealment, also likely contamination, and no blinding of outcome assessments; Berger2009 CRCT SriLanka no allocation concealment, likely contamination and outcomes not adjusted for clustering. Two of the three trials are at risk of bias and contribute to > 60% weight to the pooled results. Downgraded by 2.

[3] Serious inconsistency: $I^2 = 78\%$. The inconsistency is not related to the direction of effect. Downgraded by 1.

DISCUSSION

Summary of main results

This review identified 38 RCTs and NRCTs and CBA studies evaluating the effectiveness of NSHWs delivering care for MNS disorders in seven LICs and 15 middle-income countries. Twenty-two studies used LHWs, and most addressed depression or PTSD. The diversity of included studies limited meta-analysis to outcomes for eight comparisons. All analyses presented below compare interventions versus usual care.

The review showed that the use of NSHWs, compared with usual healthcare services:

- may increase the number of **adults who recover from depression or anxiety (or both)** two to six months after treatment (low-quality evidence). At seven to 12 months, LHW-led psychological interventions probably reduced common mental disorder (anxiety and depression) symptoms and functional impairment, but collaborative care interventions (a multidisciplinary team that included one or several NSHWs and specialists) showed little or no effect over the same time period. It is unclear why this effect was lost by 12 months for collaborative care and this may be because of depression recurrence and because of the relatively short duration of the intervention. The intervention may need to carry on longer, even if just as case management, to detect early signs of relapse. There is also insufficient evidence, due to sparse data, to favour LHW-led psychological interventions over collaborative care at this time;
- may slightly reduce symptoms for **mothers with perinatal depression symptoms** (low-quality evidence);
- may slightly reduce the prevalence and the symptoms of **adults with PTSD** over six months (low-quality evidence);
- probably slightly improves the symptoms of **people with dementia** (moderate-quality evidence);
- probably improves/slightly improves the mental well-being, burden and distress of **carers of people with dementia** (moderate-quality evidence);
- may decrease the amount of alcohol consumed by **people with alcohol-use disorders** (low-quality evidence).

In children experiencing PTSD, teachers and LHWs:

- probably reduce functional impairment of PTSD-affected children at six and 12 months following the intervention (moderate-quality evidence);
- may have little or no effect on depressive or conduct symptoms (low-quality evidence);
- it is uncertain whether LHWs or teachers reduce PTSD symptoms over six months among children (very-low-quality evidence).

The three studies measuring costs suggested that NSHW interventions may be cost effective for depression and PTSD, but there is insufficient evidence to draw firm conclusions. For other outcomes (including the equivalence CBA studies for NSHWs versus specialists in treating depression), the evidence is insufficient to draw conclusions regarding the effects of NSHWs. There is also insufficient evidence to determine which NSHW training or intervention strategies are likely to be most effective.

Overall completeness and applicability of evidence

This review aimed to assess the effectiveness of NSHWs in delivering care to people with MNS disorders in order to provide guidance to health policy makers in LMICs. Several issues need to be considered when making judgements about the applicability of these findings to large-scale programmes.

Factors related to the type and role of non-specialist health workers

The included studies reported using many different types of NSHWs/OPHRs (some of whom were existing cadres within health services while others were additionally trained resources), particularly for common mental disorders and PTSD. However, there were few studies in each comparison and often information on details of the intervention and training were inadequate. We were, therefore, not able to explore the effects of interventions according to different NSHW characteristics (including selection, training, support, incentives or remuneration). We were also not able to explore the independent effect of NSHWs when they were part of complex interventions (such as collaborative care) or the effect of the intensity of the NSHW-led interventions. This information would help guide policymakers to tailor the type of NSHWs and their roles within scaled up programmes appropriately.

Furthermore, the review provides limited data on the effects of task-shifting to NSHWs. Most studies considered NSHWs or OPHRs as an add-on to usual care. Only three studies (Li 1989 RCT China for epilepsy, and Lyketsos1999CBA Argentina; Zambori 2002 CBA Hungary for depression) compared these cadres versus specialists, but these studies were of low quality and data for most outcomes could not be pooled. We, therefore, cannot be certain if task-shifting (with appropriate supervision) to non-specialists leads to equivalent quality of care or results in terms of appropriate care. Furthermore, very few studies measured adverse effects or unintended consequences of NSHW-led care - such effects could impact on the appropriateness and quality of care, and could lead to patient harm.

Interventions

Comparisons of studies were possible by MNS disorder and by broad types of interventions (such as drug treatment and psychological interventions), as well as who delivered them. However, again there were too few studies and substantial intervention variation within these categories, so it was not possible to draw strong

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conclusions on what type of intervention was most effective in relation to specific mental health disorders.

None of the included studies addressed the impact of delivering mental health care on other elements of NSHWs' healthcare roles (e.g. the impact of a mental health intervention on a PHC doctors' other tasks such as diabetes, or on their working pattern, such as consultation times). One study assessed the impact of a depression intervention on the number of days spent in hospital (i.e. both a patient outcome and a health service outcome) (Zambori 2002 CBA Hungary), but more studies looking at these indirect outcomes or unintended consequences are needed.

Programme delivery

Several issues need to be considered in applying these findings to healthcare delivery systems.

First, these are interventions delivered in a research setting where NSHWs are more likely to have been carefully selected; project leaders are more motivated; remuneration may be more available because of research funding; and training, supervision and monitoring are generally much more intensive. These conditions may not be replicable at scale or may not be as effective at scale.

Second, the types of study design chosen here were not appropriate or sufficient to inform judgements regarding the sustainability of programmes; alternative study designs, such as longitudinal studies, economic evaluations and qualitative studies, are needed for this.

Third, the elements necessary for assessing the applicability of interventions need to be considered in each setting where decisions on task-sharing or task-shifting are being made (Lavis 2009). These elements include the extent to which these real-life settings resemble those of included studies, such as on-the-ground constraints, health service arrangements, differences in baseline conditions, presence of specific groups who might benefit from the intervention and the availability of routine data.

Fourth, it is important to know the financial burden of such interventions. Few studies reported cost data, which makes it difficult to draw any conclusions on this question.

Quality of the evidence

The review included 38 studies covering a wide range of interventions and settings. For studies included in meta-analyses, the evidence for most outcomes was of low to moderate quality. Risk of bias assessments highlighted concerns regarding insufficient information on sequence generation and allocation concealment; differences in baseline outcome measurements; the reliability of primary outcome measures; and a failure to address incomplete outcome data, particularly safety data, adequately. Several studies were small and were probably underpowered.

Where meta-analysis was possible, the results were fairly consistent in showing improvements in favour of NSHW interventions,

although for some interventions and outcomes there were important variations in the reported effects that could not be explained. Some studies assessed large numbers of outcomes, increasing the probability of finding statistically significant differences for some outcomes by chance. Furthermore, the diversity of the psychometric and other outcome measures used made the interpretation of statistically pooled outcome data difficult.

In the update of this review, we will consider RCTs and cluster RCTs only, as we found few NRCTs and CBA studies and no ITS studies. Those NRCTs and CBA studies that were included did not contribute significant additional data to the review.

Potential biases in the review process

NSHWs, and in particularly LHWs, are still currently poorly indexed in the literature. Though we tried covering a broad range of different synonyms for these health workers, it is possible that some studies have been missed. In addition, NSHWs and LHWs do not have standard widely accepted definitions, so some readers may disagree with these definitions or how this review has aggregated different health workers together.

There were too few studies for each comparison to assess publication bias through assessment of asymmetry. However, because many studies reported non-statistically significant results, publication bias is probably unlikely.

Many meta-analyses were performed; therefore, some of the findings may be due to chance. Many pooled results were statistically and clinically heterogeneous, mainly because of the small number of studies and the breadth of geographical, health worker and patient characteristics - these results, therefore, need to be interpreted with caution.

Furthermore, we did not record whether, for NRCTs, the study restricted participant selection or demonstrated balance or matching between intervention and control groups on prognostic factors, or a combination of these. An imbalance of these may act as confounders (such as age, sex, socioeconomic status). However, most of the findings were reported from RCTs, so this is unlikely to have a major impact on the interpretation of our findings.

A further limitation was that trials that did not conduct an ITT analysis were generally not re-analysed or their missing data was not imputed (except for one analysis were we were able to source data: NSHW-led psychological interventions for depression - prevalence of depression). Doing so may have impacted on the estimates of effect.

Agreements and disagreements with other studies or reviews

Several reviews in primary or community mental health care have been conducted but none have focused exclusively on the effectiveness of mental healthcare delivery by a non-specialist workforce.

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Reviews have covered alternatives to inpatient care but with a focus on specialist outreach services such as specialist child community services (Shepperd 2009), or community-based rehabilitation (without specifying the workforce) (Robertson 2012). Other studies addressed resource use and primary care provider behaviour with the addition of a mental health resource at primary care level, but did not assess the effect on patient outcomes (Harkness 2009). Certain reviews compared interventions themselves rather than the provider (Abas 2003; Huntley 2012; Wiley-Exley 2007). Seven reviews incorporated aspects of interventions that were included in this review (Boer 2005; Bower 2006; Huntley 2012; Parker 2008; Rahman 2013; Tol 2011; Woltmann 2012). Details of agreements and disagreements with these reviews are presented in Table 15.

Economic studies

Appendix 3 describes other relevant economic studies that were not included in this review. The findings of these studies are similar to those of the three studies (Araya 2003 RCT Chile; Jordans 2011; Zambori 2002 CBA Hungary) included in this review, that is, that NSHW interventions seem cost-effective, and that these findings are difficult to generalise due to the different healthcare systems in various countries.

AUTHORS' CONCLUSIONS

Implications for practice

Most results from the 38 studies suggest non-specialist health workers (NSHW) delivering mental, neurological and substance-use disorders (MNS) interventions have some impact on patients' outcomes, though the evidence is overall of low quality. Given the multitude of settings, disorders, interventions and health worker expertise covered in this review, there are still too few studies within each category to draw conclusions on specific intervention characteristics (such as type of health worker, duration of intervention, levels of training and supervision, etc.) that may impact on effectiveness.

The results show that in adults, lay health worker (LHW)-led psychological interventions and collaborative care (a multidisciplinary team with NSHWs and specialists) may increase the number of adults who recover from depression or anxiety, or both, two to six months after treatment (low-quality evidence). At seven to 12 months after treatment, it is uncertain whether the delivery of psychological treatment by LHWs alone is more effective than delivery by non-specialists who are part of a multidisciplinary team (collaborative care). NSHWs may also slightly reduce symptoms for mothers with perinatal depression symptoms (low-quality evidence).

Among the other disorders, NSHWs probably slightly improve the symptoms of people with dementia and the mental well-being, burden and distress of carers of people with dementia (moderate-quality evidence). They may also slightly reduce the symptoms of adults with post-traumatic stress disorder (PTSD) and may decrease the amount of alcohol consumed by people with alcohol-use disorders (low-quality evidence).

It is uncertain whether LHWs or teachers reduce PTSD symptoms among children (very-low-quality evidence). There were insufficient data to draw conclusions about the cost-effectiveness of using NSHWs or teachers, or about their impact on people with other MNS conditions such as epilepsy, schizophrenia, and alcohol and drug abuse problems. There is also insufficient evidence to determine which NSHW training or intervention strategies are likely to be most effective.

Implications for research

While this review has identified a large number of studies conducted in low- and middle-income countries (LMICs), a number of important research questions remain. Research recommendations have been subdivided into those for trialists, systematic reviewers and other researchers.

Trialists

Trialists need to:
- describe trial interventions better, for example in terms of training, supervision and incentives for NSHWs or other professionals with health roles (OPHRs). This will allow systematic reviewers to identify and compare characteristics that may help to explain the effects of NSHW interventions better;
- conduct trials comparing interventions with different characteristics/types of NSHWs/OPHRs or modes of delivery, to be able to understand the effects of these variations. This is particularly applicable to collaborative care and other complex interventions where there may be several types of specialists and NSHWs, and several types of interventions on offer (such as stepped care);
- compare NSHWs/OPHRs versus specialists to be able to assess the potential for task-shifting;
- include assessments of potential adverse effects or unintended consequences of NSHWs and OPHRs
- design better quality trials, which includes more rigorous local validation of instruments and agreeing on standard instruments for specific outcomes and disorders to facilitate pooling and comparing data;
- focus on clinical issues that have been poorly addressed to date, including epilepsy and other neurological disorders, severe mental disorders and substance abuse;
- include economic data in their trials, as costs and cost-effectiveness are important information for health planning.

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Systematic reviewers

Further systematic reviews, drawing on a range of study designs (such as studies of effects, but also process evaluations, economic evaluations and qualitative work), are needed on:
- factors affecting the sustainability of NSHW/OPHR interventions when scaled up;
- the effectiveness of different approaches to ensure programme sustainability, including the use of different types of incentives and payment systems for NSHWs/OPHRs;
- mechanisms for integrating LHW (subset of NSHW) programmes into the formal health system;
- the equity impacts of these programmes.

Other researchers

Given the very broad range of NSHWs and OPHRs (with considerable variation in their characteristics (training, supervision, etc.), settings, interventions and delivery mechanisms in mental health care), there is a need to develop a comprehensive typology of NSHWs and OPHRs, as well as of the interventions they provide, which would help health planners and future researchers to have more standardised and comparable interventions and situations.

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* *Indicates the major publication for the study*

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Analysis 8.11. Comparison 8 NSHWs/OPHRs versus usual care in conducting interventions for children with post-traumatic stress and depression (RCTs), Outcome 11 Functional impairment - classroom-based LHW intervention - boys/girls.

Review: Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries

Comparison: 8 NSHWs/OPHRs versus usual care in conducting interventions for children with post-traumatic stress and depression (RCTs)

Outcome: 11 Functional impairment - classroom-based LHW intervention - boys/girls

Study or subgroup	NSHW/OPHR-led care N	Usual care N	Mean Difference (SE)	Mean Difference IV,Random,95% CI	Weight	Mean Difference IV,Random,95% CI
1 Short term (boys) (within 6 months post intervention)						
Tol 2012 C-RCT SriLanka (1)	122	123	-1.19 (0.5312)		68.4 %	-1.19 [-2.23, -0.15]
Subtotal (95% CI)					**68.4 %**	**-1.19 [-2.23, -0.15]**
Heterogeneity: not applicable						
Test for overall effect: Z = 2.24 (P = 0.025)						
2 Short term (girls) (within 6 months post intervention)						
Tol 2012 C-RCT SriLanka (2)	76	78	-0.4 (0.7823)		31.6 %	-0.40 [-1.93, 1.13]
Subtotal (95% CI)					**31.6 %**	**-0.40 [-1.93, 1.13]**
Heterogeneity: not applicable						
Test for overall effect: Z = 0.51 (P = 0.61)						
Total (95% CI)					**100.0 %**	**-0.94 [-1.80, -0.08]**
Heterogeneity: Tau² = 0.0; Chi² = 0.70, df = 1 (P = 0.40); I² =0.0%						
Test for overall effect: Z = 2.14 (P = 0.032)						
Test for subgroup differences: Chi² = 0.70, df = 1 (P = 0.40), I² =0.0%						

```
                              -2    -1     0     1     2
                          Favours NSHW        Favours usual care
                          intervention
```

(1) LHW-led CBI; Functional impairment scale (FIS); 3 months post interv; cluster-adjusted mean change diff and SDs. ICC=0.003, reversed direction of effect as a positive result favours

(2) LHW-led CBI; FIS; 3 months post interv; cluster-adjusted mean change diffs and SDs. ICC=0.003, reversed direction of effect as a positive result favours intervention

ADDITIONAL TABLES

Table 1. Definitions

Adult	Patients who were ≥ 18 years old. However, if some studies had an age range from, for example, 16 years upwards and the majority of participants are over 18 years, we included these study participants as adults
Children and adolescents	Children (from birth to 18 years) were considered as a separate group of participants as they have 1. different patterns of psychopathology/mental disorders; 2. different help-seeking be-

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Table 1. Definitions (*Continued*)

	haviours that would, therefore, require different interventions, in different settings (e.g. schools) and a different approach to care-worker interventions (such as teacher-led interventions)
Mental, neurological and substance-abuse (MNS) disorders	This review included MNS disorders as defined by any criteria within included papers. For the purpose of subgroup analysis, we subcategorised these disorders using the International Classification of Diseases (ICD)-10 criteria for mental and behavioural disorders and epilepsy in adults (the related ICD-10 code is listed in brackets). These categories are most likely to be used in LMIC mental health service delivery, and are based on Patel's classification (Patel 2003c), and the World Health Organization (WHO) MNS disorder categorisation (WHO 2008) 1. Common mental disorders Mild to moderate mood (affective) disorders (F32-38) Neurotic, stress-related and somatoform disorders (F40-49) Behavioural syndromes associated with physiological disturbances and physical factors (F50-59) 2. Severe mental disorders Schizophrenia, schizotypal and delusional disorders (F20-F29) Bipolar affective disorder (F31) Severe depressive episode with/without psychosis (F32.2, F32.3) 3. Neuropsychiatric disorders Organic, including symptomatic, mental disorders (includes dementia) (F1-9) Mental retardation (F70-79) Epilepsy (G40) 4. Disorders caused by substance abuse Mental and behavioural disorders due to psychoactive substance use (F10-19) 5. Mental disorders specifically related to childhood/development Conduct disorders Developmental disorders Eating disorders Pervasive developmental disorders The diagnosis could be made in clinical practice or in the context of the trial
First level care, primary care and community	First level of contact with formal health services were community-based interventions or primary care interventions (or both), on their own or attached to hospital settings, provided they had no specialist input apart from supervision (modified from Wiley-Exley 2007). This would include individuals with mental illness living in the community and programmes in outpatient clinics or primary care practices. This would not include programmes in hospitals unless the programmes in the hospitals were providing care to outpatients (i.e. generalists in outpatient departments) Community: as mentioned above detection of mental disorders in all age groups were often done outside the health facility, for

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Table 1. Definitions   *(Continued)*

	example through school, training and other community settings. Therefore, we considered interventions outside the health sector
Low- and middle-income country (LMIC)	Any country that has ever been an LMIC, as defined by the World Bank lists of LMICs
Non-specialist health workers (NSHWs)	Health workers who were not specialised in MNS disorders or have not received in-depth professional specialist training in this clinical area. These included doctors, nurses, auxiliary nurses, lay health workers, as well as allied health personnel such as social workers, occupational therapists. This category did not include professional specialist health workers such as psychiatrists, neurologists, psychiatric nurses or mental health social workers. For inclusion, NSHWs received some training in MNS disorders (in either the control or the intervention group), but this would not constitute a professional category. The authors made a judgement of what constitutes 'some training'. Examples of 'some training' may be an undergraduate module or a short course in mental health
Other professionals with health roles (OPHRs)	People who were involved as community-level workers but were not within the health sector, as many people, particularly adolescents and young adults, have low contact with health workers. This category included teachers/trainers/support workers from schools and colleges, and other volunteers or workers within community-based networks or non-governmental organisations. These OPHRs have an important role particularly in the promotion of mental health and detection of mental disorders (Patel 2007c; Patel 2008a; WHO 2003a) We excluded studies that looked at informal care provided by family members or extended members only to members of his or her own family (i.e. who were unavailable to other members of the community) from this review. As previously highlighted in Lewin;s Cochrane review, "these interventions are qualitatively different from other LHW [lay health worker] interventions included in this review given that parents or spouses have an established close relationship with those receiving care which could affect the process and effects of the intervention" (Lewin 2010).
Clinical interventions	1. Detection (recognition and diagnosis) of illness, including screening 2. Acute interventions: drug treatment, non-drug treatment/care (such as specific psychological therapies, or interventions with psychosocial components like counselling, psychoeducation, coping skills, etc.), referral 3. Follow-up, rehabilitation
Service interventions	These include change in staffing, or change in mechanism of mental health service delivery (e.g. extension of mental health services through camps and such other outreach services, mobile vans, etc.

Table 1. Definitions *(Continued)*

	)

Table 2. Risk of bias economic studies - CHEC list criteria

Study	Risk of bias issues
Araya 2003 RCT Chile	- time horizon < 1 year - a societal perspective would have been more appropriate - not all relevant costs reported - not all relevant outcomes included (only ambulatory, not hospital) - no discounting
Jordans 2010 C-RCT Nepal	- no discounting - no sensitivity analysis - not all important variables listed - no discussion of ethical/distributional issues
Zambori 2002 CBA Hungary	- the competing alternatives were not described - time horizon at 1 year was not appropriate (needs to be longer) - not all relevant outcomes assessed (e.g. effect of treatment on severity, number of healthcare visits to psychiatrist) - outcomes not measured appropriately (self reporting meant low response; standard prices used may not reflect actual prices) - outcomes not valued (only the short-term outcome) - no sensitivity analysis - conclusions do not all follow from results

Table 3. Outcomes of studies not assigned to meta-analyses

Study, and outcomes measured and tools	Intervention data [no. of participants]	Control data	Measure of effect (95% CI)	P value	Authors' conclusions
Brown 2009 CBA Rwanda (depression in youth)	**Mentoring programme by LHW**	**Usual care**	-	-	-
Severity of depression at 2 years (mean) measured using CID-S	Mean [no. of participants] 23.27 [347]	Mean [no. of participants] 23.28 [345]	-	0.99	Reduction in intervention group but not in control group (at baseline higher score in intervention group). However, the score indicates continuing levels of depression in both groups
Levels of marginalisation at 2 years (mean) mea-	3.35	3.13	-	-	Improved scores in intervention group, which are no different to control group

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Table 3. Outcomes of studies not assigned to meta-analyses   *(Continued)*

sured using a non-validated marginalisation scale					
Levels of grief at 2 years (mean) measured using a non-validated 7 point grief scale	3.42	3.38	-	-	Baseline lower levels of grief in the control group. No change at the end of the intervention though grief increased in control group and remained stable in the intervention group
Li 1989 RCT China (epilepsy - adults and children)	**Village doctors**	**Psychiatrists**	-	-	-
Effective epilepsy control with phenobarbital after 3 months	No. seizures/month [no. of participants] 12 [20]	No. seizures/month [no. of participants] 11 [20]	-	-	-
Total number of adverse events after 3 months	No. events [no. of participants] 19 [20]	No. events [no. of participants] 39 [20]	-	-	-
Paranthaman2010CBAMal (people with schizophrenia and their carers)	**Medical assistants/ nurses**	**Usual care**	**MD (95% CI)**	**Pvalue**	**Authors' conclusions**
Carer burden (activities in daily living) (mean) at 6 months. Measured using the Family Burden Interview schedule	Mean (SD) [no. of participants] 9.41 (3.99) [54]	Mean (SD) [no. of participants] 8.93 (4.47)	0.48 (-1.11 to 2.07)	0.55	Mostly there are similar scores between control and intervention groups
Carer assistance in daily living severity - ADL at 6 months measured using the Family Burden Interview Schedule	-	-	0.83 (-0.94 to 2.60)	-	-
Re-admission rates	No. (events) [no. of participants] 3 [54]	No. (events) [no. of participants] 5 [55]	-	0.47	-

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Table 3. Outcomes of studies not assigned to meta-analyses   *(Continued)*

Defaulting from follow-up	No. (events) [no. of participants] 6 [54]	No. (events) [no. of participants] 14 [55]	-	0.03	important improvement in follow-up rate for intervention group
Shin 2009 RCT Vietnam(children with intellectual disabilities)	Teacher-led portage programme (OPHRs)	Usual care	MD (95% CI)	P value	Authors' conclusions
Functional impairment (motor skills) at 6 months (similar at 12 months) measured using the Vineland Adaptive Behaviour Scales	Mean (SD) [no. of participants] 47.6 (16.8) [16]	Mean (SD) [no. of participants] 49 (15.4) [14]	-1.40 (-12.93 to 10.13)	0.81	No significant difference for any mental outcomes but some improvement for motor and personal care outcomes if looked at time x effect interaction)
Functional impairment (social skills) at 6 months (similar at 12 months) measured using the Vineland Adaptive Behaviour Scales	47.1 (15.5) [16]	46.3 (18.3) [14]	0.80 (-11.51 to 13.11)	0.93	-
Behavioural changes at 6 months (similar at 12 months) measured using the Vineland Adaptive Behaviour Scales	55.6 (10.5) [16]	55.7 (10) [14]	-0.10 (-7.44 to 7.24)	0.98	-
Sutcliffe2009RCT Thailand (people with drug abuse disorder)	Peer educator-led psychoeducation (LHWs)	Usual care (life skills training)	RR/MD (95% CI)	P value	Authors' conclusions
Methamphetamine use at 6 months (similar results at 3, 9 and 12 months)	No. [no. of participants] 272 [442]	No. [no. of participants] 267 [440]	RR 1.01 (0.91 to 1.13)	0.79	Randomised peer education, social network intervention and control (social skills training) are both associated with reductions in methamphetamine use and increases in condom use over 12 months among a sample of young Thai people

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Table 3. Outcomes of studies not assigned to meta-analyses (*Continued*)

Recovery of depressive symptoms at 12 months (index patient) measured using CES-D score	Mean (SD) [no. of participants] 15.7 (9.7) [209]	Mean (SD) [no. of participants] 17.9 (9.3) [206]	MD -2.20 (-4.03 to -0.37)	-	The effect was strongly observed amount intervention index participants compared with both control and network participants
Recovery of depressive symptoms at 12 months (index and network patient combined) measured using CES-D score	[no. of participants] [495]	[no. of participants] [488]	MD -1.05 [-3.20 to 1.11]	-	Contrary to expectation, mea and in CES-D score change did not substantially differ between intervention network participants and control network participants. Thus, there is no evidence that the differential intervention effect on depression diffuses to network members
Prevalence of depression at 12 months (index patient) measured using CES-D score	Events (No.) [no. of participants] 57 [209]	Events (No.) [no. of participants] 70 [206]	RR 0.80 (0.60 to 1.07)	-	-
Prevalence of depression at 12 months (index and network patient combined) measured using CES-D score	[no. of participants] [495]	[no. of participants] [488]	RR 0.88 (0.73 to 1.06)	-	-
Hirani 2010 CRCT Pakistan(adults with depression, economic skills building intervention arm)	NSHW-led economics skill building n = 9	Usual care n = 8	SMD (95% CI)	-	Comment: these are presented as SMDs (calculated in RevMan, to compare with other SMDs in comparison 1.6 and 1.7)
Severity of depressive symptoms measured using Becks Depression Inventory II	Mean (SD) 20.1 (11.3)	Mean (SD) 27.63 (9.1)	SMD -0.69 (-1.73 to 0.35)	-	This study documents improved self efficacy and employment for women enrolled in economic skill-building compared with general counselling and to control
Functional impairment measured using the General Self-Efficacy scale	28.7 (6.2)	21.63 (3.8)	SMD -1.29 (-2.41 to -0.16)	-	-

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Table 14. Summary of costs and resource use from included studies

Author/year	Type of economic evaluation	Study population	Intervention	Economic results
Araya 2003 RCT Chile	Cost-effectiveness analysis	Women with depression	Collaborative intervention (doctors, non-medical professionals supervised by psychiatrist) with stepped care, multi-component programme compared with usual care in depressed women in Chile	Incremental cost per person for improved care was USD37.6 more than usual care. Unit cost to obtain 1 additional depression-free day was USD0.75
Jordans 2011	Cost analysis	Children with PTSD (7-15 years)	LHW-led multilayered package (including classroom-based intervention, non-therapeutic resilience groups, psychoeducation and counselling) (data extracted from Sri Lanka and Indonesia as related to Tol 2008 C-RCT Indonesia and Tol 2012 C-RCT SriLanka)	Mean cost per user of total package: Indonesia: USD21.77 (59% of which is human resources cost). Sri Lanka: USD8.85 (56% of which is human resources cost)
Zambori 2002 CBA Hungary	Cost analysis	Patients with anxiety and mood disorders	Primary physicians versus psychiatrists in prescribing sertraline in Hungary	Absenteeism reduced from 15.7 to 6.8 days and costs of non-psychiatric prescriptions decreased from USD138 to USD91.8 per year. Laboratory costs ranged from USD6.4 to USD11.5

LHW: lay health worker; PTSD: post-traumatic stress disorder.

Table 15. Agreements and disagreements with related reviews

Author/year	Summary of review	Agreements	Disagreements/differences
Parker 2008	Reviewed consultation liaison in primary care - HICs	-	Our review process did not find any consultation liaison in primary care in LMICs so results cannot be compared

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Table 15. Agreements and disagreements with related reviews *(Continued)*

Boer 2005	Reviewed paraprofessionals in delivering psychological interventions for anxiety and depression (HIC only)	Included studies were from HICs only, but support our findings that non-professional care is generally equivalent to professional care (this review's equivalent of specialist care), and that non-professional care is better than usual care	Some of their paraprofessionals would have been classified as specialist health workers in our review
Bower 2006	Reviewed the effect of collaborative care models on antidepressant use All included studies were from HICs except for Araya 2003 RCT Chile	Bower found improvement of antidepressant use, particularly in studies where the case manager had a mental health background, where there was adequate supervision and where there was systematic identification of patients (rather than waiting for a referral)	We were not able to assess, as did Bower, whether lengths of training, supervision or other intervention characteristics modified these outcomes because only 5 studies were included in this comparison
Woltmann 2012	Review on collaborative care/ chronic care management	They also found a statistically significant effect on reduction in depression severity among the 14 HIC studies that were included in the meta-analysis (SMD 0.31, 95% CI 0.16 to 0.47) (Araya and Patel's studies were included in the narrative review but did not qualify for their meta-analysis). The authors suggested that collaborative care is of moderate benefit; however, Woltmann has estimated a more conservative value of SMD > 0.5 to show moderate benefit (from the analysis of scales and how to interpret their SMDs). Our meta-analyses of collaborative care models suggested similar improvements in symptoms and recovery from depression or CMDs (same direction of effect, and similar magnitude)	Woltman's chronic care management had a stricter definition to our collaborative care definition
Huntley 2012	Reviewed the effect of CBT and group CBT	Huntley also found that LHW-led psychological interventions are effective in the short and medium term in reducing symptoms of depression	Huntley described the effect of CBT and group CBT (rather than the effect of NSHWs)
Tol 2011	Systematic review on mental health interventions in humanitarian settings	Tol found similar results to our review for school-based interventions for children with PTSD (i.e. no significant benefit) (an extra study	This review differed from ours in that it included studies of both NSHWs/OPHRs and specialists, according to our definitions

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Table 15. Agreements and disagreements with related reviews *(Continued)*

		was included in this comparison, which we had excluded as it did not meet our NSHW/OPHR definitions). This review went further and found a statistically significant benefit for improving internalising symptoms (SMD -0.34, 95% CI -0.40 to -0.09). For adults, a potential benefit of interventions was also seen	
Rahman 2013	Systematic review on interventions for common perinatal mental disorders in women in LMICs	This was similar but a more in-depth review of our perinatal depression pooled comparison, which also looked at LHW-led interventions for mothers with perinatal depression. Their final pooled outcome was similar in magnitude and direction to ours for our perinatal depression category (SMD -0.38, 95% CI -0.56 to -0.21) vs, our findings (SMD -0.42, 95% CI -0.58 to -0.26)	This review differed from ours in that its study's inclusion criteria were broader as it included studies that measured maternal (all perinatal disorders) or child (or both) outcomes even if the intervention was not primarily targeted at these groups. It also reported child outcomes, which ours did not

CBT: cognitive behavioural therapy; **CI:** confidence interval; **CMD:** common mental disorders; **HIC:** high-income country; **LHW:** lay health worker; **LMIC:** low- and medium-income countries; **NSHW:** non-specialist health worker; **OPHR:** other professionals with health roles; **PTSD:** post-traumatic stress disorder; **SMD:** standardised mean difference.

APPENDICES

Appendix 1. Search strategies

CENTRAL

#1	MeSH descriptor Allied Health Personnel, this term only
#2	MeSH descriptor Community Health Workers, this term only
#3	MeSH descriptor Nurses' Aides, this term only
#4	MeSH descriptor Psychiatric Aides, this term only
#5	MeSH descriptor Caregivers, this term only

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CONTRIBUTIONS OF AUTHORS

NvG conceived the review. All authors contributed to the development of the protocol. NvG, PT, GR, MSM, SC and JP extracted data and assessed risk of bias. NvG and PT checked these and did the statistical analysis and GRADE assessments. NvG wrote the final version. All authors commented on and approved the final version.

DECLARATIONS OF INTEREST

SOURCES OF SUPPORT

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

Authors

Meera SM, Sudha Chandrashekar and Jessica Pian are new authors who helped with data extraction, analysis and writing (SC).

Search strategy

In the review protocol, we planned to search African Indexus Medicus, EurasiaHealth (Eastern European countries) and IndMED (Indian Medlars Centre). This was not done as we felt that the World Health Organization (WHO) trial registry, World Health Organization Library Information System (WHOLIS) and other databases would cover these sources.
We did not search the HEED database (as outlined in our protocol) as there were few identified studies. We will perform this search when conducting the next update of this review.

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Data extraction and management

- Settings: We narrowed down the options to workplace, school, community, PHC clinic and other.
- Results: We extracted more details pertaining to outcomes such as whether they were continuous our dichotomous and what the authors' conclusions were.
- Screening instruments: Removed citation details from data extraction.

Assessment of risk of bias

- All based on Cochrane Effective Practice and Organisation of Care (EPOC) criteria, not on the *Cochrane Handbook for Systematic Reviews of Interventions*.
- We added two extra categories for risk of bias assessment. The detection bias has been divided into two: that of assessing subjective and objective outcomes were assessed blindly. In addition, the attrition bias has been divided into how incomplete or not two types of outcomes are: efficacy outcomes and safety outcomes (e.g. adverse events).
- Consensus on Health Economic Criteria (CHEC) list criteria: This was adapted with more questions: 1. Was there a comparison between two more groups receiving different interventions? 2. Is the perspective/viewpoint** of the analysis explicitly stated? If yes, give detail; 3. Are costs measured? If yes, give details of costs measured; 4. Were outcomes measured? If yes, give details of outcomes measured; 5. Were sensitivity analyses undertaken? If yes, give details of forms of sensitivity analyses.

Data synthesis

For NRCTs, we did not record whether the study restricted participant selection or demonstrated balance or matching between intervention and control groups on prognostic factors, or a combination of these. An imbalance of these may act as confounders (such as age, sex, socioeconomic status).

We also did not record whether the study adjusted for confounders or effect modifiers in statistical analyses to quantify the effect size (Reeves 2009). Therefore, we have not entered these into additional tables.

We did not transform ordinal outcomes (such as symptom severity, general psychosocial functioning, levels of dependency in disability and any other outcomes measured on a scale) into binary data (e.g. symptom improvement will become improvement or no improvement) or vice versa as it did not make clinical sense. There were very different scales and many studies that had binary data also pooled continuous data that could be pooled with other similar figures.

Pooling results: Though it is generally advised not to pool results if the I^2 statistic is more than 50%, we decided to pool outcomes and results that made clinical sense (based on settings, mental illnesses, types of interventions and outcomes measured), rather than rely only pooling those that had an I^2 statistic less than 50%.

Economic outcomes: There were too few studies to do any conversion of unit costs to 2010 International Dollars (Shemilt 2010), re-estimation of costs, adjustments for currency and price year or perform any further calculations of total costs, or resource use per patient, intervention or health provider.

Statistical analysis: We did not perform meta-regression to investigate both the effect of the intervention on the estimates of effects and to investigate the effect of multiple characteristics (regarding setting and the intervention) simultaneously (Deeks 2009), as there were never more than five studies per variable.

Sensitivity analyses: We did not perform additional sensitivity analyses that were listed as considered analyses in the protocol:

- based on specific decisions made during the review process, such as how ICCs are imputed for cluster trials;
- based on whether the included cluster RCTs found different estimates of effect to non-cluster trials for specific outcomes, but excluding cluster RCTs;
- based on whether the study reported a validated tool that confirmed the NSHWs diagnostic accuracy;
- if one or more studies reported outcomes using either a continuous scale or a dichotomous scale and in either scenario had been transformed (to dichotomous or continuous variable respectively);
- based on the effect.

For the economic analyses, we also did not perform additional sensitivity analyses, as there were too few studies to make this meaningful.

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Subgroup analysis and investigation of heterogeneity

We had initially planned to use non-overlapping CIs to indicate a statistically significant difference in treatment effect between the subgroups, acknowledging that the CIs can overlap to a small degree and the difference could still be statistically significant. However, the implementation in RevMan 2012 of the Chi^2 test and I^2 statistic for subgroup differences within random-effects meta-analyses meant that this approach was no longer needed.

Definitions

NSHW/OPHR: We excluded certain health workers that we classified as a specialist including those who were not traditionally thought of as specialists by the psychiatry/medical system: for example school counsellors who were trained to exclusively do that and who had a qualification, with or without extra experience and where their sole focus was on child psychology/counselling. We also excluded all healthcare providers within non-biomedical systems (e.g. a yoga master) as we had not searched for these specifically and it was difficult to judge, from our perspective, what constituted for them a mental health intervention.

MNS disorders: We relaxed our criteria for International Classification of Diseases (ICD)-10 diagnoses for inclusion criteria of participants. The reason we did this was that in some studies, the population studied did not have formal diagnoses administered (either because of lack of psychiatrist or because their aim was to look at reduction in symptoms and improvement in psychosocial functioning). Therefore, we included studies where the overwhelming majority of the participants (above 75%) had significant mental health symptoms (such as high scores of depression symptoms or post-trauma symptoms, e.g. Jordans).

Clinical interventions: We decided not to include interventions delivered by people who were not within the medical paradigm (such as faith healers or yoga masters).

Social interventions: We did not include social interventions (initially defined as return to employment/school or general social support) if it was not part of a trial with a specific mental health intervention, as we discovered our search strategy did not address this completely and opened a whole array of studies that we had not considered at the protocol stage (such as income generating activities without a mental health intervention but that may look at mental health outcomes).

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Chapter 5

The development of mental health services within primary care in India: learning from oral history

(research paper 3)

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SECTION A – Student Details

Student	Nadja van Ginneken
Principal Supervisor	Vikram Patel
Thesis Title	The roles of primary-level health workers in delivering mental healthcare in India

If the Research Paper has previously been published please complete Section B, if not please move to Section C

SECTION B – Paper already published

Where was the work published?	International Journal of Mental Health Systems		
When was the work published?	Online publication: August 2014		
If the work was published prior to registration for your research degree, give a brief rationale for its inclusion			
Have you retained the copyright for the work?*	Yes	Was the work subject to academic peer review?	Yes

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Where is the work intended to be published?	
Please list the paper's authors in the intended authorship order:	
Stage of publication	Choose an item.

SECTION D – Multi-authored work

For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I conceived the design of the study and structure of interviews. I conducted all interviews, performed all the analysis and wrote the article which was commented on by my co-supervisors as well as my India-based dvisor (Sanjeev Jain).

Student Signature: _____   Date: 3/1/15
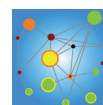
Supervisor Signature: _____   **Date:** _____

The development of mental health services within primary care in India: learning from oral history

Nadja van Ginneken[1,2*], Sanjeev Jain[3], Vikram Patel[1,2] and Virginia Berridge[4]

Abstract

Background: In India very few of those who need mental health care receive it, despite efforts of the 1982 National Mental Health Programme and its district-level component the District Mental Health Programme (DMHP) to improve mental health care coverage.

Aims: To explore and unpack the political, cultural and other historical reasons for the DMHP's failures and successes since 1947 (post-independence era), which may highlight issues for today's current primary mental health care policy and programme.

Methods: Oral history interviews and documentary sourcing were conducted in 2010–11 with policy makers, programme managers and observers who had been active in the creation of the NMHP and DMHP.

Results: The results suggest that the widely held perception that the DMHP has failed is not entirely justified, insofar that major hurdles to the implementation of the plan have impacted on mental health coverage in primary care, rather than faults with the plan itself. These hurdles have been political neglect, inadequate leadership at central, state and district levels, inaccessible funding and improperly implemented delivery of services (including poor training, motivation and retention of staff) at district and community levels.

Conclusion: At this important juncture as the 12th Five Year Plan is in preparation, this historical paper suggests that though the model may be improved, the most important changes would be to encourage central and state governments to implement better technical support, access to funds and to rethink the programme leadership at national, state and district levels.

Keywords: Mental health, History, India, Developing countries, Health policy, Health planning, Primary health care, Health workers

Background

In low- and middle- income countries (LMICs) very few mentally ill people receive mental health care despite available evidence for cost-effective and feasible packages of care [1,2]. The scarcity of specialist human resources, as well as large inequities and inefficiencies in resource allocation are significant reasons why this treatment gap remains [3,4]. Currently available studies from LMICs suggest various primary health care worker (PHWs) cadres (primary

level doctors, nurses, lay health workers and other generalist paraprofessionals with no specialisation in mental health) are effective in a range of interventions for mental, neurological and substance abuse disorders [5]. In light of achieving universal health coverage, efforts at a global level and within India have advocated task-sharing and better leadership in scaling-up services [6]. In particular, the WHO Mental Health Gap Action Programme created guidelines for task-sharing mental health interventions with non-specialists [2,4,7].

India was the first post-colonial "non-white" independent country to have mental health reforms. The national mental health programme (NMHP), created three decades ago in 1982, established an integrated approach to mental healthcare

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delivery utilising a specialist and non-specialist workforce. There is a widely held perception that the NMHP failed [8]. Mental healthcare coverage has certainly been limited on both the specialist and the primary care fronts. There are 3600 psychiatrists in India for a population of 1.2 billion [9]. Most are located in the private sector and in major cities. There is a 40–60 fold deficit in the number of clinical psychologists, social workers, and nurses [9]. As for primary mental health care, still only 127 districts of the 626 districts in India have implemented the District Mental Health Programme (DMHP), the district implementation of the NMHP which operationalises mental healthcare integration into primary care. Within these districts not all primary care doctors are trained [10].

The aim of this study is to explore and unpack the political, cultural and other historical reasons for the DMHP's failures and successes since 1947 (post-independence era). At this important juncture, as a 12th Five Year Plan is in preparation, which is the sixth Five Year Plan since the NMHP started, this historical analysis is critical to policy makers when rethinking the current DMHP's implementation.

Methods

The first author (NvG) conducted oral history interviews in 2010–11. This marked the end of a government health planning cycle, the 11th Five Year Plan. Oral histories are in-depth interviews with witnesses to and participants in past events. The method captures individual memories and thus personal and social perspectives on events, which can be crucial in complementing written documentation. It may be the only recording of certain events which have no written evidence. This study interviewed the 'elite' (such as civil servants and professionals) to better understand policy and political processes, and the interplay with personalities [11].

To select interviewees, five contacts known to one of the authors (VP) helped identify further participants through 'snowballing'. Of 26 potential interviewees, 17 were purposively selected to represent different perspectives, backgrounds and time periods. They comprised national and regional Indian mental health policy makers, clinical experts and programme implementers, sometimes fitting into multiple categories (see Table 1), who were active between 1975 (when WHO advocated the extension of mental health services) and the present day. These audio-recorded interviews were conducted in English, and followed a narrative of each individual's involvement in mental health policy and programmes in India, what they viewed as current key issues and the future vision for improving mental healthcare in primary care. Informed consent was obtained from all participants.

Written historical material was gathered from literature searches and participants. We relied principally on oral history sources and published materials (Indian newspapers, training manuals, government reports) as has been done in

Table 1 Participants characteristics (n = 17)

Roles	Numbers*	Details
Clinical psychiatrists	14	• Six retired
		• Eight implemented mental health programmes
		• Nine advisors/decision makers (state or central government)
		• Three work within NGOs
		• One private psychiatrist
		• Four now work abroad
Bureaucrats	7	• Five bureaucrats within the Indian Government
		• Two international-level bureaucrats
Programme implementers	9	• Six NGO programme founders or coordinators, of whom one user-survivor
		• Four government programme implementers
Academics	8	• All did research in India
		• One lawyer, seven psychiatrists

*most participants had two or three different roles so numbers do not add up.

other contemporary history studies [12]. Indian organisations such as mental health institutions, psychiatric societies, or NGOs who were approached have not maintained formal archives. Correspondence and records of formal governmental reviews are not available in the public domain. Many documents had been destroyed from lack of space, or other administrative reasons. Some documents, the author was informed, were retained in various professors' offices. Through attempts to track these through participants and their contacts, the first author obtained access to some unpublished material such as minutes of meetings, grant reports, unpublished papers, memorabilia related to the organisation's activities, but not to any administrative records.

The main analysis focussed on the interviews which were transcribed and coded. The codes were analysed within a thematic framework which combined deductive themes (present in the interview guide), as well as inductive themes (identified during the process of coding). Written sources helped to cross check and contextualise emerging data to highlight discrepancies and inconsistencies in interviewees' memories of events and processes. This methodological triangulation allowed the identification of critical perspectives and emerging themes [13], and identified the important time periods of mental health policy developments.

Themes inductively identified in the analysis matched the existing functional typology of health system policies [14,15]:

1. Delivery arrangements (which services, to whom, by whom, what settings and accessibility, health

information and technology, supplies, quality and safety monitoring mechanisms)
2. Financial arrangements (financing of the programme, funding of clinics for services, remuneration of providers)
3. Governance arrangements (establishments of responsibilities and accountabilities at the levels of policy and professional authorities and consumer/ stakeholder involvement in policy decisions)

Ethical approval was gained from the London School of Hygiene and Tropical Medicine, from Sangath, Goa, and from the Indian Medical Research Council. Consent was obtained from all participants.

Results

An overview of the recent milestones of primary mental health care developments in India is presented to set the context for the second section of the results which will explore the reasons for achievements and failures of the DMHP.

A brief overview of phases

The overview starts from Independence of India (1947) to set the full context of primary mental health care developments. This study identified seven key periods (Table 2), which were similar to other NMHP historical reviews [16,17]. These time periods delineated the rise of the NMHP, its fall in the 1990s, and a recent rise of government attention to the NMHP in the 21st century.

1. *1946 to 1975: Creating an Indian system of mental health care*

The evolution from asylums to more humanistic mental health institutions began in the 1920s. Significant developments – internationally (psychotropic medicines) and in India (General Hospital Psychiatric Units, more specialists and epidemiological surveys) - contributed to mainstreaming psychiatry as a medical speciality. The post-Independence government focussed mainly on psychiatric training and building hospitals rather than on developing a non-mental health specialist workforce as intended by the Bhore Committee Report, a report set up by the colonial government, headed by Sir Joseph Bhore and advised by a panel of international experts, intended to address the health needs of India in a post-colonial era [21,22]. In the 1950s and 1960s non-mental health specialists were used only in a handful of tertiary care settings (Amritsar, Madras and Calcutta). No formal government plans existed for extending mental health services to the community. However this was a major time for the development of primary care and community health worker services in general [23].

2. *1975 to 1982: piloting models for extending mental health services*

The WHO's study, "*Strategies for extending mental health care*" [24], instituted primary-level health worker (PHW)-delivered mental health care in seven countries. One site was in Raipur Rani, northern India (1975–81). A similar model was developed in Karnataka, southern India (1976–1986) through the National Institute for Mental Health and Neurosciences (NIMHANS), one of the largest mental institutions in India, and one of the few heavily involved in national mental health planning and implementation. Twenty nine other minor similar models emerged across the country [25].

Inspired by these apparently successful models and by primary care developments (1978 Alma Ata Declaration, primary care in India), a small taskforce committee produced a National Mental Health Programme (NMHP), which was adopted by the Government of India in 1982. The NMHP was initiated to promote community mental healthcare through an intersectoral approach and through integration with primary care by training existing PHWs to diagnose and treat mental disorders. The NMHP programme, though conceived as one plan, evolved in nature and remit according to decisions taken at the beginning of each ensuing Five Year Plan.

3. *1982 to 1990: the NMHP's first steps*

In the early 1980s, NIMHANS identified that their models which operated at PHC level were too resource-intensive for a small catchment area. They therefore piloted a district-level initiative in the Bellary district in Karnataka State (1985–1990) [26]. Simultaneously, the NMHP asked each state to "*operationalise a programme in at least one district in their State*" [25]. The Bellary model, one of the few operationalised and favourable programmes, was taken up by the government as a national model and has remained the model for primary mental care delivery ever since.

4. *1990 to 1996: Politics, power and the rise of NGOs*

The NMHP continued to be hospital-focussed [27]. During these years, the healthcare system in India moved away from the 1982 pro-poor and comprehensive National Health Policy and this development also coincided with a faltering of the comprehensive ideology of Alma Ata. The government reduced the healthcare budgets of the States [28] and this affected mental healthcare. Earlier community mental health models (e.g. Raipur Rani) collapsed and their leaders moved abroad. Few regional centres other than NIMHANS implemented the NMHP, and the programme stagnated.

Table 2 History of mental health care integration within the Indian health system*

Time periods	Date	Health system and political developments	Mental health developments
PRE-INDEPENDENCE	early 20th century	1935 Act: provinces autonomy for Health activities	Growth of mental hospitals, first general hospital psychiatric unit (GHPU)
	1946	Bhore Committee Report	
1. POST- INDEPENDENCE	Aug 1947	Independence of India declared	
	1950s	1st Five Year Plan (FYP)	1950s: Psychotropic medications developed
			1954: All India Institute of Mental Health (AIIMH) established, Bangalore
	1956	Second FYP. Rs. 225 crore (5%) for health	Late 1950s: concept of 'family ward' (Amritsar and CMC); nurse training at AIIMH
	1961	3rd FYP. Rs. 342 (4.3%) for health; Mudaliar Committee Report	1960s: More GHPUs and specialists; psychiatric social worker training in AIIMH
	1969	4th FYP. Rs. 840 crores for health	
	1973	Medical personnel forced to work in rural areas; Multi Purpose Workers introduced; 1974: 5th FYP. Rs. 796 crores health	1974:NIMHANS replaces AIIMH and the government mental hospital
2. PILOTING MODELS FOR MH CARE EXTENSION	1975		WHO report on organisation of mental health services; Community Psychiatry Unit created in NIMHANS
	1977	Community health workers and Dais	1975-1981: WHO: "strategies for extending mental health care" (including Raipur Rani)
	1978	Declaration of Alma-Ata	1975-1986: Sakalwara – NIMHANS model. Other similar projects: Delhi, Jaipur, Hyderabad
	1980	6th FYP	
3. NMHP- INITIAL STEPS	1982	National Health Policy	National Mental Health Programme initiated. Budget: 10 million rupees for the first 5 years
	1985	7th FYP	Bellary programme (1985–1990)
	1987		Mental Health Act
4. POLITICS, POWER and NGOS	1990s		Increasing number of NGOs. E.g.: 1993: Banyan; 1996: Ashadeep, Sangath, GASS; 1999: Bapu Trust
	1992	8th FYP	Community mental health featured on health budget
	1994		Persons with Disability Act
5. DMHP/HUMAN RIGHTS	1996		DMHP implemented. Budget: 270 million rupees;
	1997	9th FYP	
	1998		The National Human Rights Commission Report
	2001		Erwadi disaster (Tamil Nadu)
6. RESTRATEGISED NMHP	2002	10th FYP; National Health Policy	Re-strategised NMHP. Budget: 1.9 billion rupees
	2004	National Rural Health Mission. ASHA worker created.	
	2005		UN Convention on the Rights of People with Disabilities
7. REINVIGORATED DMHP	2007-2011	11th FYP	2007: 'Reinvigorated' NMHP. Budget: 10 billion rupees

*based on findings of interviews and references: [16-20].

NGOs thus flourished in order to address the gap in mental healthcare provision [29]. These developed several innovative models, including rehabilitation and advocacy, using an array of non-specialist health workers (such as social workers and users) and bypassing government primary care centres.

5. *1996 to 2002: The human rights agenda and DMHP creation*

Human rights violations in psychiatric and religious institutions were exposed through the media (27 chained mentally ill burned to death in an accidental fire in the Erwadi Dargah in 2001), by the Supreme Court (an evaluation of mental hospitals' poor standards [30], and by human rights lawyers and activists. The human rights movement vilified institutional care. This helped the District Mental Health Programme (DMHP), launched in 1996, to gain support. The DMHP strongly advocated community care as part of the comprehensive integration of tertiary, secondary and primary care.

6. 2002 to 2007: The 10th Five Year Plan

The NMHP in the 9th Five Year Plan had only focussed on the DMHP, so the 10th plan 'restrategised' the NMHP to strengthen and modernise state-level administration, mental institutions and medical colleges [31]. Few changes were made to the DMHP. New government officials were however favourable to the NMHP and increased its budget seven-fold, even though these funds were subsequently under-spent. A large private mental health sector flourished because of continuing poor government provision.

7. 2007 to 2011: the 11th Five Year Plan

The NMHP was 'reinvigorated', following some adverse evaluations of the NMHP/DMHP [31,32]. With a budget increase to 10 billion rupees (still only 2% of the public health expenditure in 2007), new elements were incorporated into the NMHP such as school and suicide prevention programmes. Training of general medical officers became a priority.

What have been the reasons for the achievements and failures of the DMHP?
The oral history interviews and information from documentary sources highlighted both ongoing and enduring issues which have affected the implementation of primary mental health care. Three key areas were identified: governance, financial and delivery arrangements.

1. Governance arrangements and leadership
Since the start of the NMHP, leadership and government commitment have been poor, and have lacked transparent and accountable systems. The reasons for this are presented below.

Inadequate leadership
Firstly, respondents generally agreed that the government had neglected mental health and failed to adequately integrate it into their agenda.

"It was never regarded as sufficiently important.[....] I don't believe it was a conscious decision that 'no, we do not need a mental health policy' – it is just indifference" (bureaucrat 1).

The apathy of central and state governments meant that the NMHP was dormant, *"mainly remaining on paper till the 1990s"* (psychiatrist/former leader 2). Governments never saw mental health as a public health problem. They were not proactive in mental health planning, certainly not when compared to other health sector planning, such as the family planning programme which started with strong leadership and had a policy in place by 1976 [33]. Despite several meetings with the Committee of the Ministry of Health and Family Welfare particularly throughout the 10th and 11th Five Year Plans, there was little progress in achieving their recommendations. For example from 2000 through to 2010 grant reports mention the problem of getting State level co-operation, but no action was ever taken. Only in 2010 did the report mention that *"the Department needs to take a proactive approach to bringing States onboard"* [34]. Even this remained a very vague statement rather than a solution.

The interviews concluded that that national leadership of the NMHP had been absent since the start of the programme. Establishing a central leadership was never a government priority because of the federal system - health is run as a central programme, but implemented by the states. This system of devolution derived from the colonial system of *"not interfering with local initiative"* was often seen as a subterfuge resulting in poor national and state level coordination and integration [35]. The NMHP initiators modelled the programme on the Bhore report and WHO technical recommendations but largely ignored the recommendations to create stronger central leadership as they focussed on local implementation.

Central leadership had been most obvious in the early years of the NMHP. The early community project leaders (1975–82), and the next generation at district level (1982–90) by default also constituted the national leadership. These leaders recognised that they were overburdened by their multiple responsibilities and were therefore unable to commit the time to strengthening the NMHP.

"So, I could not spend so much time. But since I had interest in [community mental health], I spend extra time, travel, then we developed a district program, and so on. That was all in addition to whatever we were expected to do as faculty, which is being an examiner, take lectures, and grand rounds and teach students." (psychiatrist/former leader 1)

In the 1990s, these NMHP leaders withdrew from the programme to pursue jobs abroad which they explained was not because they lacked commitment.

"Some of us who felt passionately about this were marginalised for various reasons. This happens in India very often that if you are not in the favour of the authorities, your technical capacity does not have any meaning, it is only if you are occupying a particular position" (psychiatrist/former leader 2).

The Indian hierarchical political environment which included more clinically and biomedically-oriented leaders at NIMHANS and within government, wore down the *"perseverance and political persuasion"* (psychiatrist/ international leader 5) of community psychiatric leaders. Published papers and NGO reports confirm that the petty politicking and patronage amongst public health leaders has been a widespread feature in India, with very few examples of Basaglia, Beveridge or Freire social or inclusive pro-poor ideology [36]. Those who did practice pro-poor ideologies also felt that their "unwanted human rights voices were silenced" [37].

A government advisor from the 1990s also recognised that leadership lacked continuity and was perhaps misguided. He felt they were *"on the wrong track"* (psychiatrist 7) and repeated mistakes from the 1980s. He *"re-learned"* that the DMHP model's top-down approach inadequately addressed the ground realities of attrition, poor supervision and utilisation of PHC services [8].

Previous leaders expressed the view that in the last 10 years central leadership had declined because of a lack of sufficiently motivated psychiatrists, and because others had been attracted to the private sector. Government reports also stated that the "dismal performance" of the programme was for these reasons [34].

State-level and local leadership had always been poor. In the 1980s various psychiatrists ran workshops to try to encourage state and district administrators and finance officers to implement the NMHP [38]. These efforts failed to kick-start local leadership and were discontinued in the 1990s. Most respondents suggested that training alone was insufficient.

"So, it is not a lack of technology or know-how of reducing or preventing the illness – it is the delivery. Everything depends on the leader; there is a lack of leadership in many places – the District Health Officers are not convinced that this is one of the priority programmes. [...] At the State Annual Review, there has to be a review of Mental Health; it has to percolate down. If you just train somebody and leave it at that, it is not going to help. That has not occurred." (psychiatrist/former leader 1)

The NMHP model was not adapted by states' departments of health because they were expected to adapt and initiate the programme without receiving adequate incentives or technical support.

Furthermore, a prior national bureaucrat/ psychiatrist felt that because earlier NMHP projects' leaders (from Raipur Rani and Bellary) used top-down and oligarchic leadership methods, this led to these projects' demise.

"Those were not dynamic people, they did not have energy [...] they did not involve people.[...] When it is an individual centre, it does not survive - when it is a community centre, it survives [...]. Many people would like to be too egoistic to develop that model.[...] We must learn how [to] change their models to suit the needs of the community." (psychiatrist 4)

One respondent suggested that these projects were unsustainable because the authoritarian approach of local programme leaders harmed the reputation of the community programmes.

"Influential people in rural communities were given better care at home and in hospital by senior leaders, while the poorer were seen by juniors." (psychiatrist 14)

These personality-driven approaches and these examples of favouritism within the community were antithetical to the values of community care, where one may expect an egalitarian service to reduce rather than reinforce inequalities in provision. This non-democratic process caused much cynicism amongst psychiatric and medical professionals.

Accountability and transparency

Certain system weaknesses were identified through internal evaluations [39,40] but were largely ignored. Respondents acknowledged that no mechanisms existed to make authorities accountable for addressing identified weaknesses.

"The biggest problem was that we did not develop indicators. That is the limitation of all health programmes in India except TB:[...] they look at it and see [...] if corrective action is possible. In the District Mental Health Programme, no corrective action has been taken" (psychiatrist/former leader 1)

For example, as mentioned in interviews and in the literature, no evaluations assessed patient recovery indicators (psychiatrist 13) [41]. A former government adviser explained the lack of central government ability to intervene:

"Because, health is a state subject we can't interfere with the health aspect of any State.[...] We can provide the money, we can provide the guidelines but, we can't call them to task, we can't hold them accountable." (psychiatrist/former bureaucrat 7)

Government reports also highlighted the system lacked mechanisms to penalise health workers' non-performance (in any area of healthcare), or to make them legally accountable [10]. This contributed to poor service provision.

WHO's influence in setting up the NMHP

In the early years the most important influence was the WHO's mental health department.

> *"Health is the weakest element of the Government of India.[...] [The WHO] was trying to make [the various ministers] do things, use the authority of WHO to promote the programmes that have been composed and that have been accepted by the Government"* (psychiatrist/international leader 6).

Indeed, India as well as many countries, were influenced by the WHO. Though some critiques have suggested WHO's hegemony is a form of neo-colonisation, circumstances here were different. Since the 1960s, Indian psychiatrists worked within the WHO mental health department and influenced their strategies. Indian leaders at the time thought WHO's input was essential.

> *"But for WHO support, local ministry of health would have never made the National Programme of Mental Health. This was because WHO has supported it, they were willing to look at it."* (psychiatrist/former leader 3)

Participatory and inclusive decision making

The stagnation of the NMHP in the 1990s was associated with a dearth of external lobbying groups. However in the late 1990s and early 2000s several human rights outcries pushed the government into a judicial intervention [42]. The most influential outcries were created following the release of the 1999 National Human Rights Commission which addressed poor standards of care in mental hospitals, and much more importantly following the media outcry over the Erwadi tragedy.

Grassroot leaders such as established NGO leaders, tried to partake in government-level decision making. They felt their efforts were unsuccessful.

> *"[Our NGO] is not working with the DMHP [...]. We are trying to link up with them, but that's entirely different thing."* (psychiatrist/former NGO leader 11)

In return, bureaucrats were met with often radical and conflicting suggestions, which ignored contemporaneous government priorities, from fragmented mental care stakeholders.

> *"Policy planners sense dissonance in the group and this gives them a reason not to take action"* (psychiatrist/NGO leader 12)

A current government official recognised the government's inaction to date, but also recognised NGOs' untapped potential.

> *"Government has not yet got around to recognising [NGOs] as training centres. I believe [...] that we have to recognise that these are institutions that have been able to establish a model of community-level care".* (bureaucrat 1)

Recently, more effort to involve different lobbies, such as in the recent revision of the Mental Health Care Act, has occurred. The challenges highlighted in the 10th plan mentioned for the first time the need to "harness NGOs' help in community based care of mentally ill" [43]. Engagement of consumers within the public sector however is still non-existent.

2. Financial arrangements
Funding in the NMHP's early years
The 1970s pilot projects were well funded (10 million rupees) by NIMHANS and the WHO, as were the early years of the NMHP.

> *"NIMHANS was totally committed in the '70s and '80s [so] the programme went so quickly. When there was no money- the District Mental Health Programme came up without the NMHP money – it came up with the local money like the Government of Karnataka, [and] the NIMHANS local funds."* (psychiatrist 2)

With an increasing unfavourable international financial climate in the late 1980s, the WHO withdrew their support for their pilot project. Changing priorities within NIMHANS meant their pilot programme funding also dwindled. However central government budgets increased:

> *"Now, people were beginning to realise that unless you invest in basic health care in rural areas, things are not going to change.[...] So, for the first time in 1996, the Government of India health budget, community mental health figured. They accepted it for the district mental health programme delivery. And subsequently, money has never been a problem."* (psychiatrist 1)

Financing hurdles in the last decade
Since the 10th Five Year Plan (2002) the budget has been more realistic (1.9 billion rupees in the 10th plan, and 10 billion rupees in the 11th). These amounts unfortunately have been under-spent because of *"jurassic financial procedures"* (psychiatrist 7), a common occurrence in the health sector.

> *"Money is there but it cannot be used, as the person who has to sanction it sits in Delhi."* (psychiatrist 1)

Committee reports throughout the 9th, 10th and 11th plans have mentioned that central fund allocation was often consistently reduced by at least half of the estimated amount because of under-spending, and actual expenditure was often even less. For example in 2002–2003, the first year of the 10th plan, the initial plan was to spend 300 million rupees. Due to previous under-spending only 35 million (one tenth of planned spending) was finally allocated. Of this only 900000 rupees (2.5% of allocated spending) was spent [44,45]. The early reports tended to blame State governments for under-spending because they "failed to forward their proposals without delays"[45], and "the Department [was] in non-receipt of complete proposals from State governments and institutions" [43]. However the Committee reports also recognised and confirmed what policy makers stated, that administrative bottlenecks occurred at central government level which also contributed to inability to access funds. Expenditure on new DMHP plans (such as extending the plan to new districts) was frozen for the first two years of the 10th and 11th plans as the central government had not approved these proposed changes [45,46]. Also decisions on yearly spending were often delayed by holding funding meetings shortly before the end of the financial year [34,44]. These barriers have never been overcome, and continue to appear in more recent reports on the NMHP [10,34]. No solutions have been suggested apart from one vague statement that the "department needs to take proactive approach to bring States on board" [34]. These financing issues are to be found across the health sector, not just in mental health [34].

Fund allocation within States has also been poor. Less than 1% of the total health budget was allocated to the NMHP in the North-Eastern States of India [44]. Across all States, DMHP staff's low and often delayed remuneration has compounded the problem of attracting and retaining specialists.

Financing has also been subject to petty politics. A former bureaucrat mentioned how power games blocked certain applicants:

> "Here were unexpected hurdles,[...] we had excellent research proposals, but again, due to obstructionist tactics,[...] most of the research proposals [...] were blocked" (psychiatrist 7).

Because of the consequent under-spending of the budget, the NMHP lost credibility with the Planning Commission. Funds were disbursed to other programmes like the National Rural Health Mission (NRHM) in 2005. The 11th plan's funding was submitted to increased bureaucratic hurdles to regularly review performance and spending.

3. Delivery arrangements

Interviewees debated whether the DMHP model was appropriate in terms of its organisation of services and human resources.

Organisation of services at PHC level

Certainly in the early years, the NMHP was described by participants and the literature as advanced in its thinking because it was one of the first LMIC mental health programmes. NIMHANS was responsive and proactive when scaling up from primary care to district level was required. It also had positive outcomes for patient detection and symptom reduction [26].

Criticisms of the Bellary (DMHP) model

The Bellary model was intended to extend coverage in the northern part of Karnataka State, and had heavy psychiatric input (psychiatric outreach camps) from NIMHANS. As a Bellary programme founder explained, this model was utilised after its initial evaluation for a different aim, as a DMHP pilot for national coverage:

> "It was very important to recognise that the goal was not that we would be able to reach everyone - universalised coverage; it was increasing coverage – say from 5-10% or nil, to as much as possible. This is a very important thing that needs to be recognised because if we are thinking of universal coverage, then what we were achieving was totally inappropriate." (psychiatrist/former leader 2)

Because the motivated new NMHP taskforce were keen to start a model, they pushed forward one of the few models in existence in India.

A Bellary programme founder questioned however why, if the model was not designed with national coverage in mind, the NMHP had continued "picking up the skeleton" of the same model (psychiatrist 2). The only adaptation was to reduce psychiatric support and PHC doctors' length of training which proved to be detrimental. There was very little questioning of whether overburdened, poorly utilised PHCs within weak health systems [47] should continue to be the DMHP's main delivery mechanism.

This model was further criticised for its sole focus on medication. Jain and Jadhav [48] argued that the pill provided a 'technical fix' that policy makers required to fund and popularise the programme, whilst psychosocial interventions were ignored. A human rights lawyer felt the overmedicalised model was harmful.

> "The National Mental Health Programme has very limited imagination. It did not escape the medical paradigm. Whereas mental health needs [...] has a

much larger range: [...] social injustice, [...] torturous conditions at work, less than minimum wages, [...] precipitators of poor mental health. Instead of addressing those structural questions we believe that we're going to give people psychotropic medication and going to set things right. It's hugely dangerous in a poor country." (lawyer 1)

A senior advisor of the 10th plan defended these decisions as successful cost reduction of psychotropic drugs had made these affordable and cost effective solutions for the government:

"If I had got involved in the other thing [psychosocial interventions], we could not have got involved anywhere; because the bureaucrats want cut and dried, black and white things, you see. They can't appreciate shades of grey." (psychiatrist/former bureaucrat 7)

Though the overmedicalisation critique is valid in essence, there were reasons for the 'technical fix'. Policy makers were not ready to accept wider changes and innovations. In addition, funds were limited and thus minimising costs was important. Furthermore there was a growing international evidence base for antidepressants and antipsychotics (randomised controlled trials, systematic reviews) and treatment algorithms, and very limited evidence for non-pharmacological interventions [49].

Hardly any cultural or religious paradigms filtered down to community mental health care [41] and some respondents felt that, hospital and community psychiatric care had remained insufficiently 'Indianised'. The creation of the NMHP was preceded by several decades of controversy over the western versus indigenous medicine debate. At the time the Bellary model was created, few allopathic doctors' supported integrated approaches with other medical traditions, as a recent attempt to train 'integrated doctors' in both medical paradigms had failed [50].

Poorly motivated and trained health workforce

Throughout the NMHP's three decades, building a rural mental health workforce only involved PHC doctors training. Very little was initiated to help psychiatrists adapt to their new supervisory roles.

a. Primary care doctors

Early pilot project leaders explained the initial challenge in the 1980s was to train a new human resource, the PHC doctors.

"This was a great challenge, [...] so, how to train the health worker, what are his responsibilities, can we do it, how to monitor them, what kind of supervision do

they require, [...]. Whether it succeeded or not is a different story, and that is the next 20 years' story." (psychiatrist 1)

As suggested by this psychiatrist, their initial package was comprehensive but as the model was scaled up in subsequent years, the reality of health workers' context and qualities soon disrupted this plan. One contributing factor was PHC doctors' large workload.

"I met primary health care doctors and universally they said, that in the existing state, it was an additional burden – it was not doable, although they were trying their best to do it. So, I could make out that the original concept of Bellary was no longer suited." (psychiatrist/former bureaucrat 7)

Retaining doctors in rural areas and their frequent transfers was also a problem [51]. Furthermore, a bureaucrat explained that PHC doctors' competency reduced since independence, making them more difficult to train, motivate and retain.

"The increase in the number of medical colleges and private medical colleges has meant that the quality of teaching has suffered. [...] The result of this is that a very indifferent quality of doctor is coming out of the medical education system. The best amongst these are probably staying in the cities. [...] The GP [family physician] in India pre-independence, [...] came through a much better education system." (bureaucrat 1)

Despite some international evidence that primary health workers could effectively diagnose and treat mental illnesses [1], in India and elsewhere, PHC doctors only recognised between 20 and 40% of all mental illnesses [40,52]. The DMHP- and other health sector-planners ignored recommendations to evaluate primary health workers' impact on patient outcomes [49].

Respondents suggested PHC doctors were never properly trained.

"Training has been a token gesture for the departments of health to be 'seen to be doing' something." (psychiatrist 14)

The training manuals produced in Bangalore and Delhi were too complex and not properly adapted. The NIMHANS PHC doctors manual, rather than being clearly focussed on the main issues in primary care, synthesised psychiatric and psychology textbooks. They became more complex throughout the editions from 1985 to 2009 [53-55]. For primary care officers with no or little previous exposure to psychiatry, these increasing

details were overwhelming and could not be integrated into their current practice. The same was true of the Delhi manuals [56]. Furthermore the manuals produced for community health care workers focussed on diagnoses and health worker behaviour, but had no useful information on how to support the family or patient, or the process of referral [57,58]. These manuals were written by specialists at NIMHANS, who did so without evaluation of previous training or consultation with the primary-level health workers.

In addition, the delivery of training was never adequate, and ongoing training reduced over time. In the early years, though initial training was short, there was informal and organised follow-up of PHC doctors by psychiatrists during their outreach activities. In the last decade, only the training component remained, and this continued to be short and didactic (only 15 days in Karnataka for example) or non-existent (in the northern States).

More important than the content of training was the lack of ongoing support to PHC doctors – again a chronically neglected problem.

"As long as continuous support and supervision is not there, they will not perform, or you will not get the outcome." (psychiatrist 1)

A prior leader suggested this support was absent because of supervisors' indifference to mental health which lead to demotivated primary care staff.

"If the health authorities higher up [...] do not take [mental health] seriously, they consider it's useless and all that, then the lower staff also loses interest. [...] Most of them have been untrained and they consider it just a fashion." (psychiatrist/prior leader 3)

b. Specialists

Since the NMHP's beginning, there were too few specialists interested in supervisory work. This problem remained unchanged. From 1981, NIMHANS ran several 'Training for Trainers' workshops to train specialists in their new supervisory roles but by 1986 only 63 Indian psychiatrists were trained. By the 1990s this training programme had stopped [38]. Motivating psychiatrists to remain in community programmes was also a challenge. For example, those involved in the NIMHANS primary care pilot project requested to return to NIMHANS jobs after two years' work in the programme (psychiatrist 14).

Specialists' lack of involvement could have been due to their poor remuneration. Many psychiatrists also lost faith in this model because they felt PHC doctors' limited training would be insufficient to provide adequate care. Psychiatrists have been reluctant to associate with other mental health professionals under the same umbrella term of 'specialists' probably because of a strong hierarchical structure within hospital care. A psychiatrist involved in the Mental Health Care Act revision observed:

"We have created a category called mental health professional [which] includes a psychiatrist, a psychologist, a psychiatric nurse and a psychiatric social worker.[...] Now the psychiatrists are extremely angry about it because they see themselves now being equated with the other professionals." (psychiatrist 10)

For example psychiatrists quashed recent attempts by psychologists to lobby for greater prescribing powers and representation in decision-making. Such current tensions between mental health professional groups suggest more groundwork and involving them in decisions may be required before they accept shared responsibilities, for example in supervising primary care workers.

Discussion

These oral histories and documentary sources have given insight into the achievements, limitations and personal struggles involved since the 1980s in trying to increase mental health coverage in India. The national programme's basic model of delivering community mental health care through district hospitals and PHCs, a model commonly seen in high- and low-income countries, certainly followed the WHO 1975 recommendations of extending mental health services. It also has had similar aims to the currently favoured universal health coverage approach: to improve the quality, funding and equity of care [6]. In an attempt to answer our main question of why the DMHP has not succeeded in achieving its aims, several reasons have emerged. The NMHP was very ambitious in its aims and developed a model, perhaps too fast and too dominated by one major institution, NIMHANS. Ownership of the programme at central, state and district levels suffered as a consequence. In the early years (late 1970s-early 1980s) very few mental health initiatives existed - the Bellary model was the best available at the time. However, several generations of psychiatrists since then have retained the same vision of the DMHP, and have romanticised the initial model and insufficiently questioned it. This possibly led to less creativity or inspiration from other models (such as NGO models) to adapt the DMHP programme. WHO have summarised the evidence to suggest using a collaborative and integrated model of delivering mental health care through primary care, but the degree to which the DMHP followed this has been doubtful. All the elements the WHO recommended to ensure successful integration have not occurred (adequate specialist and primary care staff, regular supplies of essential psychotropic

drugs, linkages with specialist care services, referral criteria) or even been considered (developing information and communications systems, appropriate links with other community and social services) – these are also common failings in many LMICs [59,60].

In addition, integration requires more than education of providers or the addition of services. It demands a "new perspective which engages an orientation towards the unique mental, physical, social and cultural needs of the individual", and involves family and community support [61]. India's NMHP has prioritised mental health literacy of the general population through campaigns but has not re-orientated the primary care provider, either the doctor or the lay health worker, away from a biomedical model to a process of thinking necessary for comprehensive mental and physical care. India may consider remedying this, as have some of its low- and middle- income counterparts, where this re-orientation of health workers is being attempted for example in South Africa (with primary care nurses and health district management) and in Mozambique (with traditional healers) [61-63].

This study highlighted that the implementation of the model has been poor at several levels, particularly at the human resource level. As a middle-income country, and being the 5th largest economy in the World, India should have sufficient resources to provide sufficient mental health specialists and primary health specialists for at least the basic provision of consultation liaison with primary care [64]. However, not only are too few specialist and non-specialist workforce trained, but they are poorly distributed and favour working in the private sector or moving abroad.

One glaring omission in the discussion about increasing human resources within the DMHP- both in the literature and amongst participants interviewed - is the lack of thought and initiative as to how to incorporate the large private mental health sector in India to overcome the lack of specialists, particularly as public health services in India only cover 20-30% of the population [23]. There is growing concern in both high-income countries (like the USA model) and LMICs (such as the Chilean mental health reforms) whether partnering with the private sector contributes to inequity of care [61,65]. However given the dearth of manpower in India, the option should be considered. Within the health sector, the National Rural Health Mission and other sectors (TB control programmes, surgical procedures, hospital ventures) have encouraged public private partnership development with successful examples mainly with the notfor-profit private sector (e.g. NGOs). Psychiatry being relatively less technology-intensive has had less private involvement as the business models are less robust, are too regulated or are stigmatised. Several caveats also exist to incorporating the for-profit or not-for-profit private sectors. Due to the federal system in India, the decision to accept or promote such partnerships is devolved to each individual State. Other caveats include the private sector's motives, incentivisation, and ensuring adequate governance and monitoring arrangements [66].

In addition, primary care workers have received overall ineffective training and insufficient supervision, and no solution has been implemented to get specialists onboard or to ensure a sturdy state- and national- leadership. These weaknesses have been reinforced by poor mechanisms to evaluate the programme and to ensure accountability, which have meant there is no certainty of the quality of care provided or of patient outcomes. These problems are common to many LMICs [67]. For example in South Africa, despite a decentralisation model which promotes integration of mental health into primary health care, there is a paucity of community-based mental health resources and the same problems of poor identification and treatment of mental disorders by primary care physicians. It also has problems of support, supervision and of providing more than just an emergency reactive service [68].

However, the above criticism of the NMHP/DMHP's implementation was the result of contextual barriers. The main problem over the years has been to convince policy makers about the public health importance of mental health. Despite the success of some early leaders in lobbying for increased funding for mental health care, the second main hurdle has been the system-wide barriers, the bureaucratic and political hurdles, drug supply issues and the need to strengthen health systems. These required interventions outside the NMHP and were difficult to address by the small group of specialists spearheading the programme. These drawbacks are the case for the whole health sector in India but, programmes which have been successful in overcoming such barriers are those which have had more political and financial support and more structured leadership (such as HIV care and maternal and child health care). Integration of programmes is feasible, and therefore should be achievable for mental health care if the appropriate financing and implementation ingredients are present. For example given the rising burden of non-communicable diseases, more resources could be leveraged for integrated mental health care from the chronic care service delivery platform which is growing in India as it is elsewhere.

How does this history shed light on current policy recommendations?

In the last three years, a group of experts has been commissioned to advise the government on priorities for the next funding cycle, the 12th Five Year Plan. This reflects a growing political commitment to mental health.

The experts conducted intensive investigations into NMHP implementation across India [69]. Their main recommendations feature in Table 3.

Two authors of this paper (VP and SJ) were part of this policy group, but we discuss here to what extent the views of our interviewees correlated with these recommendations. Participants broadly agreed with the recommendations but their experiences over the last 30 years put a different emphasis on priority areas. They highlighted continuity of leadership. The lack of continuity in government officials, not just their lack of technical and managerial skills, meant the same lessons were constantly relearned. We suggest here that the challenge to improving continuity would need to start with sensitising, attracting and retaining specialists to be leaders, managers and supervisors. Our analysis also highlighted common barriers of political and bureaucratic hurdles. Politics and hierarchical power structures could be minimised with safeguards at policy level but also a more democratic and locally accountable system (such

as through the Panchayati Raj as is done in the Southern and North-Eastern States).

PHC doctors are currently overburdened (as are many other government primary care employees). Interviewees did not agree whether a new cadre of community worker might be required to deliver mental health care. The nature of this new cadre is also debatable. The mental health policy group's suggestion to add two community mental health workers to each existing PHC team seems to be potentially unrealistic given human resource shortages. The post of chronic disease worker (a social worker or a lay health worker) who coordinated, counselled and provided psychosocial support for all chronic diseases, might be more sustainable in light of the growing non-communicable disease burden and would be better integrated in primary care, rather than setting up an exceptional service for mental health care [70].

Interviewees identified the importance of the quality of health providers (PHC workers and specialists), their motivation and competence. Suggestions for improving PHC workers' competence included changing training to being skills- and problem-based and having more supervision, ongoing training and monitoring. This would be subject to sufficient mental health professionals joining the DMHP. This major specialist manpower caveat may be resolved by better incentives increasing their confidence in the programme and belief in integrated care, and improvements in supervision. These ideas have also been voiced by government reports [34] but they are still to be implemented and will require strong leadership to make them happen.

Conclusion

At this important juncture in time, as the 12th Five Year Plan is in preparation, the history of the last 30 years cautions policymakers about the visible poor investment in programme implementation and innovation, which has led to stagnation and reinventing the wheel. The reasons for not achieving adequate implementation are not necessarily failures that could have been entirely avoided. The mindset at the time (such as professional conflicts), and external hurdles influencing the NMHP (such as political neglect, funding problems, patronage) were important barriers which could not be controlled by NMHP advocates or leaders. These factors cannot be changed by adjusting the model as much as by encouraging important stakeholders (central and state governments) for acceptance, financing and technical support for the elements that would make the integration of the DMHP into primary care successful. Amongst the most important elements, programme leadership needs rethinking to have better continuity and to ensure better management at district, state and national levels. This would necessitate more commitment and collaboration

Table 3 Mental Health Policy Group key recommendations

Area of recommendation	Summary of recommendations*
Programme management	Ensure a clear structure for funding, management and coordination of teams at central, state and district levels. Promote intra- and inter-sectoral collaborations.
Community involvement	Improve accountability and local ownership of the DMHP. Promote more participation of NGO/private sector.
Technical support	Provide an overarching technical support and advisory group (TSAG) for all the States which will provide mentoring to districts to help with implementation difficulties.
Revitalising human resources:	Provide technical and quality inputs to increase the number of specialist resources (through relaxing educational requirements). Introduce a new cadre, a community mental health worker to identify, treat, provide basic counselling, and help access social benefits. Improve training.
Ensure quality of care is provided	Improve systems for monitoring, evaluation, operational research, a mental health information system, adequate supply of medicines, continuity of care in the community, user/carer involvement in decision making.
Incorporate life skills education and improve current preventative and promotive services	Create collaborations with other concerned departments (such as education).
Extend services to urban areas	Include the provision of a community mental health worker.

*Based on recommendations provided in reference [69].

between the ministry of health, primary health programmes and mental health professionals.

Given the growing interest in primary mental health care within India and globally, lessons learned from prior policy and programme challenges, which are often similar to those in other LMICs, should play a stronger role in informing current policy.

Abbreviations
DMHP: District Mental Health Programme; GP: General practitioner; HIV: Human immunodeficiency virus; LMICs: Low- and middle-income countries; NGO: Non-governmental organisation; NIMHANS: National institute for mental health and neurosciences; NMHP: National Mental Health Programme; NRHM: National Rural Health Mission; PHC: Primary health centre; PHWs: Primary health workers; WHO: World Health Organisation.

Competing interests
VP and SJ are members of the Mental Health Policy Group which has provided recommendations to the Central Government of India recommendations on restructuring the DMHP for the 12th Five Year Plan.

Authors' contributions
NvG conceived of the study, participated in its design and coordination, carried out the interviews and drafted the manuscript. VB guided NvG in the conception and design of the study, and supervised her work. VP also helped with conception of the study and helped choose relevant participants for the study. VB, SJ and VP provided guidance on analysis and interpretation of the material. All authors read and approved the final manuscript.

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Chapter 6

Human resources and models of mental healthcare integration into primary and community care in India: an exploration of 72 programmes

(research paper 4)

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SECTION A – Student Details

Student	Nadja van Ginneken
Principal Supervisor	Vikram Patel
Thesis Title	The roles of primary-level health workers in delivering mental healthcare in India

If the Research Paper has previously been published please complete Section B, if not please move to Section C

SECTION B – Paper already published

Where was the work published?			
When was the work published?			
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SECTION C – Prepared for publication, but not yet published

Where is the work intended to be published?	Social Science and Medicine
Please list the paper's authors in the intended authorship order:	Nadja van Ginneken, Meera S.M., Sarah Ghani, Jayashree Ramakrishna, Anusha Raja, Vikram Patel
Stage of publication	**Not yet submitted**

SECTION D – Multi-authored work

For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I conceived the design of the study and case-study tools. I shared data collection and analysis with my co-researchers (Meera S.M. and Sarah Ghani). I conducted 30% of interviews/visits, and performed 30% of primary coding. I checked co-researchers' coding in its entirety though only selectively blindly recoded 20% of their interviews. I did

	all subsequent analysis and wrote the article which has received comments from all co-authors.

Student Signature: _____ **Date:** 3/1/15.

Supervisor Signature: _____ **Date:** _____

Human resources and models of mental healthcare integration into primary and community care in India: an exploration of 72 programmes

Authors: Nadja van Ginneken[1,2], Meera S.M.[2], Sarah Ghani[2], Jayashree Ramakrishna[3], Anusha Raja[4] and Vikram Patel[1,2]

6.1. Abstract

Background: In India, as in many low- and middle- income countries (LMICs), diverse models of primary and community mental healthcare have evolved to respond to the scarcity of specialist mental healthcare. To better understand current service delivery and with the view to improving government provision, this study explores and compares current Indian models of mental healthcare delivered by primary level workers (PHW), and the roles PHWs and specialists have within these.

Methods: Seventy two programmes within 34 organisations (governmental and non-governmental) across 12 states were visited. 204 PHWs, coordinators, leaders, specialists and other staff were interviewed or participated in focus-group discussions to understand the programme structure, the model of mental health delivery and health workers' roles. Data were analysed using framework analysis.

Results: Programmes in India provide an array of different primary mental healthcare services involving PHWs. Many provide one-off training to PHWs. The collaborative care models are very heterogeneous: many do not collaborate with government primary care settings and some also have weak systems of collecting and analysing routine data. In addition several programmes use a unique community outreach model that is not described in high income countries (HICs) but is common in LMICs whereby PHWs are trained within specialist programmes. These programmes mostly target severe mental and substance use disorders. A majority of programmes use lay health workers (LHWs) with significant complementary and substitution roles. Primary healthcare (PHC)

doctors are less used and often minimally for clinical mental health roles. Other types of widely used resources include numerous care managers and care coordinators.

Discussion and conclusion: In spite of collaborative care having most evidence for improved patient or service delivery outcomes, few programmes implement this model. However there were numerous training, referral and community outreach models, for which there is less evidence. Indian models differ significantly to those in HICs: they work on broader community sector platforms, use LHWs in preference to PHC doctors, use heterogeneous forms of care coordination, specialists provide more outreach clinics and are also poorly incentivised. The priority now is to evaluate the effectiveness and cost-effectiveness of these innovative approaches to collaborative care and within community outreach models as these may have profound implications if scaled up to improve the current government programme.

6.2. Introduction

In low- and middle- income countries (LMICs) very few mentally ill people receive mental healthcare. The scarcity of specialist human resources, as well as large inequities and inefficiencies in resource allocation are significant reasons for this treatment gap (Saxena et al., 2007; Kakuma et al., 2011). Given the renewed interest in achieving universal health coverage, efforts at a global level and within India have advocated task-sharing and better leadership in scaling-up health services (Sengupta, 2013). With regards to mental healthcare, the World Health Organisation's (WHO) Mental Health Gap Action Programme published guidelines for mental health interventions delivered by primary care doctors and nurses (WHO, 2008b). There is now growing evidence for cost-effective and feasible packages of care (Patel and Thornicroft, 2009) and for the effectiveness of primary-level health workers (PHWs) in providing a range of interventions for mental, neurological and substance abuse disorders (van Ginneken et al., 2013). PHWs include professionals such as primary - level doctors, non-physician clinicians and social workers, as well as non-professionals or lay health workers (LHWs), who are not mental health specialists but have received minimal training in mental healthcare.

India's ambitions to develop a comprehensive mental health specialist and non-specialist workforce has not yet been achieved, as there is currently still a 40 to 60 fold deficit in psychiatrists (4000), and even fewer psychologists, psychiatric social workers and psychiatric nurses (WHO, 2011). In addition, only one sixth of districts across the country have implemented the District Mental Health Programme which operationalises mental healthcare integration into primary care at the level of a district. Even within these districts not all primary care doctors are trained (GOI, 2011). Since the early 1990s, non-governmental organisations (NGOs) have emerged (where government mental healthcare provision has floundered) with innovative models of PHW-delivered mental healthcare (Patel and Thara, 2003; van Ginneken et al., 2014).

In light of a mixed private and government healthcare system in India, this exploratory study adopted the Alma Ata definition of primary healthcare which "is the first level of contact of individuals, the family and community with the national health system [...].

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It involves, in addition to the health sector, all related sectors and aspects of national and community development, and demands the coordinated efforts of all those sectors" (WHO/UNICEF, 1978). First level care therefore incorporated the bottom two tiers of the WHO pyramid: the formal primary health sector and community care (such as schools, development projects or community outreach settings) as well as PHWs within specialist programmes (see figure 1.2 in chapter 1) (WHO-WONCA, 2008). We excluded private-for-profit organisations as the profit-making business model aims to maximise profits which may become more important than healthcare provision itself. The not-for-profit NGO sector on the other hand may also sell goods and services but its purpose is to provide income to cover their activities' costs (Green and Matthias, 1996). As with the government sector, the NGO sector retains its main focus on healthcare provision.

Exploring the available models of PHW-delivered mental healthcare and their use of human resources is important to identify innovations which potentially could have a profound impact on the current mental health system if implemented on a large scale. This is relevant for future mental health policy and in particular for the community mental health component of the next five year strategy. The objective of this study is to describe and compare current Indian models of PHW-delivered primary and community mental healthcare in India. The analysis focuses on roles and levels of engagement PHWs within service delivery and on their relationship with specialists and other supervisors. This will help to understand how models of mental health integration into primary and community care function.

6.3. Methods

This article is the first of three papers which will emerge from the dataset of 72 case studies of PHW-delivered mental health programmes in India. This paper focuses on describing the programmes' models and their workforce. The two further studies will cover: 1) qualitative information on perceptions of health workers, their supervisory staff, specialists and organisation founders and 2) the training and supervision characteristics of these programmes and their challenges. Case study methodology has

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value when making sense of a messy real world setting as they are important to understand what factors in existence currently seem to fail or succeed (Keen, 2006).

6.3.1. Study setting

Thirty five governmental and non-governmental-led organisations with rural mental health programmes (including those with urban components), were selected purposively from an initial 122 potential organisations identified through snowballing and web searches. Phone meetings with programme leaders informed our decision on programme selection to represent a range of (i) population characteristics, (ii) types of PHWs used and methods of delivering care, (iii) PHWs roles, (iv) the intensity of supervision and training for PHWs and (v) service delivery models. Two eligible organisations refused to participate and were replaced with similar organisations. Thirteen organisations were excluded after unsuccessful contact attempts during the screening process. One organisation was excluded after interviews as it transpired they did not use PHWs. Finally 34 organisations were included in our analysis. Organisations had between 1 and 6 types of PHW-delivered mental health programmes; the total number of programmes analysed was 72.

6.3.2. Sampling

Across the 72 programmes, 104 PHWs, 29 coordinators (people who manage the mental health component of the programme and/or coordinate or supervise PHW activities), 31 leaders (heads and/or founders of the organisations), 36 mental health specialists (such as psychiatrists, psychologists, psychiatric social workers) and four other clinic support staff (such as pharmacists and general clinic managers) were interviewed. Within each programme a leader or coordinator chose the staff for interviews, based on our request for representative and varied staff cadres. In all programmes we interviewed at least two PHWs, one coordinator, specialist or other supervisor for PHWs and one leader or founder of the programme (some interviewees worked in and, therefore represented several programmes).

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6.3.3. Data collection

A case study approach was adopted for our fieldwork. Data was collected between 2010 and 2011. Two programmes were selected for in-depth case studies using participant observation, semi-structured interviews and documentary analysis to gain a depth of understanding of these programmes. The other 70 programmes were shorter case studies involving semi-structured interviews, site visits and documentary analysis to explore the breadth of different types of models. Seventy-four semi-structured interviews (with coordinators, managers and specialists), 26 focus groups (mainly with PHWs with or without their supervisors) and visits to all programmes were conducted by NvG, MSM or SG. Two researchers interviewed together in areas prone to unrest (such as in Jharkhand), as advised by the hosting organisations. Interviews were conducted in seven languages. Our team covered English, Kannada and Hindi. For other languages (Tamil, Malayalam, Oriya, Telugu, Mizo), interpreters (researchers or allied project staff) were sourced locally. Interviews and focus groups were conducted in the interviewees' workplace. Most were recorded (26 interviews were not, due to high background sound levels or participant refusal), transcribed and translated. Workers involved in care (PHWs, care coordinators/ supervisors and specialists) were asked to describe their activities, roles and identified barriers/solutions. Programmatic staff (founders or programme managers) were asked about programme characteristics, funding, management or leadership, plans for expansion and views on PHWs. All were asked about their views on the feasibility, scalability of their own model and for recommendations to improve the government model. Questions were adapted from a case-study methodology that was being developed at the time to monitor and evaluate community mental health programmes in low-income countries (Cohen et al., 2012) (see appendix 4 for consent forms, information sheets and questionnaires used).

Site visits were organised to observe the infrastructure, location and facilities and, where possible, researchers sat in clinics or shadowed rural outreach visits. These observations were recorded in summary sheets completed after each visit.

Documentary sources (annual reports, minutes of meetings, evaluations or other documents) were sought from participants to complement and corroborate interview data. Published project data were gathered from relevant databases (PsycINFO, Web of Science, Medline, Embase, CINAHL) and from participants, for further data triangulation. Little quantitative data existed or was made available apart from annual reports and some leaflets, therefore most information was drawn from qualitative data.

6.3.4. Data analysis

Framework analysis was carried out with the goal of ensuring our findings were relevant to policy-makers. After data familiarisation, a coding framework was created to structure and standardise multiple-researcher coding (NvG, MSM, SG, AR) (Manderson et al., 2001). This facilitated coding numerous transcripts, helped identify new unanticipated themes, and allowed for analyst triangulation: data collected by one person is analysed by others to reduce the risk of selective interpretation and blind interpretive bias (Patton, 1999).

To create the framework, six interviews (chosen to represent different interviewees and topics) were inductively coded in NVIVO by at least two researchers per interview. At a meeting the researchers devised an initial framework based on the inductively-reached themes, and those from the interview guides and the literature. A qualitative expert from a separate institution (JR) read and coded some transcripts at selected points during framework development. The finalised framework was used to code all data. On-going dialogue between researchers contributed to the framework's interpretation. The lead researcher (NvG) cross-checked 15 interviews to ensure that the coding framework was applied consistently and reliably across researchers (Manderson et al., 2001). Good correlation was achieved.

The factual data gathered was taken at face value to represent the 'truth', though we incorporated mechanisms to ensure maximal factual accuracy. Thus, we gained perspectives from different workforce members and compared and cross-checked

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their reports for inconsistencies and completeness. Reports of factual findings were submitted to organisations to check their accuracy. This respondent validation as well as the process of data triangulation further improved reliability of data interpretation (Patton, 1999; Green and Thorogood, 2004).

Statements to disprove emerging hypotheses were sought (deviant case analysis). These processes increased the internal validity of the data and credibility of the conclusions (Patton, 1999). The coding framework was indexed and charted into tables to compare different features (such as health workers, and programme component characteristics) across interviews and programmes. We then mapped patterns or associations between different human resources and programme features and concepts (Green and Thorogood, 2004).

We attempted to use several established frameworks for analysing and categorising the level of engagement, collaboration and integration between mental health specialists and primary care workers (Bower, 2011; Bower and Gilbody, 2005; Balabanova et al., 2011; Collins et al., 2010; WHO-WONCA, 2008). None fitted our data adequately, therefore we inductively adapted the framework which best fitted our data: the Bower framework (see figure 1.3 in chapter 1). This framework describes four levels of integration of care for depression within primary care in HICs, ranging from relatively more PHW responsibility to relatively more specialist responsibility for mental healthcare.

1. Training and education: Aims to make primary care practitioners independent in managing basic mental health conditions through training provision only.
2. Consultation liaison: As above but also involves an ongoing educational relationship with a specialist (for example through joint case discussions) to make the primary practitioner more independent and confident in providing mental healthcare and reduce the frequency of referrals to specialist care.
3. Collaborative care: Also known as the chronic care model, this has an additional workforce member (a "care manager") with mental healthcare

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responsibilities and who acts as a 'link' between the patient, the primary care practitioner and the specialist. This model usually involves some system redesigning including sharing clinical information between specialists and non-specialists (ICIC, 2014).

4. Replacement and referral: Health workers are trained to identify and refer suspected cases to the mental health professional, who retains the main responsibility of care.

As over half our programmes did not fit into the Bower framework with the above definitions, we broadened primary care to include not just government primary care but also NGO-delivered primary care/community care. We also included programmes which did not have a separate or new 'link worker' (i.e. the care manager) but some other form of care coordination, as care coordination rather than the care manager is a feature of the collaborative care definition within the chronic care model (ICIC, 2014; Woltmann et al., 2012).

We categorised programmes according to whether or not they were collaborative care models. Collaborative care was chosen as it is the model with the soundest evidence-base (multiple systematic reviews) for effectiveness in many chronic disorders. Within mental healthcare it is an effective intervention for improving outcomes for patients with depression (Archer et al., 2012; Bower et al., 2006; Gilbody et al., 2006; Thota et al., 2012), anxiety (Archer et al., 2012) and combined diabetes and depression (Atlantis et al., 2014). However there is still insufficient evidence (as little research) for its role in other MNS disorders (substance abuse, child and adolescent problems, dementia or epilepsy) (Callahan et al., 2006; Hilt et al., 2013; Sarvet et al., 2010). Most of this evidence comes from HICs and there is still a dearth of evidence from LMICs, though some trials suggest minimal improvement (van Ginneken et al., 2013).

6.4. Results

6.4.1. Overview of programmes and their human resources

6.4.1.1. Types of programmes

The 72 selected PHW programmes were from 34 organisations in 12 states (figure 6.1). Only 15/72 programmes were collaborative care models (table 6.1; supplementary table 1 in appendix 7). The remaining were non-collaborative models (supplementary tables 2, 3 and 4 in appendix 7).[1] The organisations were mainly non-governmental voluntary organisations. Other NGOs included two not-for-profit hospitals, two academic institutions and one religious institution. The remaining five programmes were government district mental health programmes. Most programmes covered all mental disorders (Table 6.1). Only 22/72 programmes had incorporated mental healthcare within a general healthcare setting. The others had either incorporated mental healthcare into HIV or disability care, or were vertical programmes (i.e. which solely provided mental healthcare).

6.4.1.2.   Types of human resources

Below we describe the types and spread of human resources across all 72 programmes. The most commonly used PHWs were LHWs (45 programmes) (table 6.2). They were mainly utilised by NGOs, but four government programmes also provided minimal mental health training to PHC-based LHWs who have general healthcare and health promotion roles (auxiliary nurse midwives (ANMs) and accredited social health activists (ASHAs)). Other PHWs used included doctors (30 programmes) and community members (20 programmes) (table 6.2). In addition 38 programmes trained PHWs from other outside programmes (supplementary table 2). There was no difference between the use of PHWs (in terms of diversity or type of PHW) in urban and rural areas.

A large array of care coordination occurred: care managers and coordinators were from a specialist or non-specialist background. They supervised and/or trained PHWs, and oversaw the programme. Specialist resources included mainly psychiatrists (49 programmes), psychologists (28 programmes), and psychiatric social workers (PSWs) (23 programmes). However the seven most remote programmes had limited

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[1] Some organisations also provided purely specialist services (such as rehabilitation homes and acute psychiatric care), which are not covered in this paper

specialists' involvement compared with the majoriy of other programmes (which provided urban and rural care), where at least one specialist was involved regularly.

Figure 6.1: Location of the 72 programmes

As the complexity of the programme grew, particularly those in the collaborative care and specialist integrated models, so did the number or tiers of PHWs and coordinators within these programmes. Twelve programmes had between two and four types of PHWs (such as a doctor, a social worker and/or a LHW), and 26 programmes also had two to four coordinators (such as administrative coordinators and a hierarchy of clinical coordinators between different levels of PHWs).

Table 6.1 Summary of programme characteristics by model

Model	Types of organisations	Types of programmes§	State	Urban/rural	Mental disorders addressed§	Specialist/support platform§	PHW platform§	Programme characteristics
Collaborative care models								
COLLABORATIVE CARE (n=15)	NGOs (15)	Non-specialist and specialist care provided	Karnataka (2); Tamil Nadu (7); Kerala (1); Andhra Pradesh (1); Madhya Pradesh (1); Assam (2); Jharkhand (1)	Rural (14); urban (1)*	All mental disorders (MDs) (14) (1 focused on women; 1 on homeless); 1 depression; 1 alcohol abuse.	Specialist hospital (6); general hospital (2); community mental health services (CMHS) (8).	Community NGOs (including disability sector NGOs) (16), PHC (6); self-care (5).	Drug supply: good within NGOs (donor funding); Clinical information system (CIS) (Ashwini, early Karuna Trust, SACRED, NBJK); System redesign: all programmes (addition of new LHWs / care managers, shared care and multi-disciplinary teams (MDTs). Matched care: by psychiatrists (except by SW (TTK) and gynaecologist (Ashwini)). Stepped care (Ashadeep, Banyan FPA)

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Model	Types of organisations	Types of programmes§	State	Urban/rural	Mental disorders addressed§	Specialist/support platform§	PHW platform§	Programme characteristics
Non-collaborative care models								
EDUCATION AND TRAINING (n=16)	NGOs (9); government programmes (7); government-NGO partnership (1).	PHC doctor training by government (5), NGOs (4) and government-NGO partnership (1); certificated courses (3); caregiver/support groups training (3).	Karnataka (7); Tamil Nadu (3); West Bengal (1); Delhi (2); Jharkhand (1); Mizoram (1); Assam (1).	Rural (12); urban (2)*; urban and rural (2).	All MDs (16); homeless (1); substance abuse and HIV (1).	Specialist hospitals (7); general hospitals (8); CMHS (6); community organisations (4).	Government primary healthcare (10); other community care (6); self care (3).	Drug supply: government provision poor; CIS: in government system and one NGOs (Karuna Trust); System redesign: none.
REPLACEMENT, REFERRAL AND AWARENESS-RAISING (n=24)	NGOs (20); academic institution(1);government-religious institution partnership (1); private(2).	PHC doctor (7) /LHW training (3); training external HWs to refer only (4); training non-health workers (eg police) (5); awareness raising through campaigns (6).	Karnataka (6); Tamil Nadu (8); AndhraPradesh (1); Maharashtra (3); Delhi/Kashmir (2); Jharkhand (1); Assam (2); Mizoram (1).	Rural (14); urban and rural (3); urban (7).*	All MDs (17); severe mental disorders (2); suicide prevention (1); substance abuse (4); homeless(1).	Specialist hospital (4); general hospital (2); CMHS (14); community disability or general health services (4).	Community outreach (18); primary health centre-based (9).	Drug supply: N/A; CIS: none; System redesign: none.

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Model	Types of organisations	Types of programmes§	State	Urban/rural	Mental disorders addressed§	Specialist/support platform§	PHW platform§	Programme characteristics
Non-collaborative care models *(continued)*								
COMMUNITY OUTREACH (n=17)	NGOs (17).	Outreach clinics with PHW support (2); PHWs as lay counsellors (5); help-lines with PHWs (3); rescue operations with PHWs (2); community rehabilitation by PHWs (5).	Karnataka (1); Tamil Nadu (7); Kerala (1); Maharashtra (4); Delhi (2); Orissa (1); Mizoram (1).	Rural (8); rural and urban (4); urban (5).*	SMDs (8); all MDs (7); substance abuse (3); homeless (1).	Specialist hospital (3); general hospital (1); CMHS (13); community disability or general health services (1.)	Specialist hospital (1); community-based care (9); self care (5 - all the vocational training programmes).	Drug supply: good within NGOs (donor funding); CIS: 4 programmes (SCARF, Sneha, MHAT, Antara); System redesign: in all programmes (new LHWs, shared care and MDTs) Matched care: by psychiatrist (MHAT, Bapu Trust, Mukhtangan Mitra) or PHW (Banyan UMHP). Stepped care: Saarthak, VOLCOM; One intervention: SCARF, Sneha, 3 help-lines, and 5 vocational training/ rehabilitation programmes

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Table 6.2: Roles of PHWs, coordinators and specialists by model

Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
PHWs				
Doctors (n=30)	11 programmes: Background: most PHC doctors, 2 gynaecologist (Ashwini, Banyan FPA), 1 BAMS (combined ayurvedic medicine) doctor (Ashagram) Roles: exclude organic disease and general healthcare (MICP, Ashagram, Ashadeep, Banyan CMHP, TTK rural camps, Chellamuthu Trust treatment camps); identification referral and follow-up (CHAD, early Karuna Trust programme, MICP, Ashagram); diagnosis and treatment (Banyan-FPA, Ashwini, Ant); counselling(Ant). Training/supervision: Ad hoc/ weekly supervision for docs with MH roles.	11 programmes: Background: PHC doctors Roles: all expected to diagnose, treat, refer, and educate patients. Training: lengths variable; 4 Karnataka DMHP sites meant to be 30 days but actually 9; other DMHP (RINPAS Jharkhand, Karuna Trust): 15 days; NGOs (GASS, SCARF, CHAD, IIAHS – all now closed): 3 days. Supervision: One NGO (Karuna Trust) monitors and supports PHC doctors on programme implementation	6 programmes: Background: PHC doctors Roles: identification, referral and follow-up (Current PHC doctor training: Chellamuthu Trust, Banyan; Closed: AIIMS, RFS Siddlaghatta, SCARF telemedicine, AIIMS Kashmir). Training and supervision: All training 1-3 days except AIIMS Kashmir relief intervention (7 days) and Chellamuthu Trust (15 days). No ongoing support.	2 programmes: Background: generalist doctors Roles: exclude organic disorders (Bapu Trust and TTK) Training and supervision: none

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Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
		(not for clinical queries).		
Non-physician professionals (n=11)	4 programmes' <u>Background and roles</u>: social workers (Banyan CMHP, Chellamuthu Trust CMHP, CHAD, Ashadeep): outreach work (identify, refer, follow-up, facilitate rehab activities), supervise LHWs/ care managers; counselling (Banyan CMHP). 1 nurse (MICP): similar outreach work to SWs above. <u>Training and supervision:</u> regular. Delivered by a psychiatrist (all 4 programmes), psychologist (Ashadeep) (all 4 programmes) or PHW coordinator (Banyan CMHP).	3 programmes: <u>Background and roles</u>: 2 pharmacists in DMHP: dispense drugs, awareness-raising (Gulbarga, Karwar); 1 CBR worker (Samuha): social worker roles and non-specific counselling. <u>Training and supervision:</u> by specialists: ad hoc (DMHP), regular (Samuha).	1 programme: <u>Background and roles</u>: social work and nursing students (TTK) trained to identify and refer people with alcohol problems. <u>Training</u>: On-off training. No supervision.	3 programmes: <u>Background and roles</u>: social workers (Mission Ashra, Banyan UMHP, VOLCOM); nurses and pharmacist (Mission Ashra); part of outreach teams. <u>Training and supervision:</u> by specialists. Regular supervision.
LHWs (n=45)	14 programmes: <u>Background:</u> basic primary or secondary school education for most. 1 programme: graduate CBR	7 programmes: <u>Background:</u> government LHWs (ANMs, ASHAs in Karnataka DMHP	9 programmes: <u>Background:</u> external government LHWs (ANMs, ASHAs) (RFS Siddlaghatta, GASS, Chellamuthu	15 programmes: <u>Background:</u> primary or secondary school education (Banyan UMHP, MHAT, SCARF COPSI, Bapu Trust,

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Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
LHWs (continued)	worker (GASS) Roles: all programmes except Banyan FPA use LHWs. Most have complementary roles (psychosocial support, identification, referral, awareness, medication adherence). Other specific roles: counselling (Banyan CMHP, GASS, Ashwini, Ashadeep, CHAD, NBJK); income generating activities/self-help groups/lobby government (Chellamuthu Trust, SACRED); conducting surveys (Ashagram) ; only identification and referral (Karuna Trust); bring patients to camps (GASS, TTK, NBJK, Chellamuthu Trust volunteers) Training and supervision: training by specialists, supervision by care managers.	programmes), CBR workers (Samuha), external NGO LHWs (Saarthak, VOLCOM) Roles: identification, referral, community sensitisation and psychosocial interventions, non-specific counselling (Saarthak, VOLCOM); ANMs and ASHAs within DMHP (Karwar, Shimoga, Gulbarga): identification and referral only (categorised here as PHC doctors received training to diagnose and treat) Training: by specialists. No supervision.	Trust, NBJK); external NGO LHWs (Banyan BALM, Bapu Trust, Maitra, Ant, Ashadeep) Roles: identification/referral, follow up (all); awareness raising (NBJK, Ashadeep, SACRED) and psychosocial support (SACRED). Training and supervision: 1 day training for all, except GASS (5 days) and RFS (2-3 days). No ongoing supervision, except NBJK (ad hoc supervision).	Mukhtangan Mitra, Saarthak PACT, VOLCOM, Sneha, Maitra, Uduvam Ulangal); recovered users (VOLCOM, Samuha, Banyan day centre, Chellamuthu Trust vocational rehab, Saarthak vocationalrehab); graduates (MHAT, Mukhtangan Mitra, Saarthak PACT) Roles: most provide psychosocial support. Some also provide specific roles: counselling (Bapu Trust, SCARF COPSI, Saarthak, VOLCOM), emotional first aid (helplines: Sneha, Mukthangan Mitra and Maitra), and vocational training (recovered patients or CBR workers in Samuha, Banyan day care and Adaikalam, Chellamuthu Trust and Saarthak); minor administrative or supportive roles (MHAT, NBJK) Training and supervision: well

Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
				supported by coordinators, care managers and specialists.
Community members (n=20)	3 programmes: Background: community leaders (MICP), self-help groups (Ashagram), caregiver forum (SACRED) Roles: identification/ referral (CHAD, MICP, Ashagram), general support and patient advocacy (Ashagram, SACRED) Training and supervision: ad hoc by coordinators.	5 programmes: Background: community leaders (Chellamuthu Trust); anganwadis and self-help groups (RFS Siddlaghatta); caregivers (Ashadeep, Antara and Chellamuthu Trust). Roles: training on coping strategies, self care, and referral indications; networking/advocacy (community leaders in Chellamuthu Trust); and medical adherence (Antara, Ashadeep) Training: by specialists; no supervision.	11 programmes: Background: community leaders (Banyan Panchayat academy); religious leaders (Murgamalla); police/ other community workers (TTK, Sneha, Mukhtangan Mitra, Saarthak, Ashok Pai, RFS, VOLCOM); anganwadis/ self-help groups (GASS, SACRED). Roles: identification/ referral by anganwadis/ self-help groups or police/community leaders; psychosocial support (Maitra, Mukthangan Mitra); campaigns/ awareness raising (GASS volunteers, Banyan panchayat academy, Bapu Trust, RFS, Ashok Pai, TTK, Ashadeep, VOLCOM, Saarthak volunteer campaigns)	1 programme: Background: any educational background Roles: reintegration of patients into their families/community (Banyan reintegration) Training and supervision: by specialists.

Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
Community members *(continued)*			Training and supervision: trained by specialists; no ongoing supervision, except for ad hoc supervision (Murgamalla and Banyan Panchayat academy).	
Coordinators				
Care managers (n=20)	9 programmes: Background: mainly experienced LHWs (Chellamuthu Trust CMHP and Sathya Sai camps, CHAD, Ashadeep, Ant, Ashagram, GASS, TTK rural camps) or graduates/SW (Banyan CMHP) Roles: clinical roles (as above); liaise between patients, LHWs, specialists; supervise LHWs Training and supervision: supervised by SW, PSW or graduate coordinator (for LHW care managers), by psychiatrist or organisation head (for professional	0	0	11 programmes: Background: experienced LHWs/lay counsellors (Bapu Trust, Sneha, VOLCOM, MHAT); social workers or graduates (Banyan, Mukhtangan Mitra (helpline and outreach), Maitra, VOLCOM, Saarthak, Uduvam Ulangal),or psychologists/ PSWs(Muktangan Mitra, Maitra) Roles: clinical roles as above; liaise between patients, LHWs and specialists; supervise LHWs; train LHWs (the three helplines), reintegration activities (Uduvam Ulangal)

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Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
	care managers). Trained by specialists.			Training and supervision: regular by specialists.
Other coordinators (n=64)	6 programmes: Background: Graduates (Karuna Trust early programme, SACRED, NBJK); gynaecologist (Banyan FPA, Ashwini); psychiatrist (MICP); Roles: Many levels of administrative and programme coordinators. Coordinate activities, train and supervise LHWs. Training and supervision: by specialists.	All programmes (16): Background: specialist background in all programmes except for 4 programme: social workers or (post)graduate (BNI/Samuha, GASS and Karuna Trust, Antara). Only 3 programmes have a dedicated training coordinator (BNI/Samuha, GASS and Karuna Trust) Roles: Training coordination administration by PHWs. Training: by specialists. No ongoing supervision.	All programmes (24): Background: Most coordinators are non-health graduates: general coordinators who also coordinate training (GASS, Murgamalla, Sneha) and specific training coordinators (Banyan Panchayat academy, Banyan BALM, SACRED, Ashadeep, NBJK, Ant). Some programmes have coordinator hierarchy. Roles: provide training coordination. Training and supervision: Training delivery by specialists; 3 programmes include ongoing support (see above) through	8 programmes: Background: graduate (Banyan day care); social worker/CBR worker (Samuha), PSW (SCARF); psychologist (SCARF, Saarthak); psychiatrist (Mission Ashra, Chellamuthu Trust vocational rehab, Banyan Adaikalam, Saarthak vocational rehab) Roles: Several coordinators with only administrative roles (no clinical roles) (MHAT, SCARF), or existing clinical or psychosocial support roles with added coordinator roles (Saarthak PACT, Mission Ashra, Samuha, Chellamuthu Trust vocational rehab, Saarthak vocational rehab, Banyan

Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
			coordinators.	reintegration). Training and supervision: Several levels of coordinators and thus support within programmes with lay counsellors and outreach clinics. Specialist supervision to all PHW coordinators. No supervision for psychiatrist coordinators.
Specialists				
Specialists (n=72)	Psychiatrists: outreach clinics (most), training of most PHWs. Supervision of professional PHWs (Banyan CMHP, early Karuna Trust programme, MICP, TTK, Banyan FPA) and of care managers/coordinators (Banyan CMHP, Chellamuthu Trust CMHP, early Karuna Trust programme, Ashadeep, GASS, TTK, Banyan FPA, Sacred, Ashwini, NBJK). Hierarchical supervision structure:	Psychiatrists: PHC doctor training (DMHP in Karnataka and Jharkhand, Karuna Trust, GASS, SCARF, CHAD, IIAHS); CBR worker training together with PSW (Samuha); LHW training (Karuna Trust, Saarthak), caregiver training (Chellamuthu Trust). Multidisciplinary team (psychologist, psychiatric nurse, PSW) train LHWs	Psychiatrists: train PHC doctors, LHWs or community members (RFS, Ashok Pai, SCARF, Banyan, AIIMS Kashmir, Sneha, SACRED) or as part of a multidisciplinary team (including psychologist/PSW (Chellamuthu Trust, Banyan BALM, Muktangan Mitra, TTK, Saarthak. Outreach camps (Murgamalla, Chellamuthu Trust, SCARF, Banyan, RFS). Psychologists train LHWs (Bapu	Psychiatrists, psychologists: clinical roles mainly within outreach teams, training, support coordinators and in some instances PHWs directly (less support in rescue operation and rehabilitation models); some provide care coordination (see above).

Health worker (number of programmes)	Collaborative care model (n=15)	Non-collaborative models		
		Education and training (n=16)	Replacement, referral and awareness-raising (n=24)	Community outreach (n=17)
	specialist to professional coordinator/care manager to lay PHWs.	(VOLCOM) <u>PSW</u> trains caregivers (Chellamuthu Trust).	Trust, Maitra), campaign leaders (VOLCOM) or as part of team with PSW (LHWs: NBJK; community members: TTK). <u>PSWs:</u> train community members (Banyan Panchayat academy).	

*Abbreviations: '**The Ant**': partner organisation of Ashadeep; **AIIMS**: All India Institute of Medical Sciences; **ANM**: Auxiliary nurse midwife; **ASHA**: Accredited social health activist; **BALM**: The Banyan Academy in Leadership in Mental Health; **BAMS**: Bachelor of Ayurveda, Medicine and Surgery; **CBR**: Community-based rehabilitation; **CHAD**: Department of Community Health, Christian Medical College Vellore; **CMHP**: Community mental health programme; **CMHS**: Community mental health services; **COPSI**: Care for people with Schizophrenia in India; **DMHP**: District Mental Health Programme; **FPA**: Family Planning Association; **GASS**: Grameena Abhyudaya Seva Samasthe; **IIAHS**: Indian Institute of Allied Health Sciences; **MHAT**: Mental Health Action Trust; **MICP**: Malappuram Initiative in Community Psychiatry; **NBJK**: Nav Bharat Jagrath Kendra ; **PACT**: Saarthak reintegration project for people recovering from severe mental illness; **PSW**: Psychiatric social worker; **RFS**: Richmond Fellowship Society; **SCARF**: Schizophrenia Research Foundation; **SW**: Social worker; **TTK**: TTK Ranganathan Clinical Research Foundation ; **UMHP**: Urban mental health program; **VOLCOM**: Volunteers for Community Mental Health*

6.4.2. Models of mental healthcare delivery and their human resources

The 72 programmes were categorised into collaborative and non-collaborative care.

6.4.2.1. <u>Collaborative care</u>

<u>Details of models</u>

Fifteen of the 72 programmes were categorised as collaborative care models (table 6.1; supplementary table 1 in appendix 7). They addressed all mental disorders though three programmes focused on women, homelessness or alcohol abuse. All programmes were rural and run by NGOs. They were generally longstanding programmes (in existence since the mid 1990s for most).

Only five of the 15 collaborative care programmes involved government primary healthcare (PHC). All had regular or close collaboration (defined as organised regular contact and visiting specialist with clinical involvement) between specialists and PHC-linked or NGO-trained LHWs – but not with PHC doctors. They tended to use the primary care infrastructure as a platform for delivery rather than utilising their human resources (except for a public private partnership). All five programmes involving government primary care utilised psychiatrists to match the appropriate care to the patient rather than a stepped care approach (where patients enter the care pathway at a basic level of care and get stepwise increasing different care if they fail to respond to the first level of care) (Gask and Khanna, 2011).

The other 10 collaborative care programmes occurred in community settings. They had similarities with PHC-based collaborative care. Collaboration still happened across three sectors: the patients, a non-specialised sector (in this case non-specialised NGOs, i.e. disability- or development-focused NGOs) and a specialised sector (government or NGO-based). These collaborations were complex as there could be collaboration with several organisations within the same sector level. For example, three programmes had two specialist organisations supporting the non-specialist sector: 1) a mental health NGO provided ongoing technical support and monitoring but had no mental health specialists to deliver care and 2) specialists were only contracted in for some

training, or to be referred to. Most of them provided matched care too, though two programmes provided stepped care. Two programmes were in theory collaborative though they were in the process of changing to having little psychiatric support and possibly becoming consultation-liaison-type models.

These models of collaborative care included system redesigning (introduce a new health worker and/or care manager, shared care and multidisciplinary team support system). However only four incorporated data sharing where records were created for mentally ill patients in primary care (see table 6.1). None of these programmes regularly audited or monitored their routinely collected data.

<u>Human resources</u>

Care coordination is the lynchpin to the collaborative care model. Traditionally care managers (a new 'linking' cadre between primary care provider, specialist and patient, with clinical responsibilities) are the care coordinators. In these case studies we identified other care coordinators (coordinators without clinical responsibilities or existing PHWs with care coordination roles) too. Care managers were either experienced LHWs (6 – of whom 3 were unpaid) or graduates/ social workers (3) who had been put in place by an NGO, even within the primary care models. They liaised between patients, PHC or NGO staff and specialist professionals, had several clinical responsibilities for psychosocial support and often training and supervision duties for less experienced LHWs. Other types of care coordinators were present in six programmes and were all highly trained. Both in government primary care and community initiatives, three coordinators had strictly coordinator roles but no clinical duties, and three programmes had clinicians (a PHC doctor, two gynaecologists and one psychiatrist) who coordinated care in addition to their usual clinical duties (Table 6.2; supplementary table 1). Care managers and care coordinators were supervised, apart from three programmes (where a gynaecologist, a LHW and a psychiatrist were the care coordinators). Most had regular supervision (such as during outreach clinics) from professional PHW coordinators (for experienced LHW care managers), or by psychiatrists (for professional care coordinators/managers) (table 6.2).

Programmes had several layers of PHWs, whether in primary care or community care. All programmes had LHWs (NGO-paid LHWs and/or government LHWs), except for one partnership where there was only one gynaecologist as a non-specialist. In addition to LHWs, there could be a generalist doctor and/or social worker/graduate. In only three of the 11 programmes which had generalist doctors were they expected to diagnose and treat mental illness. The others identified, referred and followed up after psychiatric assessment (4 programmes) and/or excluded organic disorders (6 programmes).

LHWs' roles varied from identification and referral to conducting significant amounts of psychosocial support (counselling, lobbying, income generation, benefits etc) through home visits. When there were several types of LHWs within a programme, their roles were divided. Six programmes had adapted counselling for delivery by LHWs (4), (though one programme also used a doctor, and 2 programmes, a social worker). They were supervised by non-specialist care managers or care coordinators and were provided with more intensive training than government LHWs: an initial 3-12 days training with subsequent ongoing refresher and on-the-job training (compared to one or two days for government LHWs). LHWs were not always remunerated. Three programmes did not pay their volunteers even though they had similar roles to other LHWs. Also the three programmes which utilised government LHWs did not remunerate or incentivise them for their mental health roles.

Specialists involved were either employed by the organisation or were external. Specialists conducted outreach clinics to diagnose, treat and review PHW-referred patients. They also provided initial training to most PHWs. Psychiatrists supervised professional PHWs or care managers/coordinators, but were not involved in supervising LHWs (who were supervised by coordinators). External psychiatrists were commissioned by six programmes to perform outreach clinics and had no roles in training or supervision of PHWs, though some supervised care managers (supplementary table 1 in appendix 7). They were more likely to disappear from the programme within two or three years of its initiation. Three collaborations between specialist programmes however had planned to phase out support once identification,

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referral and follow-up mechanisms were established within their partner community based organisation.

6.4.2.2. <u>Non-collaborative care models</u>

The non-collaborative programmes fitted into three categories. Two of them reflect Bower's categories at the extremes of spectrum of specialist versus primary care collaborations: 1) the education and training model which gives PHWs initial care responsibility (i.e. in diagnosis and treatment) with possibility of referral to specialist care for more complex care or when patients have failed to respond to primary mental healthcare; and 2) the replacement and referral model, where specialists retain the full responsibility of care. No programmes were found that fitted into the consultation-liaison model. The third category is a new category which has not been described in current frameworks: the community outreach model. This model is organised by specialist services but delivers a primary-level based service delivery of identification and basic interventions through recruited and trained PHWs.

6.4.2.2.1. Education and training

<u>Details of the model</u>

Sixteen programmes used this model. These programmes usually provided one-off training of varying lengths, with no further supervision or involvement. Most (10) organisations involved in delivering training were NGOs (table 6.1). These training sessions usually occurred reactively to a request, rather than being a continuous commitment by organisations. Most programmes trained PHWs on all mental disorders, although only three organisations provided accredited certificated courses for paraprofessionals.[2] Only two NGOs had monitored training processes but none had evaluated health workers' competency or clinical impact as they retained no contact with PHWs after training.

In addition, the government programmes had many problems with the reliability of their drug supply. This model did not redesign its system, though the government

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[2] Some of these organisations also provided degree courses for specialists

programme in Karnataka did have mental disorder case record cards to document and report presenting symptoms and care. However, no system was in place for this clinical information system to result in monitoring management decisions.

<u>Human resources</u>

Within government PHC settings (in Karnataka and Delhi), PHC doctors were trained to diagnose and treat all mental disorders (11 programmes). PHC staff were trained by government DMHP- and by NGO- psychiatrists (two NGOs had been commissioned by DMHP, the others just trained PHC doctors in their locality) (table 6.2; supplementary table 2: appendix 7).They had no engagement in programme decision-making. Their contact with specialists was restricted to receiving training and referring, and no formal patient information sharing existed. Few other professional PHC staff were trained – for example no nurses or social workers were trained. However three government programmes trained ANMs and ASHAs. This was only a one-day training in identification and referral with no provision for ongoing support. Government PHC doctor training was much longer than that provided by most NGOs. They received between 15 and 30 days training over 3 to 5 years though in reality most PHC doctors had only received 3 to 9 days. Four of the five NGOs on the other hand, had trained PHC doctors for shorter lengths (3 days). These four programmes had since abandoned PHC doctor training as they found it poorly utilised their time and resources due to frequent transfers of doctors to other posts, which meant they had to repeatedly retrain new doctors. They had redirected their resources towards their own PHWs and other organisational priorities. One NGO however was in a public private partnership with the government DMHP programme so followed the government stipulations (Table 6.2).

From our observation, there was no organised supervision for PHC staff, partly because DMHP teams were short-staffed. The only exception was the NGO-government partnership programme which had a mental health coordinator (a non-specialist). This coordinator provided ongoing monitoring but no technical support to PHC doctors. PHC doctors thus took all mental clinical decisions independently, though

the paucity of diagnosed mental patients suggested this was inadequate, and most did not supervise their community staff (ANMs, ASHAs) out of lack of confidence and time.

Three NGOs (CMHS and general NGOs) also trained external LHWs from other programmes to identify mental disorders, follow-up and perform psychosocial interventions including non-specific counselling. In addition three programmes trained caregivers to identify and cope with their affected family member at home and encouraged them to form support groups. Other community members were also involved in community support and advocacy (table 6.2; supplementary table 2). Despite several training coordinators who organised training sessions, neither external LHWs nor caregivers received ongoing support following their training.

6.4.2.2.2. Replacement, referral and raising awareness

Details of model

Twenty-four rural and urban programme components fitted this model where PHWs were mostly trained to identify potential mental illnesses and refer these patients to specialist care. Some PHWs also raised mental health awareness. Most programmes were run by NGOs which specialised in specific mental disorders, physical disabilities or reproductive health. They provided outreach camps, telemedicine or just trained PHWs (table 6.1; supplementary table 3 in appendix 7). Many organisations which provided this model also provided programmes under the 'education and training' model and implemented these programmes in a similar way in that none provided ongoing supervision (except for two programmes). Also none of these programmes included a clinical information system, or system redesign.

Human resources

The main resources trained to identify and refer (with the responsibility for care remaining with specialists) were community members (11), LHWs (9) and doctors (6). Ten NGO- or academic- programmes trained government PHC staff (PHC doctors (6) and LHWs (4)) to identify and refer patients to psychiatric outreach camps. Training was coordinated by a separate coordinator but delivered by a specialist. Specialists

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were remunerated in NGOs but not in government settings. Training length was one to five days usually, although two programmes provided 7-15 days (including a humanitarian relief programme). Two programmes trained PHC doctors within Tamil Nadu DMHP districts. DMHP in this state functioned differently to that in Karnataka and Northern states, where PHC staff were expected to diagnose and also treat (see above under training and education). However similarly to other DMHP districts, there was also no ongoing supervision (table 6.2; supplementary table 3). As per education and training models, four NGOs had ceased training government PHC doctors because either they were no longer contracted to or because of perceived ineffectiveness. In fact across both these models, 8/17 or 47% of programmes that had trained PHC doctors and allied health workers had closed due to funding shortages and discontinuation due to perceived ineffectiveness.

Eleven programmes trained community members (such as police officers, development workers, self-help group members and leaders) and LHWs in other NGOs (5 programmes). Their roles were to identify and refer. Some provided psychosocial support (3) (supplementary table 3). Training of police officers occurred within organisations that focused on substance abuse, homelessness and suicide prevention. These programmes had coordinators to organise outreach clinics, and monitoring referrals. Supervision was minimal: only three programmes provided minimal support to community members (2) and LHWs (1) such as ad hoc communication, expecting them to bring patients to camps (Table 6.2; supplementary table 3).

Six programmes provided mental health awareness to the general population or to at-risk populations (college students or people with disability). Within these, PHWs (LHWs and social workers) were involved in local dissemination of knowledge (e.g. pamphlet distribution). They also provided extra support within awareness campaigns delivered by specialists (films, mental health awareness days etc).

6.4.2.2.3. Community outreach models in specialist programmes

This model has not been described in any frameworks before. They are different from fully integrated models which assume involvement of primary care, shared care and decision making, and co-location of specialist and primary care services (Collins et al.,

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2010). Instead, specialist programmes or organisations recruit and train their own PHWs to deliver primary mental healthcare at community level or within clinics. The decision-making and programme structure remains specialist-centric rather than sharing power with non-specialists. These programmes used care managers and coordinators. So rather than collaborating with a separate primary or community care institution, these PHWs act as a referral mechanism to psychiatric care if needed. Psychiatric input may not be needed beyond diagnosing and forming a management plan.

<u>Details of model</u>

A total of 17 programmes fitted this model. Close to two thirds (11/17) of programmes targeted specific severe mental disorders (schizophrenia) and substance abuse. Twelve specialist programmes provided ambulatory care (outreach clinics) in which PHWs had a significant role. These programmes were part of NGOs that also provided other services such as collaborative care, training or specialist care (such as acute mental healthcare, rehabilitation homes, palliative care and disability). Only six programmes provided a system of matched or stepped care. The other programmes only offered single interventions (such as a stigma intervention, rescue missions for the homeless or help-lines).

These outreach programmes had two types of focus. Firstly, primary outreach services (first level care) included outreach programmes to rescue homeless people (2 organisations), outreach clinics within which PHWs provided psychosocial support (2 organisations), PHW-led lay counselling (5 programmes), and urban-based phone help-lines for general crises and for substance abuse (3 programmes) (though accessible to both urban and rural populations) (table 6.1; supplementary table 4 in appendix 7). The second set of PHW-interventions was the reintegration/rehabilitation of patients following long-stay psychiatric care (5 programmes). Four programmes provided vocational employment rehabilitation, which differed from other specialist vocational units as care was provided by non-specialists at community-level. These rehabilitation programmes were founded 5 to 10 years after other mental health programmes within NGOs, suggesting they were added on after establishing essential treatment services.

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These programmes offered vocational training (skills training), though only two offered supportive employment (whereby the employer helps achieve an adapted return to work) (supplementary table 4 for details). A further programme trained community volunteers (business men, rickshaw drivers etc) to help facilitate reintegration of patients after a period in residential care.

Similar to collaborative care programmes, these outreach programmes were well funded, as they were all within NGOs who rely on donors and wealthier patients paying for their care. This meant their drug supply was adequate, and some had also built clinical information systems (table 6.1). They had also redesigned their system (through the addition of new health workers, shared care and multidisciplinary teams) though their system relied more heavily on specialists than collaborative care models.

<u>Human resources</u>

These programmes all included elements of care coordination. They employed care managers (11), care coordinators (8) or both (2 programmes). Their backgrounds varied across programmes. The majority of care managers were experienced PHWs, whereas care coordinators were predominantly specialists (table 6.2; supplementary table 4). Although we distinguished care managers from other care coordinators, they had similar coordination roles of liaising with, supervising and sometimes training PHWs. In programmes where other coordinators did not have clinical or care roles (which would have been performed by care managers in other programmes), these roles tended to be redistributed amongst one or several PHWs. All care coordinators and managers were supervised except those who were psychiatrists.

Professional PHWs (doctors, social workers, nurses and pharmacists) only provided care during the outreach teams' clinics rather than in the community. PHC doctors (2 programmes) had no mental health roles; they excluded organic causes. Most programmes (15) used LHWs, though three also used graduates or social workers, and one used community members. LHWs were assigned interventional roles: psychosocial support, supportive roles at clinics (triage, taking a history/screening) and post-specialist follow-up (including adherence monitoring) (2 programmes). Within a further eight programmes LHWs, (but not professionals) had counselling roles for all

mental disorders. Types of counselling included non-specific counselling (4), emotional first aid (2) and specific behavioural psychotherapy techniques (2), though four programmes focused on substance abuse or schizophrenia. In rehabilitation programmes, health workers and non-health workers (such as recovered users, carers, community members) were trained as vocational skills trainers, a task usually assigned to more skilled cadres within specialist rehabilitation units.

Unlike collaborative care programmes, PHWs received intensive (usually weekly or monthly) support by one or several specialists (psychiatrists, psychologists and psychiatric social workers) as well as from non-specialist care managers (for the case of LHWs) (see supplementary table 4). Their specialist-delivered training was also longer and ongoing training more frequent than in collaborative care models.

6.5. Discussion

The results show that there is a rich array of models of mental healthcare delivery that are not possible to fit into the currently available frameworks for analysis which have been devised based on studies in HICs. The Bower framework remained the most suited framework for most models, allbeit, by broadening the definitions of 1) care managers to include other care coordinators and 2) primary care to include NGO-delivery in primary or community care. However this study adds a unique model of community outreach services to this framework (where PHWs were employed within specialist organisations to deliver a form of primary-level community care). This excluded primary care all together. Below we discuss whether the models and human resources used were appropriate and what further research is needed.

6.5.1. Are the models used appropriate?

Several models of primary mental healthcare delivery in India covered the same spectrum of collaboration models as in HICs. However, important variations exist. Numerous NGOs bypassed primary care and worked instead with other community based platforms. In India this is in response to a large unmet need for treatment and support for the mentally ill and their carers (van Ginneken et al., 2014). This pattern is

not common in HICs, but is in other LMICs (Petersen et al., 2011; van Ginneken et al., 2013).

Below we discuss the findings in light of current evidence. Given that the collaborative care model has most evidence for effectiveness in HICs (Coleman et al., 2009), still less than a quarter of programmes implemented this model (15/72 programmes). Although these figures are not representative of available programmes across India (as the case study sampling strategy was purposive), they give an idea of which programmes may be most available (Keen, 2006). These collaborative care models showed interesting innovative variations, such as using sectors other than primary care, matched care rather than stepped care even in government primary care settings, and a variety of care managers and coordinators. Care managers are known to be a factor for mental health collaborations working better (Gilbody et al., 2006), but other forms of care coordination are less evaluated. Few programmes had shared systems of care, clinical information systems or healthcare organisation support (ICIC, 2014; Woltmann et al., 2012), despite these programme elements improving the success of programmes. Also few collaborative care models focused on severe mental disorders and substance abuse. Collaborative care may be particularly important to ensure that the physical as well as mental needs of these patients are adequately met (Druss and von Esenwein, 2006). More research is needed to know whether collaborative care is effective given the above variations and if implemented at scale.

Unfortunately we found that the education and training model, for which there is little evidence of effectiveness on its own (Gilbody et al., 2003), was utilised by 22% (16/72) of all programmes, particularly for training external organisations' PHWs. Disturbingly, it has remained the main stay of the Indian government's DMHP model (and those in public private partnership). The DMHP trains PHC staff (doctors in diagnosis and treatment and government LHWs in identification and referral), but barriers to its effective implementation include a weak primary care system and shortages of drug supply. Furthermore, the lack of this model's sustainability was exemplified by the fact that more than half the programmes training PHC doctors (all of these provided by NGOs) had shut down. Reasons given by NGOs for closure of their PHC-based programmes included withdrawal of funding, usually due to a change in the

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organisation's or funder's priorities, but also due to perceived ineffectiveness of this programme. Ineffectiveness was attributed to the PHC doctor being frequently transferred, making it labour and cost-intensive to retrain their successors. Also this model lacked system redesign to bring out any collaborative aspect between specialists and PHWs. This training model remains attractive to policy makers because it is cheap (short training duration), and has little requirement of a heavily-burdened specialist workforce (Gilbody et al., 2003). However, training is only effective when combined with other models such as with collaborative care. For example in the UK, trained physicians then liaise closely with community mental health teams, specialist crisis intervention services, and with specialists in early psychosis identification (Goldberg and Gournay, 1998; Walters and Tylee, 2003).

Thirty three percent of programmes (24/72) trained PHWs to identify and refer, where specialists retained responsibility for care. This model has some evidence for improving patient and service outcomes in HICs (Richards, 2010; Clark et al., 2009; Bortolotti et al., 2008). However its sustainability on a larger scale in India and other LMICs is still doubtful given the current sparse specialist resources. In addition, in the models described, the majority of these provided training to PHWs but no ongoing support. These programmes may, therefore, be as ineffective as the education and training models.

Several specialist organisations had set up primary community extension or outreach services through PHWs (24% of programmes (17/72), half of whom targeted specific conditions which generally require greater specialist input (substance abuse and severe mental disorders). This model was adopted by many NGOs, partly as a reaction to failed attempts at establishing government partnerships or training their workforce, and due to government inefficiencies and unwillingness. This model is common in many LMICs where primary healthcare systems are weak. These models have the advantage of providing specialist and community-based care from within the same organisation (Dudley and Garner, 2011; WHO, 2008a; Frenk, 2009), thus minimising the difficulties of information sharing and care coordination which occur in collaborative models. Their downside is they rely heavily on specialists, which was possible within NGOs because of their access to donor funding, but may not be

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feasible at scale (Patel and Varghese, 2005). In addition, they fail to incorporate any clinical primary (non-mental health) care, which fully integrated programmes would have.

These community outreach models remain poorly described and unevaluated in India and elsewhere, though a recent trial suggests a modest effect of such a programme in reducing symptoms and disability from schizophrenia (Chatterjee et al., 2014). In addition, the practices of some of these programmes were not evidence-based. Few vocational rehabilitation programmes used the evidence-based intervention of supportive employment (Kinoshita et al., 2013). Providing technical skills training is less effective at getting patients back into work (Crowther et al., 2001). There is little evidence for cost-effectiveness of specialist models in HICs (Bower, 2011) and no cost-effectiveness has been conducted in LMICs, even when applied to targeted populations. The widespread use of these integrated models is therefore concerning. It would be inappropriate to currently recommend the government to implement such services, where financial and human resources are more limited.

Several weaknesses remain within all programmes. For example, collaborative care models and community outreach models had redesigned their systems to integrate new PHWs, multidisciplinary teams and had some shared care. However, most of them were still weak on having clinical information systems. Those that did, did not systematically audit or monitor the routine data they collected. In addition the push for cheaper care also needs to be balanced with adequate staff incentives: several programmes relied heavily on the spirit of volunteerism for their LHWs and also for specialist involvement. Some programmes suffered from PHW attrition. In addition, it is known that the DMHP and other LMIC mental health programmes currently have difficulties attracting and retaining specialists due to lack of incentives, mentorship, career opportunities and workplace conditions (chapters 2 and 5). Scaling up these models is therefore unfeasible unless specialists are better incentivised and PHWs better retained (see implications for practice below for details).

In addition, despite widespread alcohol problem-drinking and abuse in India and elsewhere, and substantial evidence for feasibility of delivery of screening and

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providing brief interventions in primary or community care (Kaner et al., 2007) this study only identified one Indian programme which trained their PHWs to do so. While many case study programmes provided interventions for all mental disorders, impact evaluations on which the evidence of effectiveness of PHWs is based provide psychological interventions for specific disorders (depression, post-traumatic stress disorder in adults and children, dementia and alcohol abuse) (van Ginneken et al., 2013; Kakuma et al., 2011). It is therefore not possible currently to draw conclusions whether or which types of programmes are adequate for providing care for all mental disorders.

6.5.2. Are the human resources used appropriate?

6.5.2.1.   PHWs

This section compares the types of PHWs and their roles within these Indian models to the current available evidence. The current evidence for collaborative care is for using professional primary care staff (doctors, nurses) and graduate care managers (Plummer and Haddad, 2009; Bower, 2011; Bower and Gilbody, 2005). Only 19/72 (26%) programmes utilised PHC doctors and of these a quarter had closed. Many Indian programmes substituted a professional for a lay PHW workforce. Most collaborative and community outreach models used LHWs or general social workers rather than generalist doctors or nurses as their main PHW resource. Also NGOs - but not government programmes - utilised community members (teachers, police, village leaders etc) in similar roles to LHWs. These models were similar to those in a recent systematic review on the effectiveness of LHWs in that many used lay counsellors (LHWs) (A few also used social workers/ graduates, and 1 doctor) (van Ginneken et al., 2013). However they differed in having non-specialised and often non-professional care managers (experienced LHWs), whereas studies included in the Cochrane review had professional (social workers, midwives) or specialist care managers (psychiatric social workers).

Several reasons for using LHWs instead of non-specialist clinical professionals are postulated. India has a dearth of human resources in mental healthcare and of

professionals in general healthcare, as do many LMICs (Kakuma et al., 2011)(chapters 1 and 2), and these resources are usually not permanent within communities. On the other hand, LHWs are usually stable residents. LHWs tended to have similar roles to social workers (such as psychosocial support). Government institutions solely focused on identification and pharmacological interventions and used LHWs at most (if at all) for identification and referral. Only NGO programmes had trained PHWs to do psychosocial interventions. Predominantly LHWs (and rarely doctors and social workers in two collaborative care models) provided counselling. Using lay counsellors was not as widespread in these India case studies (about 40% of collaborative care and community outreach models, and 16% of education and training models) compared to those in study settings identified in the recent systematic review on effectiveness of PHWs (90%) (van Ginneken et al., 2013). Collaborative care models only provided non-specific counselling, whereas, the community outreach models, similarly to those in the Cochrane review, had trained several PHWs (professional and non-professional PHWs) to deliver specific psychological techniques such as cognitive behaviour therapy or interpersonal therapy. These important variations of intensity of specific therapies within study settings may be difficult to scale up to more generalist interventions and PHWs on the ground in India or other LMICs.

Nurses were under-utilised in these programmes as they are relatively scarce in India, unlike in African countries and many other LMICs where they are widely utilised (Kakuma et al., 2011). Also Indian nurses have maintained traditional roles of providing first aid and injections (Johnson et al., 2014) so insufficient consideration of their potential use has occurred within efforts to broaden access to mental healthcare.

PHWs' training was also often inconsistent or inadequate. More intensively trained LHWs tended to have more significant interventional roles (such as brief interventions, counselling, psychosocial support) than those with less training. However, this was not the case for PHC doctors. PHC doctors had variable lengths of training (1 to 15 days) regardless of their expected roles (diagnosis and treatment versus identification and referral). This is contrary to case in LMICs generally where roles generally do depend on PHWs' level of training (Kakuma et al., 2011). These results also highlighted that these programmes provided short and therefore probably ineffective or insufficient

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training. Furthermore, Indian PHC doctors' may be poorly equipped to diagnose and treat mental disorders, not only because of poor training, but also because of inherent primary health system weaknesses that have led to poor staff motivation and attrition (van Ginneken et al., 2014) (further discussed in chapter 7). However even within HICs where health systems are stronger, PHC doctors are also poor at screening and diagnosing common mental disorders (Mitchell et al., 2011). Interestingly, two factors may improve detection accuracy: poor access to specialist care and working in small practices. These may force practitioners to be more self-reliant (Mitchell et al., 2011). This was reflected in this study as programmes with greater specialist involvement relegated their PHC doctors to excluding organic disorders (community outreach programmes), or to identification and referral roles in the wealthier states of Kerala and Tamil Nadu which had PHC-based psychiatric outreach clinics (replacement and referral programmes).

6.5.2.2. <u>Care coordination</u>

Although care coordination has been described within collaborative care as a feasible way within primary care to improve detection and treatment of patients with mental or other chronic disorders (ICIC, 2014), these cadres were also used within community outreach models. Three types of care coordinator were identified in this study: 1) the care manager, an additional 'linking' health worker between specialists, PHWs and patients, who also had clinical responsibilities; 2) existing PHW or specialist clinical cadres and assigning them additional care coordination roles, and 3) coordinators with similar linking, coordination and supervisory activities (they had no clinical responsibilities, and were sometimes from a non-clinical background). The first two categories have so far only been described in the literature as relating to collaborative care models (Bower and Gilbody, 2005; ICIC, 2014). However in this study, the non-clinical coordinator (the third type) has not properly been described in the literature. Moreover, in spite of care coordinators' obvious differences in background (ranging from non-health workers, to PHWs, to specialists), which represent greater variations that those in HICs (where care coordination is usually performed by professional cadres), the care coordination remit of these cadres were similar: they all acted as links between specialists and PHWs (and patients for those with clinical roles), and provided

PHW supervision and programme coordination. Compared with care coordinators described in the HIC literature, they also had broader remits than care coordination, such as being involved in patient advocacy. Their supervisory roles were more complex in India than in HICs: many collaborative care and community outreach models had two levels of coordinators who may be involved in training staff/management of the programme and those with more clinical on-the-ground duties linked to LHWs or as LHWs themselves. These variations are likely to be related to trying to overcome not just shortages of specialist human resources but also to minimise the pitfalls of task-sharing. Merely shifting tasks from a specialist to a non specialist cadre may not be a feasible burden to impose on one cadre. NGOs (though not government programmes) have been creative in using multiple PHWs and coordinators to split and share these tasks.

6.5.2.3. Specialist support

Specialists were used differently in India compared with HICs. Whereas in HICs, their roles are more supportive and supervisory (Bower and Gilbody, 2005), in Indian NGOs and across all models, specialists were more intensively used as clinicians in outreach clinics and for training PHWs. Some specialists also had additional leadership and management responsibilities as directors or founders of NGOs. Psychologists also had broader roles beyond psychotherapeutic and psychological assessment roles, as supervisors or trainers. Psychiatric social workers were used in better resourced settings (Southern and Western states), whereas general social workers adopted PSW roles in areas with scarce mental human resources (North-Eastern states).

Specialist input tended to decrease throughout the lifecycle of the project, particularly within collaborative care and community outreach models. This gradual withdrawal of intensive specialist support was justified by organisations once the PHW workforce and coordinators were more independent. However no organisations had a system to assess when the PHWs' and coordinators' competency was sufficient to be independent. Also greater use and retention of specialist human resources (both for clinical input and as skilled care managers) occurred in better resourced areas, such as within urban or peri-urban areas, or in better resourced states (Delhi and Tamil Nadu).

Withdrawal of specialist intensive involvement from some programmes may therefore be motivated by resource shortages rather than being clinically warranted.

6.5.3. Study Limitations

This study was subject to limitations of scope, sampling, data collection and analysis.

6.5.3.1. Limitations of scope

This thesis's methods did not allow for proper impact and process evaluation of all the variations in models, human resources and their roles (further discussed in chapter 7). Further programme evaluations also need to include assessing the feasibility of volunteerism in this context.

6.5.3.2. Sampling limitations

Programmes were selected purposively and also subjected to convenience sampling so the figures presented above are not representative of all programmes in India but of the programmes willing to take part in our study. As only two programmes refused to participate, this was unlikely to be a major barrier. Sampling of participants within programmes was also subjected to convenience sampling as they were chosen by organisations based on our stipulations to meet a variety of cadres (health workers, managers/supervisors and specialists). Therefore participants interviewed may not have fully represented views for their cadre. For example we may have been presented to only the best staff or those who would portray the organisation or their work positively.

6.5.3.3. Data collection limitations

Several interviews and focus groups were conducted in languages the main researcher was not familiar with. Despite the anthropological and qualitative traditions having generally rejected using interpreters, some have used them successfully (Borchgrevink, 2003; Pool, 1994). Understanding language subtleties would not have been achievable by the researcher merely learning the languages (Borchgrevink, 2003; Temple, 2002;

Davidson et al., 2004; Pool, 1994). The co-researchers (SG and MSM) were not just bi- or tri-lingual (English/Kannada/Hindi) but also bi- or tri-cultural.[3] For the shorter case-studies conducted in other languages (Mizo, Oriya, Tamil, Malayalam, Telugu), the researchers relied on local programme staff to provide bilingual interpreters. Co-researchers and other interpreters perceived linguistic and cultural nuances and ambiguities and were able to explain respondents' answers in light of the cultural context. They also were helpful in establishing rapport with the informants. For example in the first stages of the in-depth case studies, co-researchers indicated and taught the main researcher proper ways of behaving and the proper phrases to greet people (Buechler, 1969; Ellen, 1984). Furthermore the main researcher had learned some Kannada to help with communication and understanding the gist of conversations (Ellen, 1984). This allowed the researcher to partially check the interpreter's face-to-face interpretations. The co-researchers' ability to bridge the gap between the researcher's and the informants' cultures was felt to be crucial in the field of mental health where explanatory models of illness can differ significantly (Shklarov, 2007).

Interviews and observations were located in health workers' work settings, which was convenient for the researcher and for the staff. However the naturalist setting may have affected PHWs' answers: they may have felt rushed or disrupted as they had work commitments either side of the interview, they may also have felt inhibited to be open about specific issues as they were often within earshot of their supervisors or other colleagues.

The results should further be interpreted with caution as information gathered was reliant on staff recall and subject to reporting bias, where participants may intentionally or unintentionally omit information - inconsistencies and contradictions are common (Bloor, 1977). This respondent bias may have limited the completeness of information. In the in-depth case studies, we noted for example that in interviews, two health workers described their roles to be much more comprehensive compared with what we observed their roles to be in practice. To minimise respondent bias and

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[3] Though both researchers spoke all three languages, SG was more bilingual/bicultural in Hindi and MSM in Kannada.

improve completeness of facts, we interviewed staff at different levels thus getting a multi-source account (triangulation of programme staff) and included focus group discussions (for correcting inaccurate or incomplete reporting) (Patton, 2002). Multiple sources of data allowed us to unpack contents of the cases individually, as well as view them as a whole (Patton, 2002).

Group discussions could have also hindered completeness of accounts as they may not allow for socially deviant or marginal opinions (Krueger, 1994). In interviews because of convenience sampling, some group interviews combined for example PHWs with their supervisor (this was the case for only two of the 26 focus groups). The presence of supervisors may have 'silenced' or distorted PHWs' views, to reflect what was 'meant to be done' as opposed to what was 'actually done'.

The findings of health workers' beliefs and behaviours may also have been distorted by the effects of the researchers' presence. There was some evidence of this Hawthorne effect (Green and Thorogood, 2004). Within shorter case studies, some PHW had voiced concerns about being judged and that this would lead to job insecurity, despite our reassurance that collected information was confidential. Furthermore, in one in-depth case study a PHC doctor's behaviour markedly changed because of the first author (NvG)'s presence. During the first phase of research (5 weeks), NvG and her interpreter/research assistant (SG) stayed in the PHC for data gathering. However during the second phase (10 days) NvG was substituted with her research coordinator, an experienced Indian anthropologist (MSM), as she had health problems. The PHC doctor was markedly more relaxed and more open with the Indian co-researchers.

To minimise this perceived threat, NvG employed her extensive experience in both clinical and research interview and communication skills to strive to make people feel at ease, and respected whilst still being critical and inquisitive (Bochner, 2000). She also instilled this into her co-researchers and monitored their demeanour in interviews by listening to their interview audio-recordings and providing them with feedback. Personal reflection as well as debriefing meetings with her co-researchers and supervisor did not highlight specific threatening elements to her manner. However the

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PHC doctor may have felt threatened by NvG's professional background: although she was also a generalist doctor, she was from a HIC and was an academic. In his words NvG would have classed as a 'big person' (a person of importance) as opposed to himself whom he described as a 'little person'. He would have felt more judged or evaluated by the main researcher as she was the only one who was able to cast judgement on his clinical accuracy and quality. Although he communicated adequately in English, he revealed to the co-researchers on the second visit that he felt more comfortable in Kannada, the local language in Karnataka. The first author and her co-researchers were technically 'outsiders' to this rural setting, but the co-researchers benefited from an 'in between insider and outsider' status which has been described in other ethnographic literature (Kerstetter, 2012): they were culturally more linked to him and shared his language (both co-researchers were also from Karnataka). They were also perceived as non-threatening as they did not have clinical backgrounds. Further discussion of limitations of co-researchers is detailed in chapter 7 under observer bias.

6.5.3.4. <u>Data analysis limitations</u>

We acknowledge that factual data retrieval is not the usual way of utilising qualitative data, but is a known process of content analysis (Bernard, 2006). Qualitative factual data was compared to written sources (such as website information, annual reports) but as detailed documentation and evaluation was sparse, the analysis had to rely on a more detailed understanding from participants. To maximise completeness of the data retrieval, coding was performed by several coders (NvG, MSM, SG and AG), working from the same worksheet, which was constantly compared and updated.

There are however limitations of using quantitative/factual analysis of qualitative data. The main limitation was the need to take participants' word at face value rather than seeing their account as their interpretation of events/facts (their perspectives and views of events and of their work are going to be presented in a subsequent paper). Most qualitative research uses an interpretivist or constructionist approach, and does not take participants account as 'truth', but treats their views as valid accounts that need interpreting within a theoretical understanding of healthcare organisations, of

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professional values and of professional-client encounters (Green and Thorogood, 2004). However using this post-positivist approach was justified for two reasons: 1) as little is known about these cases, the purpose of the analysis was intentionally focused more on description than interpretation (Padgett, 2012); and 2) hearing participants' roles and structures from their perspective is as valid an account as a list of theoretical organisational structure and roles, were these to have been available.

Certain limitations also pertain to the use of case-study analysis. One issue was that the choice of a case shifted during sampling, from the organisation itself to programmes within them. It was soon apparent organisations often had several different models within them. Changing the case definition has been recognised in the wider literature on case studies and seems not to have an impact on the quality of the analysis, as long as this shift is acknowledged (Patton, 2002). Also difficulties of multiple case study analyses were faced. The authors attempted to maintain the integrity of all 72 programmes during aggregation through the use of thematic analysis and pattern recognition (Padgett, 2012).

6.5.4. Future research priorities

Many of these models remain unevaluated. Quantitative impact evaluations of current programmes in India and other LMICs are necessary, to confirm whether their current mix of human resources, and their delivery in community settings (rather than government primary care) achieve similar outcomes to collaborative care in HICs. In addition, the study identified a unique model of community outreach services which does not feature in the currently established classifications. Given their intensive use of specialists, they are more likely to have a place in targeted interventions for people with severe mental disorders or substance abuse. Authors acknowledge the difficulties NGOs face in implementing such evaluations due to limited time, prioritisation, and funding opportunities. Researchers should therefore be encouraged to conduct randomised controlled trials as new interventions or in conjunction with NGOs.

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NGOs and government programmes need encouragement to perform evaluations, and funders encouraged to pay for these to assess how the human resource substitutions and differences in PHW-support affect effectiveness and impact of collaborative care programmes. In particular the impact of having tiers of managers needs to be assessed as this may reduce the need for specialist input but may also add layers of complexity to an already bureaucratic set-up.

Furthermore, the mental health literature (Kakuma et al., 2011) as well as wider health literature (Bosch-Capblanch and Garner, 2008) suggest supervision and regular follow-up are more important. Indeed, models with evidence of effectiveness (collaborative care, and identification and refer) incorporate supervision in addition to training. Our study corroborates with these findings, as programmes that had closed or seemed to be struggling (the DMHP) did not supervise PHWs. This study was not able to ascertain (as the methods use were not appropriate) the quality of the training and supervision. This would require formal evaluation to explore feasible and effective ways to improve the supervision of PHWs.

Beyond the evidence, is the question of their feasibility and sustainability if implemented at scale. Currently nationwide there are insufficient specialist resources to support the most effective programme (collaborative care) or others with heavy specialist involvement (community outreach models), and these models have to contend with a weak primary healthcare system, an issue most LMICs and some HICs also face (Mangham and Hanson, 2010). Further evaluations of models and cost-effectiveness research, focusing therefore not solely on mental healthcare through formal primary care but also through other community sectors is needed for collaborative and community outreach models, before being able to advise which models the DMHP may consider scaling up.

6.5.5. Implications for practice

This study is the first exploratory study of its kind in India. Therefore it cannot provide firm recommendations regarding models and human resources mix. It

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also cannot generalise these findings for scaling up to improve the current DMHP, or for application to mental health programmes in other LMICs. This study however has identified important innovative elements of NGO-led community programmes' models and human resources that differ from HICs, notably the heterogeneous collaborative care models and the community outreach models, which may have potential for profound change if implemented on a large scale.

Organisations need to become aware that some of their programmes (such as PHW one-off training) have no evidence of effectiveness, and they may need to be encouraged and supported to re-orient efforts towards more effective endeavours. This re-orientation will also need to target funders as they currently promote funding programmes which are time-bound and cheap.

Though this study is not able to provide actual recommendations on one specific model, it can provide conceptual generalisability. These findings, as well as those from our policy paper (van Ginneken et al., 2014) (chapter 5) suggest that due to a weak primary care system, the government and DMHP may consider having a more feasible expectation of doctors to identify and refer, but not to diagnose and treat. An extra link worker, the care manager seems essential to take over the role of care coordination from the PHC doctors, a role the latter are currently unable to fulfil. The widespread use and sustainability of LHWs by NGOs for various forms of psychosocial interventions and follow-up/medical adherence suggests the government DMHP should also consider training their LHWs in psychosocial roles as complementary to current solely pharmacological interventions. This expansion of roles and of PHW workforce correlates with recent policy recommendations (Mental-Health-Policy-Group, 2012) and also seems acceptable to health workers (Mendenhall et al., 2014). However this study highlights that ongoing supervision or support of PHWs is a key feature of programmes which are deemed more effective, but this necessitates significant specialist involvement. While the Indian policy environment is currently favourable, as exemplified by the national mental healthcare bill and policy currently under consideration within parliament (Shidhaye and Patel, 2014), the success of these recommendations relies on their implementation within the health system and on the buy-in and redistribution of specialists. This would imply redistributing available

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specialist care to provide more outreach services and support to care managers and/or PHWs. Particular conditions would have to be met to attract specialists to this new way of working which have been identified in parallel studies. These include adequate remuneration, providing them with career opportunities and better workplace conditions (chapters 2 and 5)(Kakuma et al., 2011; van Ginneken et al., 2014).

Given that there are large geographical variations in availability of specialist resources within India, the above recommendations may be difficult to implement and variations of the collaborative care model may be needed. However the add-on of a care manager suggests that specialist support could be provided largely by remote communications, with the use of technology such as mobile phones for supervision (which many NGO programmes have explored), and potentially with the use of telemedicine for diagnosis, an option currently poorly explored by programmes. Though there are several barriers to mobile technology, the current literature suggests mobile technology can be effective in certain areas of health such as anti-retroviral treatment adherence and smoking cessation, but need further exploration within the mental health field (Aggarwal, 2012; Free et al., 2013). How far this is contextually generalisable needs to be determined on a case-by-case basis for different states depending on their levels of resources and heterogeneity of settings.

This study also highlighted that most collaborative models functioned outside formal government primary care (such as within the NGO sectors of disability care, HIV care, gynaecology clinics etc). The DMHP programme has so far solely focused on working through government primary care and it is known that this programme has not adequately met its targets partly due to political, but also due to health system weaknesses (van Ginneken et al., 2014). Health system strengthening through the National Rural Health Mission (NRHM) and the broader vision of universal health coverage (Sengupta, 2013) will be necessary to improve the likelihood of mental healthcare delivery being effective through India's primary care system. Opportunities to incorporate or collaborate with the community sector (NGO initiatives for example) should be explored to overcome the governmental primary mental system weaknesses (see chapter 7 for more detailed discussion on health system strengthening).

6.6. Conclusion

Many programmes in India provided an array of different primary mental healthcare services involving PHWs, but several of these, particularly one-off training, have no evidence for improved patient or service delivery outcomes. The collaborative care models are very heterogeneous and differ significantly to those in HICs. Many do not collaborate with formal government primary care settings, and some also have weak systems of collecting and analysing routine data. In addition, several programmes use a unique community outreach model that is not described in HICs but is common in LMICs. Types of resources are also different: care managers and care coordinators are more numerous and their roles are more complex than in HICs. A large majority of programmes use LHWs with significant complementary and substitution roles. Further research is needed to assess the clinical and cost-effectiveness of these variations of collaborative care and of community outreach models. The main stakeholders within government and NGOs may be encouraged to evaluate their innovative models of PHW-delivered mental healthcare, and to consider reducing cheap but ineffective one-off training sessions. Researchers should also consider repeating this study and undertaking larger comparative studies and trials in other LMICs to see if the findings and implications of this study are relevant in other settings.

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6.7. References

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Chapter 7

Discussion and conclusions

7.1. Summary and triangulation of findings

The findings within each method of this thesis have already been contextualised with the wider literature in the discussion sections relevant to each paper. Below is a synthesis of the thesis findings (3 papers and 1 draft publication – chapter 2, 4, 5 and 6), and what each method or paper has contributed to answer the primary research questions.

7.1.1. Effectiveness and cost-effectiveness of PHWs in LMICs and India

The effectiveness of primary-level health workers (PHWs) in low- and middle-income countries (LMICs) was assessed through the Cochrane review (Chapter 4) through meta-analyses of 38 randomised controlled trials and some non-randomised controlled trials. Within LMICs, PHWs were modestly to moderately effective in delivering care for MNS disorders. More specifically they may be effective in improving symptoms of people with common mental disorders (CMDs), perinatal depression, post traumatic stress disorder (PTSD) in adults and dementia. They may also improve wellbeing of carers of people with dementia, and reduce the amount of alcohol consumed by people with alcohol-use disorders. There may be some evidence that psychological interventions delivered particularly by lay health workers (LHWs) for CMDs and PTSD are an effective strategy. There was inconclusive evidence whether LHWs or teachers reduce PTSD symptoms among children or impact on people with other mental neurological and substance use (MNS) disorders.

The paper on human resources for mental health worldwide (chapter 2) also identified an additional 15 quasi-experimental studies of PHW interventions in primary or community adult care in LMICs (appendix 1: table 1) which did not fit the inclusion criteria in the Cochrane review but which agreed with the Cochrane findings, that PHWs were effective in improving symptoms of CMDs (2 studies) and post-traumatic mental illness (2 studies). PHW interventions for maternal depression not only improved symptoms of maternal depression and mother child engagement but also neonatal mortality (3 studies). There were in addition more studies that suggested symptoms of epilepsy (4 studies) and psychosis (4 studies) were improved.

The evidence from India is growing but still limited. Only two studies in the systematic review were from India, both from Goa, and both were collaborative care models. One showed that a collaborative care model for CMDs versus usual care was effective in improving the prevalence and symptoms of CMDs in public facilities, and reducing the number of disability days (number of days of no or reduced work) (Patel et al., 2010). The second study showed a home intervention with home care advisors and lay counsellors improved behaviour, quality of life and functional impairment in patients with dementia and improved the well-being, burden and distress in their carers (Dias et al., 2008). In the wider literature, as covered by the paper in chapter 2 (appendix 1: table 1), eight of the 15 studies of quasi-experimental design were from India. These showed CBR workers, LHWs and in one study a primary healthcare (PHC) doctor improved psychotic symptoms and disability, mental distress post-tsunami, CMD symptoms and infant outcomes in interventions for maternal depression. Four of these were collaborative care-type models and the other two specialist outreach models.

Since these two papers (chapters 2 and 4) were published, a further randomised controlled trial has been published of patients living with schizophrenia receiving a community outreach programme (LHWs supervised by specialists) plus facility-based care for versus those only receiving facility-based care. Schizophrenic symptoms and disability reduced in one of the three sites (Tamil Nadu) where patients had had no or little previous psychiatric input but not the other two sites (Maharashtra and Goa) where patients were recruited from pre-existing clinics and were therefore were receiving prior psychiatric care. Across sites there was also improved medical adherence and a reduction in reported experienced stigma and discrimination but no improvement in knowledge, burden and willingness to disclose to others or in perceived stigma (Chatterjee et al., 2014). Furthermore there are several ongoing qualitative and quantitative evaluations to measure the impact of PHW-delivered psychological interventions for depression and alcohol use disorders in India (Patel et al., 2014), and to assess the feasibility, impact and scalability of a primary care-based mental care package in India and four other LMICs (Lund et al., 2012).

There are insufficient data to draw global conclusions on costs or cost-effectiveness of PHW-delivered interventions in LMICs from the Lancet or Cochrane reviews (chapters

2 and 4), as the studies were sparse and heterogeneous. In chapter 4 three cost analyses identified suggested direct or indirect costs were reduced with certain PHWs interventions compared to specialist care (table 14 in chapter 4). PHW interventions may also be cost effective. Only two cost-effectiveness analyses were linked to included studies in the Cochrane review, both of which were collaborative care models for depression. One trial in Chile, suggested collaborative care was cost-effective (table 14 in chapter 4). Since this review was published, the Indian collaborative care trial (Patel et al., 2010) published that this intervention is not only cost-effective but cost-saving (Buttorff et al., 2012). A review of the wider economic literature revealed a further two LMIC studies that showed collaborative care was cost-effective within formal primary care settings for depression (Chile) and all MNS disorders (Nigeria) (appendix 3 of Cochrane review, in appendix 5 of thesis).

7.1.2. Models of PHW-delivered mental healthcare in primary care in India

Chapter 6 aimed to identify and describe current PHW-delivered models of mental healthcare delivery across India, including the government district mental health programme (DMHP) and non-government organisation (NGO)-led models. The purpose was to describe how these models functioned and structured their PHW and specialist workforce. Chapter 5 contextualised these current programmes' progress within the past and current policy attempts to integrate mental healthcare into primary care. A detailed discussion of the evidence base, challenges and opportunities of these models can be found in chapter 6 (discussion). Below we summarise available models in India and draw together findings from the mixed methods of this thesis.

Collaborative care involving government primary care has most evidence in high income countries (HICs) whereas there is minimal available evidence in LMICs. The Cochrane review only found five studies of collaborative care models for CMDs and one for dementia (chapter 4). This model showed moderate clinical benefit in the meta-analyses but the evidence was of low or very low quality making the results inconclusive for CMDs. Of the Indian case studies (chapter 6), only 22% of programmes used this model. Of these only 15% were delivered through formal government (or

private) primary care. The remaining programmes used collaborative care in other settings where NGOs trained their own community-based health workers rather than formal primary care workers. The effectiveness of the collaborative care model in community settings remains unevaluated as there have been no randomised trials outside government primary care.

Chapter 6 identified that the government DMHP used an education and training model for which there is evidence of ineffectiveness (the references for this are provided in chapter 6 discussion and methods). The historical and current data gathered seem to reflect this evidence. Historically, policy makers and programme implementers identified that the DMHP had 'failed' to reach universal coverage across India (as it still only implemented in one in six districts) (chapter 5). Both chapters suggest the DMHP training strategy may be unsustainable. DMHP programmes had a de-motivated and incomplete primary care workforce and specialist support system (chapter 5). Also training was unreliable particularly when commissioned by NGOs. Most NGOs had stopped providing DMHP training partly because they felt it was ineffective, but also because they were subject to their own, or their funders' changing priorities.

While many NGOs had stopped helping with DMHP training, they continued to provide LHW training-only programmes to other NGOs. Chapter 2 also identified several evaluated one-off training programmes across LMICs which showed predominantly post-test improvement in knowledge and skills (e.g. in microcounselling, patient management, diagnostic accuracy, or no improvement (1 study)), for professional and lay health workers in primary care settings (chapter 2, see appendix 1 table 2). However none of these studies had performed evaluations in practice, nor assessed patient outcomes. A third of case studies also used the replacement and referral models within DMHP settings or NGO/community settings, but these too have limited evidence of effectiveness and place responsibility of care on specialists (see chapter 6 discussion for the evidence).

In addition the case studies revealed a unique model of community outreach services delivered by specialist organisations (53%) which bypassed the primary healthcare system. This model is unique in that it has not previously been described in

frameworks for primary mental healthcare models (chapter 6). They trained their own community-based PHW workforce (including care managers or coordinators) to identify, but also to provide psychosocial interventions and ongoing support to patients and their carers. The PHWs and care coordinators were closely supervised by specialists or tiers of specialists and non-specialists. This model was also frequently used by research teams as seen in the Cochrane review (see chapter 2 results, comparison 1: PHW single psychological interventions), as well as in the recent study by Chatterjee et al. (2014). These models focused more on severe mental disorders (such as schizophrenia) and substance abuse than did collaborative care models, but not exclusively.

7.1.3. The roles of human resources within these models

Chapter 6 discusses and compares roles of different PHWs, care managers and specialists. Below these findings are summarised and compared to the current evidence (chapters 2 and 4), and contextualised with oral history findings in chapter 5.

In the government DMHP programme, PHC doctors were expected to identify, diagnose and treat all mental disorders except in the states of Tamil Nadu and Kerala where they were expected only to identify and refer to specialists and follow-up the ensuing management plan. They were also expected to train and supervise community-level workers to identify and refer to them in most of India, though this did not occur much in practice (chapter 6). Chapter 5 however highlighted PHC doctors' ineffectiveness in the DMHP. Where NGOs did utilise PHC doctors, this tended to be for excluding organic disorders and had limited roles in clinical care (if so in identification and referral mainly) or supervisory roles of LHWs. The only exception was in one case study where the head but also founder of the NGO's mental health programme was a generalist. Though the DMHP since the 1980s has kept the same PHC doctor-centred model as many HICs, in India the PHC doctor may not be the most appropriate main care provider or care coordinator of mental health services in primary care (chapter 5).

This study identified an array of other PHWs, mainly LHWs, who provided a comprehensive package of care with psychosocial interventions, some degree of counselling, social support and follow-up of medication to check understanding and adherence (chapters 5 and 6). The advantages of LHWs were that they were settled working close to communities which meant they were better placed to identify and refer mental illnesses.

Collaborative care models in HICs often rely on PHC doctors as care coordinators. However the case-studies in India (chapter 6) agreed with the findings from other LMICs (chapter 2) that the most feasible and appropriate human resource as a care manager were other PHWs, particularly experienced LHWs (of minimal education or graduates) or social workers as they were closer to the community and could also provide psychosocial support. Care managers were also a feature of community outreach models in which specialist resources were used more intensively. Care managers had similar roles in both collaborative care and community outreach models. Care managers were not just a link between specialists, other PHWs, and the community but also minimised the need for specialists' involvement at community level by providing preliminary support to PHWs and acting as a triage system for specialist support. They also received significant support themselves from specialists. This is significant because PHWs' increased ongoing monitoring and supervision has been shown in the literature in LMICs to improve confidence, detection, treatment and treatment adherence (chapter 2).

With regards to specialists, quantitative, historical and case-study data (chapters 2, 4, 5 and 6) all suggest they are best utilised at community level for training and ongoing monitoring of PHWs or care managers, and may also be needed for initial diagnosis and initiating a management plan (chapter 6). However the oral history paper (chapter 5) warns us that few specialists are willing to take on more managerial or supervisory roles for community care. They lack faith in task-sharing because they believe PHWs' limited training would be insufficient to provide adequate care. Furthermore task-sharing is not instilled in their work ethos and they are not trained or incentivised to provide PHW supervision.

7.1.4. Barriers to integrating mental healthcare into primary care

7.1.4.1.   Paucity of specialist and primary care human resources

Specialist human resources in India and in LMICs are scarce (chapter 1). The Lancet human resources for mental healthcare article (chapter 2) found this current discrepancy is endemic across all LMICs. There are 200 fold fewer psychiatrists (similarly for psychologists, nurses, social workers and occupational therapists) in LMICs compared to HICs. Also the numbers of psychiatrists between 2005 and 2011 have fallen in low income countries, and in 2011 there was a shortage of 1.18 million mental health workers in LMICs to deliver a core set of mental health interventions. One reason for this of particular relevance to India, is that many specialists, particularly psychiatrists, have emigrated to HICs. If this didn't occur, many countries would have more than double (sometimes up to 8 times) the number of mental health specialists. The lack of specialists has been a rationale for shifting tasks to non-specialist human resources. However, this paucity is still an issue even when integrated primary mental healthcare systems exist, because sufficient specialists are needed to train, supervise and support PHWs.

7.1.4.2.   A weak primary healthcare system

A weak primary healthcare system has provided a fragile base on which to then integrate disease-specific programmes such as the DMHP. There is an overall shortage of the primary care workforce in India (chapter 1). In addition, the available workforce is not used to its full potential. For example, very few programmes in India explored options of how to utilise nurses in mental healthcare, in contrast to other LMICs, particularly in Africa (chapter 6 discussion). Further manpower issues include high attrition rates of PHC doctors and new cadres of government LHWs every 10 years because of failure to retain these at community level (chapter 5).

Compounding the issues above, the provision of primary mental healthcare in India is currently divided between the primary care sector, the NGO (or voluntary) sector and the for-profit private sector. These different sectors are usually poor at collaborating or coordinating in most health fields despite plans in the late 1990s to increase

partnerships with the voluntary and private sector (though some vertical control programmes in India such as AIDS, tuberculosis and blindness have embraced and encouraged these partnerships) (WHO, 2004). This work described in this thesis found weak public-private partnerships for mental healthcare in LMICs and in India (chapters 3 and 5). Though involving the private sector would make sense given it provides 70-80% of healthcare in India, many in India and other LMICs resist partnering with the private sector (for profit and not-for-profit) as this sector is unregulated, to some extend unaccountable and may provide inequitable as well as poor standards of care (chapter 5) (Sengupta and Prasad, 2011).

7.1.4.3.   <u>PHWs' lack of motivation and skills in the government sector</u>

From exploring government PHC doctors' roles within Indian case studies (chapter 6), within the literature in LMICs (chapter 3), and from the interviews with policy makers in India (chapter 5), it is clear that there have been longstanding barriers to PHC doctors being effective in NGO and government settings, not just for mental healthcare but for healthcare in general. The greatest barriers to decent quality of care are their work burden, poor motivation and high attrition rates (chapters 5 and 6). For example, PHC doctors are often ineffective at recognising, diagnosing and treating mental illnesses (chapter 5). Some policy makers expressed the view that the limited quality and competencies of PHC doctors may be a reflection of the lack of value the government assigned to these doctors, and the insufficient training and incentives to attract and retain a good calibre of doctor to these posts (chapter 5). PHC doctors are also difficult to train because they are often transferred to other posts (chapter 6). The above factors make PHC doctors poor care coordinators of primary mental healthcare delivery compared with care managers. Both the historical and descriptive chapter on Indian case studies (chapters 5 and 6) suggest that non-existent follow-up or supervision of PHC doctors is compounding their pre-existing weaknesses.

Government LHWs are also underutilised because of the poor implementation of service delivery. They receive poor training in mental health and little or no supervision from PHC doctors which resulted in them having no motivation or incentive to identify, refer or follow up people with mental healthcare needs.

7.1.4.4. Poor accessibility to government DMHP care provision

A specific criticism of the DMHP is that it is overly medicalised and poorly adapted across different states and resource settings (chapter 5). Government programmes were also mainly facility-based, such as in primary care and outreach clinics. While the government system has started to train their LHWs, they remain largely unused and ineffective. Research trial settings (chapter 4) and NGOs (chapter 6) conversely, often had a mechanism to train and support PHW interventions delivered at home or in the community, which allowed for greater accessibility to simple interventions, and identification and referral of mental disorders.

7.1.4.5. Political and governance barriers

Oral history participants attributed the lack of the DMHP's progress to political neglect, inadequate leadership at central, state and district levels and inaccessible funding (chapter 5). Similar barriers affect other LMIC mental health programmes (chapter 2). These barriers are summarised here but are discussed in detail in the oral history paper (chapter 5, results and discussion). Mental healthcare has been relatively neglected by policymakers compared with other health issues because of their poor knowledge but also poor technical support in decision making. For example decision makers' lack of understanding of mental healthcare needs may explain why the DMHP model has been based on pharmacological interventions. Progress in mental healthcare policy and accessibility to funding has been further hindered by political and bureaucratic hurdles and issues of accountability. Moreover the DMHP is poorly appropriated by state governments partly as they are not consulted or influential in central government guidance, but also because they lack technical support to adapt the model to their settings.

7.1.4.6. Inadequate integration with health system strengthening

The integration of mental healthcare into primary care in India has been affected by a weak primary health system. Better integration cannot be achieved without concurrent efforts at health system strengthening, which requires better strategies, financing, evaluation and inter-sectoral collaboration (Mangham and Hanson, 2010;

Gericke et al., 2005; Simmons and Shiffman, 2007; Hanlon et al., 2014; Collins et al., 2013; WHO, 2013). India has been attempting to strengthen its government health system through various reforms, such as creating a decentralised system of care and allowing in private and voluntary players into the health market since the 1990s (WHO, 2004). It has also subscribed to universal health coverage more recently, where health system strengthening is one of the key priorities (Reddy et al., 2011). Unfortunately, in practice progress in strengthening the Indian health system has been limited. There is still poor inter-sectoral collaboration, such as partnering between the DMHP and the National Rural Health Mission (NRHM), which is a programme attempting to strengthen the health system. While India says it is committed to universal health coverage, India is currently showing least improvement in public health funding out of the BRICS countries (Brazil, Russia, India, China, South Africa) despite coming second for economic growth. Like its counterparts, it is also having difficulties addressing further targets to reach universal health coverage: stewarding mixed private and public health systems, ensuring equity, meeting the demands for more human resources, managing changing demographics and disease burdens, and addressing the social determinants of health (Marten et al., 2014). A recent analysis of National Sample Survey Organisation data revealed that despite a slight increase in usage of public sector facilities, the financial inequities of care are more prominent as there is a lack of access to 'free' healthcare with the need of the poorest to consult private practitioners (Ghosh, 2014). These health system failures and weak implementation of universal health coverage further compound the difficulty in adequately integrating more vertical initiatives such as the DMHP.

7.2. Limitations and reflection of the study's contribution[1]

The limitations of the individual methods used in the different papers have been covered in each relevant paper (chapters 2, 4, 5 and 6). Below the cross cutting limitations of the study are discussed in more detail.

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[1] I use the first person in this section as several points made relate to personal reflections on the conduct of the study

7.2.1. Selection bias

It is inevitable that the researcher has some subjectivity and points of view that influence the topic they study and the methods they use to explore it (Padgett, 2012). My theoretical starting points and assumptions may have shaped the study. There may have been selection bias (or decisions made and alternatives not pursued) in both the overall research question and within individual methods. Given my background as a general practitioner and public health researcher, I have both clinical and research experience of working within health organisations. My skills-base likely influenced my choice of a health system perspective to explore PHWs roles. This health system perspective also meant that I did not explore patients' perspectives as this excessively broadened the scope of the thesis. Answering the question of acceptability of these interventions is therefore incomplete.

I had prior interest and enthusiasm in working on task-sharing approaches, in particular looking at the history and use of LHWs in LMICs (Senegal and South Africa). While I could justify this as a natural progression and that I was building on prior strengths in human resources research, it could also be argued that I chose an area of study that I am keen to show is successful. My biased approach to task-sharing was hopefully minimised through my applying scientific analytical rigour to identify cases and theories to disprove the usefulness of task-sharing approaches. This for example is evidenced by my reporting and discussion about failed or closed programmes in chapter 6, and the inadequacies of the current task-sharing approach in the oral history (chapter 5).

I could have also been biased in how I selected programmes as case studies, or participants for oral history interviews. For example I could have selected those with similar world views to my own. The snowballing sampling strategy I used in both these studies may have this inherent weakness as relying on a networking of organisations may only highlight those that are similar to each other. However, firstly I was not the only person involved in sampling case studies: there was a research team of two co-researchers which maximised the chances of identifying a wider range of programmes.

Secondly, we attempted to also identify programmes through other methods, notably websearches.

In addition, the selection of programmes and participants may have been influenced by their enthusiasm, as it was subjected to convenience sampling (in that it relied on people accepting to take part). This research was timely in India as it came at a time of greater political will than ever before, and when the twelfth Five-Year Plan (the government's five- yearly strategic plan) was being discussed. Hence this research may have been viewed by organisations as an opportunity to better inform the next five-year mental health strategy. This perhaps increased their willingness to partake in the study. The selection of participants and case studies was however also limited in its scope by bureaucracy and unavailability or non-response of government DMHP staff which may have limited the completeness of data on the DMHP implementation throughout the country.

7.2.2. Responder bias

Responder bias could have occurred both in the oral history interviews and in the case studies as informants' accounts can never be completely objective. Subjectivity is a limitation of all narrative accounts (Perks, 1992). Participants may have been selective in their answers according to what they believe the researcher wants to be told (Portelli, 2006). They could have also withheld important information, which was a feature I was aware of when discussing political issues (reporting bias). Furthermore, oral history interviews are particularly prone to recall bias, as the interviewee is recounting events that usually occurred more than 10 years back. Their memories may be oversimplified, their or their organisations' roles and importance exaggerated, be influenced by hindsight, and may lead to a partisan perspective (Perks, 1992; Seldon, 1996). I attempted to minimise these limitations in the data collection and analysis. To minimise recall bias, I prompted questions, and requested clarification during the interview if interviewees provided information that was inconsistent with historical timelines for example. To minimise reporting bias, I attempted to create the most conducive and open environment within the interview to encourage participants to be truthful and not withhold important facts. I also tried to identify in the analysis of

transcripts what was not being said (identifying areas where participants avoided the question for example). The discussion in chapter 6 (data collection limitations) gives a more detailed account of the impact and methods used to minimise respondent bias within the case studies.

7.2.3. Observer bias

Within all research, but especially within research using observational methods, the researcher is part of the process of producing data and their meanings. Qualitative researchers' and historians' preconceptions and assumptions may compromise what data they decide to collect (as seen above) and their analysis. They may then create the narrative rather than discovering it, by 'ventriloquising' their discourse through a narrator's testimony (Portelli, 2006). This was minimised through critical reflection during analysis and multi-coder analysis.

My presence as an 'outsider'[2] researcher (as I was a foreigner and removed from their work or political circles) may have been an asset for the oral history interviews as it may have allowed participants to give sincere answers. This distance also allowed me to challenge some of the importance some people attributed to their achievements. My Indian ethnic heritage and academic background also gave me common ground with interviewees. Though I don't think this would have given me an 'insider' status, this common ground may have allowed participants to identify with me and be more relaxed. Furthermore as these were elite interviews (Seldon, 1996) these were highly positioned people who hierarchically likely felt superior to me, and therefore did not view me as threatening. Conversely, being an outsider could have also made them feel I was intruding and they may have withheld information because of this.

This same 'outsider' position however was shown to have impacted on the PHC doctor's behaviour in one case study (see chapter 6 discussion 'limitations'). My status (as well as that of my co-researchers) was elevated compared to the PHWs we were interviewing and we were sometimes perceived as threatening (at least by this PHC doctor). Though attempts were made to minimise our perceived threat throughout the

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[2] This concept of insider and outsider is discussed in chapter 6.

study (see chapter 6 discussion), this barrier may have been beyond our control as the health worker's interpretation of our role and presence may be a reflection of their work conditions and insecurities. Had I adopted a different focus, perhaps a sociological focus on workforce issues and had I not been identified with PHWs' bosses, I may have been perceived as less threatening. Alternatively employing local co-researchers or people of similar standing, or even health workers themselves with participant action research methods may have greater minimised this threat (Patton, 2002). However this would then have removed me completely from the reality and insights of data collection.

The research findings were also not just affected by me, but may have also been subjected to strengths and weaknesses from having two co-researchers who collected about 70% of the case studies data (though I collected all the history interview data). This introduced an element of lack of control over the quality of the data collected for the case studies. However I made sure I chose suitable candidates who had to demonstrate in their recruitment interviews their motivation and skills (bicultural, bilingual, affinity to be sensitive when interviewing, and capacity for independent thinking) for this area of research. As my co-researchers and I had divided up the programmes and organisations amongst ourselves, I felt perhaps more detached from the case studies I had not been involved in compared to those I had. To maintain the integrity and quality of the collected data I introduced several mechanisms: in-depth training of co-researchers; close supervision (regular phone contact during their visits/stays in the community, debriefing meetings following observation of their interviewing techniques during case-studies or joint interviews, discussions); reading transcripts and having debriefing and feedback sessions with co-researchers. I was also able to check my understanding and queries of these programmes with my co-researchers at various stages of coding, analysis and writing programme feedback reports and articles. The co-researchers' motivation was further enhanced by encouraging them to partake in inductive thinking about how to steer available research findings towards future data collection and partook in data coding and analysis (Platt, 1976). This process of the co-researcher's active

participation in data gathering and multiple-coder analysis, called researcher triangulation, has been shown to provide rich and reliable data (Borchgrevink, 2003). This is because it improves the completeness of extracted data, and provides added perspectives and angles to the interpretation of the data (Denzin, 1989).

7.2.4. The limitations and opportunities of a mixed methods design

This study was a predominantly qualitative design (which itself had mixed methods: historical interviews and case-studies), but concurrently had a quantitative component, the Cochrane systematic review and meta-analyses. The epistemological approaches (the idea of how we come to know the world) were mixed because of this mixed methods approach. I felt able to switch between different standpoints, as I have dual training in qualitative and quantitative methods. Juxtaposing qualitative and quantitative data has sometimes been deemed inappropriate by methodologists who feel that mixing paradigms (positivist and interpretivist or social constructionist approaches) cannot be done in a meaningful way (Padgett, 2012). These forms of triangulation were justified however as the purpose was not to expect that a point of convergence was reached. The purpose was rather to juxtapose these data as a point of comparison (Caracelli and Greene, 1997). This identified the convergences and divergences between the established objective, post-positivist evidence (chapters 2 and 4) and qualitative experiences on the ground in India (chapter 5 and 6).

Furthermore, the qualitative methods in the case-studies and oral histories had different epistemological approaches to gain information on two elements: 1) people's interpretation of service delivery and policy, as well as their opportunities, challenges and solutions (interpretivist approach) and 2) factual data on programmes (post-positivist approach in case studies only). This post-positivist paradigm (taking the facts at face-value for the purpose of describing programmes and roles), which is usually associated with quantitative data, was applied to the qualitative descriptive data set. This has been done in other studies too (Patton, 2002) and can be valid for entirely descriptive data as long as the methods for doing so were rigorous. This decision to

approach the data with a post-positivist paradigm was determined by the fact there was little factual or quantitative information otherwise available.

The completeness of data and analysis were limited by two issues. Firstly, we did not do any quantitative evaluations of case-study programmes in India which would have been interesting to compare to the quantitative LMIC data (chapters 2 and 4). This was because the purpose of the thesis was a mapping exercise of different models and roles, and the historical and policy context that has allowed these models to develop, rather than quantifying the impact of these programmes. Also outlined above, little quantitative information was available, particularly baseline data at the outset of these programmes. Secondly this study was unable to use the same data set and interpret this with different theories or epistemological paradigms. Completeness of triangulation is gained by triangulation of theories of the same data set, which would provide greater reliability of the findings and help to uncover more facets of the data (Flick, 2004; Padgett, 2012; Denzin, 1989). This study was only able to corroborate the findings between different sets of data that had different epistemological approaches and methods. Theory triangulation would be possible within the case studies once the qualitative data on PHWs' and their supervisors' perspectives and experiences is analysed using an interpretivist approach and comparing it to the factual data presented in chapter 6. As analysing this further data was not within the remit of this thesis (there were too many data to analyse within the thesis' scope and timeframe), the current corroboration is less certain than it could be regarding the reliability of the findings. However the fact our conclusions regarding the use of PHWs in certain models corroborates with the current available evidence at least suggest that these are plausible findings (Green and Thorogood, 2004).

7.2.5. Limitations of the generalisability and the scope of these findings

Several factors may limit the scope and generalisability of these findings. Firstly findings from different countries were compared, or at least juxtaposed. The systematic review covered all LMICs, and the qualitative data just Indian settings. The reasons for not limiting the systematic review to India were because there were not enough data just within India to make the review worthwhile. It was also beneficial to

know what the effectiveness of PHWs was for all LMICs, as many of these countries have similar barriers to care and policy as India (see Chapter 4: introduction for justification of including LMICs in the review). However the comparison between LMIC studies and Indian data needs to be interpreted with caution as when results from different contexts and sources concur, one could conclude perhaps prematurely that our findings are confirmed (Padgett, 2012).

Secondly, children and adolescent mental disorders were not explored thoroughly. The Cochrane review focused on adult and children mental disorders whereas the Indian case-study data focused on adult mental disorders only. Though the aim of the thesis was to maintain the focus on adult mental disorders, peer reviewers of my Cochrane review protocol suggested that present adult and child mental disorder data would be more useful. Within the Indian case-studies, we decided that because of the breadth of models available for adult mental healthcare and the likelihood of very different models for child mental healthcare (including the need to look beyond the healthcare sector such as the use of non-health workers like teachers and non-health settings like schools), their inclusion would be too wide for the scope of this thesis. Child and adolescent mental healthcare data from the Cochrane review were therefore not triangulated with other findings from the thesis.

Furthermore the limited number of papers identified in the Cochrane review (38) and the types of models we explored (72) did not allow us to do meaningful sub-group analyses to identify a link between types of mental disorders and types of models for example, though there was some suggestion that disorders that necessitated more specialist care (SMDs and substance abuse), tended to have more specialist involvement, and more targeted PHW interventions.

Certain PHWs may have also been overlooked. For example, we did not identify models which used private general practitioners in the case-study paper (chapter 6). As is suggested in the oral history paper (chapter 5), this cadre may be more motivated and more effective than government PHC doctors at diagnosing and managing people with mental disorders.

7.3. Implications for future research

This study, which was mainly exploratory in nature, was principally useful in guiding future directions for research and elements of programmes that need to be evaluated. It also provided broader thinking about practical issues necessary to improve the integration mental healthcare within primary care. The implications for future research on models of mental healthcare are stated in the discussion sections of the systematic review (Chapter 4), the oral history paper (chapter 5) and the case-study analysis (chapter 6). However this section presents the overall research recommendations which have emerged from the triangulation of findings and identification of barriers and limitations of scope of this study as stated above.

7.3.1. Research on the feasibility and impact of scaling up collaborative care

This thesis has shown agreement between different methods about the appropriate model of mental healthcare delivery involving some form of care collaboration and coordination. However this evidence comes from the perspective within the mental health field of how to improve their health system. Further research is needed to gain the perspectives of people from outside the mental health sector (such as those in the ministry of health) on how to integrate mental health better and more feasibly in the general health system. Health sector-wide research will be needed to also assess and evaluate whether DMHP changes, as are likely in the current 12th Five Year Plan, are effective. This will need to include not just quantitative evaluation of PHWs' impact within mental healthcare, but also the impact on general healthcare delivery, and on health system strengthening. This would mean broadening the evaluation beyond the clinical setting to assess the breadth of, for example, inter-sectoral collaboration (such as with the voluntary and private sectors, non-health sectors). In addition, to explore factors affecting the sustainability of PHWs and models, a qualitative exploration of various current stakeholders' views and perspectives on the successes and challenges of collaborating with the government will provide structured targets for governments to improve. Further research into the mechanisms for integrating LHW programmes

into the formal health system, and the equity impacts of these programmes, will be necessary.

All the above would hopefully better inform development of policy in mental health, and would encourage decision-makers to use such evidence in policy implementation rather than relying, as India currently does within the maternal and child health sector, on informal evidence and hearsay (Mirzoev et al., 2013).

7.3.2. Comparative effectiveness of different PHW-delivered models of mental healthcare

More quantitative/impact evaluations of current programmes and of new interventions (including randomised controlled trials) are necessary to evaluate which models work best in which context, as the transferability of these exploratory findings to specific contexts is currently limited (Padgett, 2012). In particular, within these collaborative care and community outreach models the focus should be on evaluating and comparing impacts, costs and cost-effectiveness of different variations. This should include 1) different types of human resources and how they are combined (PHWs, care coordinator/manager, specialist); 2) different roles of PHWs (clinical and management/linkage roles); 3) which models may be appropriate for different mental disorders and 4) settings (primary care versus community care). Research is also needed to identify how these models can be adapted to different states and human and financial resources settings. From the above discussion it would also be important for new trials to create models that are as realistic as possible, using a feasible human resource mix, thereby not using too much specialist input, particularly for care coordination. Within India, and four other LMICs, this process is already underway with a large Programme for Improving Mental Health Care (PRIME) which is seeking to generate evidence on the implementation and scaling up of integrated packages of care for priority mental disorders in primary and maternal healthcare settings (Lund et al., 2012).

Issues that were not covered in this thesis but are related and relevant are the need to explore the acceptability of these models for PHWs, their supervisory workforce and for patients. Furthermore models for child and adolescent mental health delivered by

PHWs or teachers in India need to be further described and evaluated. The above research recommendations may benefit researchers in other LMICs in prioritising research needs for the integration of mental healthcare in their respective countries.

7.3.3. Evaluation of methods for training and supervision of PHWs

One significant barrier identified was the lack of motivation and skills of PHWs. An evaluation of how to better supervise, train and retain PHWs, care managers and specialists. This will necessitate comparing types of supervision (such as remotely or face-to-face: see chapter 6 for more detailed discussion on remote supervision), the intensity of supervision and whether supervisors are specialists or non-specialists. The findings from these assessments would have significant resource implications, for example if experienced non-specialists were as effective supervisors as specialists, without affecting the quality of care provided. Indeed a recent publication from Goa, India has indicated that peer-led supervision may be as effective as specialist supervision within psychological interventions delivered by LHWs for the care of depression and alcohol use disorders (Singla et al., 2014).

7.4. Implications for policy and practice

What the findings are not aimed at doing, nor can do at this stage without further research, is recommend a specific model to roll out across India. Indeed, within a country as diverse as India, it is unlikely one model would suit the whole country. Recommendations of concepts to scale up, rather than suggesting a rigid model with a rigid set of health workers, are more appropriate and would allow the model to be adapted to local needs and resources. This has also been the conclusion drawn by a systematic review of the right skill mix in the healthcare workforce worldwide (Buchan and Dal Poz, 2002).

7.4.1. Deployment of care managers and LHWs

The triangulation of findings from the systematic review with those of the oral histories and case-studies of current programmes suggests several concepts may be generalisable and transferrable to other contexts within India. Chapters 4 and 6 suggest the add-on of a care manager and use of LHWs to provide psychosocial

support are crucial to effective and accessible primary mental healthcare. They seem more acceptable and feasible than PHC doctors who are poor at identifying and treating cases and at care coordination (chapters 5 and 6). This would mean the health system, in its strengthening process, needs to create a new cadre of care manager at primary care/community care level and better utilise LHWs. We saw however in section 7.1.4.1 and in the oral history paper (chapter 5) that specialists were sparse and often not motivated to join the government DMHP. As the use of care managers and LHWs necessitates the involvement of specialists, PHWs would only be feasible with better buy-in and redistribution of specialist roles to provide ongoing supervision to care managers, which could potentially be done remotely, and possibly more outreach work for diagnosis and establishing management plans. These implications of health worker roles, and aspects that may be conceptually or contextually generalisable, are further discussed in chapter 6 (implications for practice).

7.4.2. Integrating mental health with established health system strengthening programmes

The inadequate collaboration between health system strengthening and implementing the DMHP was identified as a barrier. Efforts are therefore required for the DMHP and NRHM to collaborate on adapting the DMHP model in parallel to health system strengthening efforts. Although the collaboration between these two initiatives is often discussed in DMHP's reports, no strategic plan has been devised to address this (GOI, 2011). Nor has the NRHM yet accepted mental health or chronic diseases within their strategic plan (GOI, 2009). To bridge the traditional divide between the horizontal (general health system strengthening) and vertical approaches (introducing disease-specific programmes), a 'diagonal' approach whereby explicit intervention priorities are used to drive improvements of the health system (Frenk, 2010), may well be relevant in India. The strengthening of the primary healthcare system's workforce could for example partly be driven through specific strengthening of the workforce which would be implemented through the DMHP. Strategies could include a multistage process to finally achieve a greater use of primary care, as health system strengthening is a slow process. For example, there is currently a mismatch of the expectations of PHC doctors' roles with the practical aspects of them implementing coordinated care

for mental health as well as another 12 national programmes (such as TB, Mother and Child health etc). In India, this may mean initially withdrawing diagnosis and treatment of mental disorders from PHC doctors and utilising specialists instead, whilst efforts are made to retain PHC doctors, improve this workforce's competence, expand the community LHW workforce and introduce care managers.

The addition of an extra health worker, a care manager in every primary care centre is an enormous objective in a country the size of India. All care managers identified in the case studies solely focused on mental healthcare (chapter 6). Given the limited resources, and a growing burden of many chronic diseases which also feature in the universal health coverage agenda (Patel et al., 2011), the question posed by other researchers in HICs and LMICs (and which is also discussed in the chapter 5), is whether one or several care managers and the creation of multi-disciplinary teams for all chronic disorders may be more feasible (Beaglehole et al., 2008). Most models however currently focus on providing care for individual diseases such as diabetes, hypertension, chronic respiratory diseases, epilepsy or depression. Very few studies looked at combining roles for PHWs. A few from HICs have shown the effectiveness of combining diabetes and hypertension (Joshi et al., 2014), and one study also included asthma and epilepsy (Coleman et al., 1998). Roles included identifying, referring, and following up for medical adherence. Some non-physician health workers (such as clinical officers and nurses) also prescribed and provided supportive management for conditions (Joshi et al., 2014). One randomised controlled trial in the UK trained all primary care staff (rather than having a care manager) to attempt to improve self management of three chronic disorders (irritable bowel syndrome, chronic obstructive pulmonary disease and diabetes) but this showed no improvement in patient outcomes (Bower et al., 2012; Kennedy et al., 2013). No examples have yet been identified with this combined chronic disease manager in practice (i.e. outside a research setting), neither in India, nor elsewhere, as most health systems expect their current primary care workforce to manage these (Ngo et al., 2013).

7.4.3. Engagement of civil society

The qualitative study suggests collaboration with NGOs would be beneficial due to several innovative practices and complementary nature to government provision. For example it may be effective to partner with other providers, such as the specialist community outreach models for targeted high risk groups or those with severe mental disorders or substance use disorders (WHO, 2005). This may partly improve the dearth of specialists by involving private specialists who are already active in this field, even though they are outside the government sector. NGOs also help locally adapt programmes at a district level as they work close to the community. This makes them aware of and thus in good position to advise on community needs. NGOs however are keen not to be considered merely as commissioned service providers and frequently try to establish partnerships with local and state-level government to influence the delivery of mental healthcare (chapter 5) (Patel and Varghese, 2005; Patel and Thara, 2003), having done so for many years in all health sectors (Antia and Bhatia, 1993). However, partnerships require a built-in government mechanism to minimise the challenges of involving the NGO/ private sector. The concerns are how sustainable these organisations are (due to their fragile resource base), how they can be adequately regulated to maintain standards of service delivery, and how accountable they are (Green and Matthias, 1996).

The systematic review (chapter 4) also showed the importance of involving non-health workers (e.g. teachers) for children. Though our study in India focused on adult mental healthcare, this is an area that is important and needs further attention and integration into primary care. Finally, collaboration with community members, patients and carer groups would be important. These collaborations have been established by some NGOs. Patient and community participation in most government programmes in India is remarkably absent, despite this too being a goal of universal health coverage (Reddy et al., 2011). Positive steps towards better community participation and accountability are being taken by NRHM which has initiated a community monitoring committee system (NRHM, 2007).

7.4.4. Providing technical support for better leadership, implementation and evaluation

Several political barriers mentioned above such as poor governance, the federalised system of care and poor understanding of mental healthcare amongst decision makers are caveats to establishing these collaborations and to effectively improving the DMHP. However, if the leadership system were enhanced with better more persuasive central leadership, state-level decision makers could be aided technically and decisions across states harmonised. This central- and state-level technical support would contribute to educating policy makers at district and state levels about public health importance of mental health. For example constructive technical support to help central and state leadership could help better adapt and implement the DMHP model to their needs and resources. It would also help funding become less bureaucratic and more accessible. Continuity is important for a strong and effective leadership; this would be helped by attracting and retaining specialists as leaders (chapter 5).

Although a national mental health policy is close to being established in India, it has taken since 1982 to actually devise a policy due to the lack of political will, a common scenario in many other LMICs too (Omar et al., 2010). Chapter 5 provides more discussion on the political hurdles which need to be overcome as well as what efforts are needed to create safeguards to have a more democratic and locally accountable system.

7.5. Conclusions

This study has shown that PHWs can be effective in delivering care for MNS disorders through a quantitative and qualitative review of the existing literature in LMICs, including India. There is however insufficient information to determine whether PHWs are cost effective. The historical policy analysis identified that the government DMHP was perceived to have failed and reasons for this included poor leadership and inadequate political commitment. Poor government primary mental healthcare provision has resulted in a disparate medley of NGO-run community-based programmes.

Despite the evidence for the effectiveness of collaborative care models in HICs, in India few models implemented collaborative care and those that did had significant variations compared with their counterparts in HICs. In particular most collaborations did not include government primary healthcare workers but included other PHWs within community-based organisations' (such as disability sector NGOs). Many programmes, including the government DMHP, used the training and education model which has no evidence of effectiveness. A third of programmes also trained PHWs only to identify and refer. This may be effective but is unlikely to be cost-effective as this model intensively uses specialists who retain responsibility for care. A unique model, the community outreach model was identified; this has not been previously described in model frameworks. Many of these services focused on severe mental disorders or substance abuse and used specialist resources more intensively than collaborative care. They also trained their own PHWs and care coordinators to provide significant first-level community-based care and psychosocial support.

PHC doctors were often ineffective in government settings, and had very limited use in NGO settings due to factors such as attrition, lack of motivation, poor calibre, and insufficient training and supervision. LHWs and care managers were more feasible and appropriate across different models and provided broader psychosocial interventions. Specialists were used in these community settings for PHWs' and care managers' training and ongoing support. Specialists were often also used for initial diagnosis and initiating a management plan.

Several barriers were identified to the adequate implementation of these models. These include the paucity of specialist and primary care human resources and poor willingness of specialists to incorporate PHW support into their roles. This is compounded by a weak primary care system, PHWs' lack of motivation and skills in the government sector and a 'failed' DMHP model. Further system-wide and political barriers include the lack of accountability, inadequate leadership, funding issues, and inadequate implementation of health system strengthening and of inter-sectoral collaboration.

The next research priorities are to evaluate specific models identified in India to confirm whether variations of collaborative models are similarly effective to those described in HICs and are feasible and effective if implemented at scale. Furthermore, methods for training and supervising LHWs and care managers need to be evaluated. Similar studies should be encouraged in other LMICs.

These findings have policy implications for India. The government needs to consider deploying care managers and LHWs and reorient as well as incentivise specialists to support them. Better inter-sectoral collaborations with health strengthening initiatives (such as the NRHM) and with civil society (NGOs, non health sectors and the community) are needed. Given the growing chronic disease burden and human resource limitations within India, exploring how care managers may be merged for several chronic diseases, not just mental health, may be more appropriate. Better technical support at central and state government levels may help improve leadership, implementation and evaluation of mental healthcare integration into primary care across India.

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Appendices

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Supplementary webappendix

This webappendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Studies on PHWs in primary/community adult mental healthcare not included in the Cochrane review

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	Setting	Study design (model or intervention)	Mental disorder	Workforce (intended roles)	Training received	Main findings
Argentina (Lyketsos, 1999)	Primary health care	Intervention study (primary care doctor *vs* psychiatrist)	Depression	Primary-care doctors (diagnosis and treatment)	0·5-day training by a psychiatrist	Reductions in symptoms of depression were noted in both settings; no significant difference between primary care and psychiatric office settings
Brazil (Heldt, 2003)	Hospital	Controlled trial (group cognitive behaviour therapy)	Panic disorder	Psychiatrist and psychiatric nurse (group cognitive behaviour therapy)	Not reported	Group cognitive behaviour therapy significantly reduced symptom severity (frequency, phobic avoidance, anticipatory anxiety, and intensity of panic attacks) after the 12-week programme
Cameroon (Kengne, 2008)	Community, rural district	Pre/post-evaluation of nurse-led programme for epilepsy care	Epilepsy	Nurses (prescribing of drug treatment)	Not reported	Reduction in number of days per month with seizures
Chile (Araya, 2003)	Primary health care	Randomised controlled trial (stepped care [psychoeducation, follow-up, drug therapy] *vs* usual care [antidepressants given by primary-care doctor])	Depression	Psychiatrist (training and supervision); primary care doctor (structured pharmacotherapy); nurses and social workers (psychoeducation and monitoring)	Nurses and social workers underwent 12 h of training and 8 h of supervision by a psychiatrist; primary-care doctors received 4 h of training by a psychiatrist	Greater improvements in depression at 6 months
Chile (Gutierrez-Maldonadoo, 2007, 2009)	Outpatient mental-health centres	Randomised controlled trial (psychoeducation and conventional services *vs* conventional services only)	Schizophrenia	Psychologists (psychoeducation intervention for caregivers); parent-caregivers (management of attention-deficit hyperactivity disorder)	Not reported	Reduction in caregiver burden in all three areas (burden, rejection; and incompetence); improvements in attitudes of relatives toward schizophrenia in behaviour (cognitive and affective) components; carers have learnt how to act, feel, and think in a more positive and flexible way with respect to the disorder
Chile (Rojas, 2007)	Primary health care	Randomised controlled trial (multicomponent intervention [group psychoeducation, treatment adherence support and pharmacotherapy if needed] *vs* usual care)	Maternal depression	Primary care doctors (structured pharmacotherapy protocol); midwives and nurses (psychoeducation); lay worker (monitoring of consultations and group sessions, support and advice about antidepressant use)	Midwives and nurses received 8 h of training and supervision once a week by a psychiatrist; primary-care doctors underwent 5 h of training to deliver a structured pharmacotherapy protocol by a psychiatrist	Better depression outcomes at 3 and 6 months' follow-up; greater reduction in use of antidepressant drugs
China (Xiang, 1994)	Community	Randomised controlled trial (psychoeducational family intervention and drugs *vs* drugs alone)	Schizophrenia and affective psychoses	Family caregivers (monitoring, patient management)	Psychoeducational family intervention with monthly supervision	Reduction in provision of insufficient care or inappropriate treatment at follow-up; compared with control, higher total rate of improvement, higher proportion of people who could do full-time or part-time farm work or housework, and greater reduction in the proportion of people who showed poor social functioning
China (Zhang, 1998)	Primary health care	Experimental (psychoeducation and conventional services *vs* conventional services only)	Schizophrenia	Unclear	Psychoeducation included 14 lectures and five group discussions with conventional services	At 2-year follow-up, lower relapse rates, higher rate of regular work, less caregiver burden, better caregiver physical and mental health status, greater knowledge of caring for their relative with schizophrenia
China (Li, 2005)	Hospital	Cluster-randomised controlled trial with pre/post-test experimental design (education programme for patients and families)	Schizophrenia	Nurses (education programme for patients and families, treatment)	Not reported	Symptoms improved at 9 months after discharge

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	Setting	Study design (model or intervention)	Mental disorder	Workforce (intended roles)	Training received	Main findings
China (Ran, 2003)	Community	Cluster-randomised controlled trial (psychoeducational family intervention and drugs vs drugs alone vs control)	Schizophrenia	Psychiatrists and village doctors (family psychoeducational interventions for 9 months)	Not reported	At 9-month follow-up, intervention group had greater knowledge gain, change in relatives' attitudes towards the patient, and increase in treatment adherence; relapse rate was significantly higher in psychoeducation group than in drug-only and control groups
Ecuador (Placencia, 1993)	Primary health care	Cohort study (community-based epilepsy care vs external data of hospital-based care)	Epilepsy	Neurologists (diagnosis and treatment monitoring); rural primary care doctor (monthly follow-up at clinic [monitor occurrence of seizures, side-effects, and change dose if necessary] and referral if needed); health visitors (home visits for monitoring adherence and adverse experiences)	Not reported	Treatments were effective for control of seizures (53% seizure-free and 14% had >50% reduction in seizures in the 6–12 month follow-up period); results were similar to hospital-based studies in developed countries; high adherence rate
India (Becker, 2009)	Community	Psychosocial care for 3 months vs no psychosocial care)	Post tsunami mental disability	Community health workers (psychosocial care to women survivors of 2004 tsunami)	3-day experiential train-the-trainer programme ("essentials of psychosocial care") provided by a psychiatrist and social workers (ventilation of emotions, empathy, active listening, problem-solving, and facilitation of group support)	Women receiving psychosocial care had significant reduction in emotional distress at the end of the 3-month intervention; emotional distress was significantly lower in psychosocial-care group than in controls
India (Chatterjee, 2003)	Outpatient care	Experimental design (community-based rehabilitation vs outpatient care)	Schizophrenia	Mental health workers (community-based rehabilitation); family members and key community people ["samitis"] (forum for planning relevant rehabilitation measure and reduce social exclusion)	60-day training	Better clinical and disability outcomes, adherence, and drug retention in the rehabilitation group than with outpatient care
India (Chatterjee, 2009)	Outpatient care	Pre/post-evaluation of community-based rehabilitation intervention	Psychotic disorders (schizophrenia, bipolar disorder, and other psychotic conditions)	Psychiatrist (monthly outreach services, undertaking new and follow-up assessments, prescribing drug treatments, and ongoing training and supervision); community-based rehabilitation workers (case management, detection and management, supporting and training of self-help groups and local community networks); affected individuals (self-help groups for adherence support, rehabilitation, education support for families and affected individual with psychosis, and livelihood support through microcredit facilities and social reintegration); skilled community-based rehabilitation practitioner (cluster coordinator, clinical and administrative responsibility for cluster 20–30 villages, quality assurance, stakeholder linkages, training and management for self-help groups)	Not reported	Reductions in disability
India (Dias, 2008)	Community	Randomised controlled trial (stepped-care home-care programme vs no home-care programme [on waiting list for home-care programme])	Dementia (mild to moderate)	Home-care adviser (supervision, education, caregiver support, referral, maximisation of caregiving resources, and improvement of caregiving skills)	Home-care advisers received 1 week's training by a psychiatrist and had subsequent bi-weekly meetings with a counsellor to share experiences, provide mutual support to one another, and problem-solve difficult situations	Home-care programme was effective at reduction of caregiver burden (mental health status and distress)

	Setting	Study design (model or intervention)	Mental disorder	Workforce (intended roles)	Training received	Main findings
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India (Kulhara, 2009)	Hospital outpatient department	Randomised controlled trial (structured psychoeducational intervention vs routine outpatient care)	Schizophrenia	Mental health professionals (psychoeducational intervention)	Mental health professionals had 2 months' training by consultant psychiatrists with didactic lectures and hands-on experience with patients and their families	Better outpatient care on psychopathology, disability, caregiver support, and caregiver satisfaction
India (Mani, 1998, 2001, 2003)	Primary health care	Non-randomised trial (adherent to treatment vs non-adherent)	Epilepsy	Neurologist, primary care doctors, and paediatrician (diagnosis and treatment); paramedic workers (detection, referral, and follow-up care in the community)	Paramedic workers (mainly local graduates) were trained by researchers in epidemiological methods, case ascertainment, practical management of epilepsy, and health education	Greater terminal remission rates in the group adherent to treatment (58–60%) than in the non-adherent group (6–16%) at each of the 4 successive years of follow-up
India (Patel, 2003)	Hospital outpatient department	Randomised controlled trial (antidepressant vs placebo vs psychological treatment)	Common mental health disorders	Therapist (psychological treatment, including psychoeducation, relaxation, symptom-targeted activities, and problem-solving)	Not reported	Antidepressants led to significantly better psychiatric outcomes than placebo; no significant differences in outcomes between psychological treatment and placebo groups
India (Patel, 2008, 2010; Chatterjee, 2008)	24 primary-care facilities (12 from government, 12 from private sector)	Cluster-randomised controlled trial (collaborative stepped care [detection, drug or interpersonal treatment, adherence, referral] vs enhanced usual care [doctors receive screening care]) results)	Common mental health disorders	Psychiatrists (management of treatment-resistant or suicidal patients); primary-care doctor (consultation and drug treatment); health assistant (screening); health counsellor (screening, psychoeducation, interpersonal treatment)	Training and supervision by psychiatrist	In public primary health setting, individuals receiving stepped care had 55% greater likelihood of recovery compared with enhanced usual care (66% vs 43%) and had lower prevalence of common mental health disorders (28% vs 51%) at 6 months; no difference was seen in the private family doctor setting
India (Srinivasa Murthy, 2005)	Community	Intervention study (pre/post-community outreach programme)	Schizophrenia	Social worker (coordinated group discussions); multidisciplinary community mental health team (psychotropic drug and psychosocial support [psychoeducation])	Not reported	Reduction in psychotic symptoms, disability, and family burden during 18-month follow up; reductions in costs of informal-care sector visits and family caregiver time
India (Tripathy, 2010)	Community	Cluster-randomised controlled trial (group discussions [13 per month with 13 groups] vs usual care [existing women's groups])	Maternal depression	Lay workers (facilitation of group discussion meetings)	7-day residential training course and support through fortnightly meetings with district coordinators	Lower neonatal mortality during the 3 years of the study; no significant effect on maternal depression overall, but a 57% reduction in moderate depression in 3rd year
India (Vijayakumar, 2008)	Community	Controlled trial (trained volunteer mental health support vs no mental health support)	Post-tsunami bereavement	Trained volunteers (mental health support for bereaved members of post-tsunami community)	Not reported	Less depressive symptoms and general psychological distress at 12-month follow-up
India and Pakistan (Chisholm, 2000; James, 2002)	Primary health care	Cost-outcome study (mental health integrated primary health care vs standard primary health care)	Common mental health disorders	Psychiatrists (diagnostic assessment, provision of information about treatment options, how and where to seek local treatment and advice about psychological problems); field workers (screening)	Not reported	Improvements in symptoms in three of four districts; use of services was low among patients diagnosed with a mental disorder, particularly in the public sector; cost of care, distance from treatment centre, perception that treatment will be ineffective, and stigma were barriers to treatment seeking
Iran (Ghanizadeh, 2005)	Referred from private practitioners, paediatricians, psychiatrists, and tertiary care	Pre/post-evaluation (parent management training for attention-deficit hyperactivity disorder	Attention-deficit hyperactivity disorder	Parents (attention-deficit hyperactivity disorder management)	1·5 h sessions every week for 8 weeks	Improvements in conduct difficulties, learning problems, and hyperactivity in children and in parental mental health; no effect on teacher-rated measures

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	Setting	Study design (model or intervention)	Mental disorder	Workforce (intended roles)	Training received	Main findings
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Iran (Javadpour, 2009)	Primary health care	Randomised controlled trial (education support group vs non-education group)	Dementia	Senior psychiatry resident (facilitation of caregiver support group)	Not reported	Improvements in caregiver stress, caregiver general health, patient's neuropsychiatry symptoms, and night-time behaviour
Iran (Malakouti, 2009)	Primary health care	Quasi-experimental design (mental health workers vs consumers' family members as case managers)	Schizophrenia	Consumers' family members (case management); mental health workers with a bachelor's degree in psychology (case management, education)	Mental-health workers received 32 h of theoretical training; consumers' family members had 66 h of theoretical training and ten practical sessions	Reduced rates of admission and improved clinical outcomes of patients, and knowledge and burden of the families in both groups (no differences)
Jamaica (Baker-Henningham, 2005)	Community (12 nutrition clinics)	Controlled trial (home visits every week for 1 year by community-health aides for improving child health and parenting skills plus standard health and nutrition care vs standard health and nutrition clinics only)	Maternal depression	Community health aides (weekly home visits to improve child development by improving mothers' knowledge, child rearing practices and parenting self-esteem)	Community health aides received 4-week pre-service training on health and nutrition and further 2-week training covering child development, parenting issues, and how to do the intervention with regular supervision	Mothers receiving a visit once a week reported significant reduction in depressive symptoms at follow-up; these improvements were only significant if they received 25 or more visits
Kenya (Feksi, 1991)	Primary health care	Cohort study (12-month follow up)	Epilepsy	Psychiatrist (diagnosis and treatment); key informants (case identification); health visitors (community management programme [screening, referral, and follow up, educational counselling, and ensuring adherence to treatment])	Training and supervision by psychiatrist	Improvements in symptoms among patients identified by key informants and health workers (elimination or reduction in seizures); health workers had an important role in diagnosis, education, choices of doses, and monitoring of treatment and adherence (53% became seizure-free in the second 6 months, 26% had >50% reduction in seizure frequency, low dropout rate, low withdrawal rate)
Nigeria (Agara, 2007)	Tertiary hospital	Randomised controlled trial (group psychoeducation vs none [usual care])	Psychosis and depression	Senior nurses and graduate assistant psychologists (group psychoeducation)	2-week training on how to use the group psychoeducation schedules	Improved adherence with scheduled follow-up appointments at 9 months follow-up
Nigeria (Olley, 2001)	Tertiary hospital	Pre/post-evaluation of training programme	Epilepsy	Psychologist (psychoeducational programme to patients)	Not reported	Improvements in level of depression, knowledge about epilepsy and neurotic symptoms
Pakistan (Ali, 2010)	Two underprivileged communities in Karachi	Pre/post-evaluation (counselling by community women counsellors vs no counselling)	Depression, anxiety	Community women counsellors (cognitive behavioural treatment and supportive and problem-solving counselling)	Five 3-h sessions per week for 4 weeks by family practitioners, psychiatrist, and a clinical psychologist	Better recovery, reduction in recurrence rate and time to relapse at 2-week and 8-week follow-up
Pakistan (Rahman, 1998)	School	Randomised controlled trial (school mental health programme vs no school mental health programme)	Mental illnesses	Trained teachers (awareness raising)	Training and supervision by doctor, psychologist, and social worker	School mental health programme had a significant effect in improving mental-health awareness in schoolchildren, their parents, and neighbours
Pakistan (Rahman, 2008)	Community-based primary health care	Cluster-randomised controlled trial (training health programme by lay health worker vs enhanced routine care by lay health worker)	Maternal depression	Lay health workers (thinking healthy programme vs enhanced routine care)	Supervision and monitoring by psychiatrist	Mothers in the thinking healthy programme were almost 80% less likely to meet criteria for major depression at both 6 and 12 months' follow-up
Russia (Gavrilova, 2009)	Primary health care	Randomised controlled trial (caregiver education and training plus medical care as usual vs medical care as usual)	Dementia	Newly qualified doctors (education for caregivers); caregivers (monitoring and management)	Structured, manual-based, 2-day training programme comprising vignettes, role play, and live interviews	Caregivers in the education group had significantly greater improvements at 6-month follow up in caregiver burden; no significant differences in caregivers' and patients' quality of life or caregiver psychological distress

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	Setting	Study design (model or intervention)	Mental disorder	Workforce (intended roles)	Training received	Main findings
(Continued from previous page)						
South Africa (Cooper, 2002)	Primary health care	Controlled trial (mother-infant intervention *vs* no mother-infant intervention)	Maternal depression	Lay community workers (mother-infant intervention [emotional support and encourage new mothers on sensitive responsive interactions with their infants])	Training in basic counselling skills and specific mother-infant intervention	No effect on maternal depression, positive effect on mother-infant engagement
South Africa (Cooper, 2009)	Primary health care	Randomised controlled trial (mother-infant intervention *vs* no mother-infant intervention)	Maternal depression	Lay community workers (mother-infant intervention [emotional support and encourage new mothers on sensitive responsive interactions with their infants])	Training in basic counselling skills and specific mother-infant intervention	Improved maternal-infant relationship at 6 and 12 months post partum (eg, more sensitive and less intrusive in their interaction with their infants) and higher rate of secure infant attachments at 18 months; improved symptoms of maternal depression at 12 months
Taiwan (Chou, 2002)	Hospital	Time series non-equivalent control-group design (professionally led support group *vs* control group)	Schizophrenia	Mental health nurse (facilitation of caregiver-support groups)	Not reported	No effect on patients' outcomes; positive effect on caregiver burden and caregiver depression status
Thailand (Maneesakorn, 2007)	Hospital inpatient and outpatient (outpatient for follow-up)	Randomised controlled trial (adherence treatment *vs* no adherence treatment)	Schizophrenia	Nursing therapist (adherence treatment)	Not reported	Greater improvements in overall psychotic symptoms, attitudes towards drugs, and satisfaction with drugs; no differences in general functioning and drug side-effects
Thailand (Worakul, 2007)	Hospital psychiatric department	Pre/post-evaluation (psychoeducational programme for caregivers or family members of schizophrenic patients)	Schizophrenia	Psychiatrists (psychoeducational programme to caregivers); caregivers (peer support group)	Not reported	Improvements in knowledge and attitude of caregivers
Turkey (Dogan, 2003)	Hospital psychiatric department	Controlled trial (education *vs* no education)	Bipolar disorder	Mental health nurses (education for patients)	Not reported	Increase in medical knowledge, decrease in symptom level, increase in quality of life and improved adherence at the end of the 3-month education programme
Uganda (Bolton, 2003; Bass, 2006)	Community	Cluster-randomised controlled trial (group interpersonal treatment *vs* no group interpersonal treatment)	Depression	Community member (facilitation of group interpersonal treatment)	2-week training session of intensive instruction by psychiatrist	Reduced depression and dysfunction severity at 2-week and 6-month follow-up
Zimbabwe (Adamolekun, 1999)	Hospital	Pre/post-training evaluation	Epilepsy	Neurologists, a pharmacist, clinical pharmacologist, a social worker, and the district nursing officer (resource people); primary care nurses (diagnosis and initiation of treatment); environmental-health technicians (community health education and disease prevention)	1-day workshop on the management of epilepsy; supervision by neurologists, a pharmacist, clinical pharmacologist, a social worker, and the district nursing officer	Improved overall knowledge of epilepsy, increase in patients' recruitment, and striking improvement in patients' drug adherence over the 6-month study period

Maternal depression includes both antenatal and postnatal depression.

Table 1: **Summary of evidence on the effect of task shifting on patients' and caregivers' outcomes.**

Complete reference list of studies on evidence for task shifting presented in table 1

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Ran, 2003	Ran M-S, Xiang M-Z, Chan CL-W, et al. Effectiveness of psychoeducational intervention for rural Chinese families experiencing schizophrenia--a randomised controlled trial. *Social psychiatry and psychiatric epidemiology*. 2003;38(2):69-75.
Rojas, 2007	Rojas G, Fritsch R, Solis J, et al. Treatment of postnatal depression in low-income mothers in primary-care clinics in Santiago, Chile: a randomised controlled trial. *Lancet* 2007;370(9599):1629-37.
Srinivasa Murthy, 2005	Srinivasa Murthy R, Kishore Kumar KV, Chisholm D, et al. Community outreach for untreated schizophrenia in rural India: a follow-up study of symptoms, disability, family burden and costs. *Psychol Med*; 2005:341-51.
Tripathy, 2010	Tripathy P, Nair N, Barnett S, et al. Effect of a participatory intervention with women's groups on birth outcomes and maternal depression in Jharkhand and Orissa, India: a cluster-randomised controlled trial. *Lancet*. 2010;375(9721):1182-1192.
Vijayakumar, 2008	Vijayakumar L, Suresh Kumar M. Trained Volunteer-Delivered Mental Health Support To Those Bereaved By Asian Tsunami -- An Evaluation. *International Journal of Social Psychiatry*. 2008;54(4):293-302.
Worakul, 2007	Worakul P, Thavichachart N, Lueboonthavatchai P. Effects of psycho-educational program on knowledge and attitude upon schizophrenia of schizophrenic patients' caregivers. *Journal of the Medical Association of Thailand*. 2007;90(6):1199-204.
Xiang, 1994	Xiang M, Ran M, Li S. A controlled evaluation of psychoeducational family intervention in a rural Chinese community. *The British journal of psychiatry*. 1994;165(4):544-8.
Zhang, 1998	Zhang M, He Y, Gittelman M, Wong Z, Yan H. Group psychoeducation of relatives of schizophrenic patients: two-year experiences. *Psychiatry and clinical neurosciences*. 1998;52 Suppl:S344-7.

	Setting	Study design (comparison or assessment)	Mental illness	Workforce (role)	Training	Main findings
Mental health specialists						
Turkey (Engin, 2009)	Hospital	Pre/post-evaluation of self-awareness education programme	Mental illnesses	Psychiatric nurses (treatment)	Self-awareness education programme once a week by educators with expertise in group therapy, psychodrama, and cognitive behaviour treatment	Nurses gained more insight and felt more competent in providing appropriate and effective care
Non-specialist health professionals						
Afghanistan (Mohit, 1999)	Primary health care	Pre/post-evaluation of training programme	Mental illnesses	General doctors	3-month residential training course, provided by trainers with expertise in psychiatry, public health, community mental health, child mental health, general adult psychiatry, and research methods and evaluation	Significant improvements were seen in knowledge, problem-solving skills, and research knowledge but not for interviewing skills
India (Sriram, 1990)	Primary health care	Pre/post-evaluation of training programme	Mental illnesses	Primary care medical officers (diagnosis and treatment)	2 weeks of in-service training at the National Institute of Mental Health and Neuro Sciences in Bangalore, India	Medical officers showed significant improvements in knowledge and clinical skills, particularly the younger officers
Nigeria (Abiodun, 1991)	Primary health care	Retrospective cohort (mental health training vs no mental health training)	Mental illnesses	Primary care workers	Not reported	Traditional views on cause of mental illnesses are still common; primary care workers without previous mental health training were more likely to hold traditional views; primary care workers with mental health training were more likely to recognise a mental disorder than were non-trained primary care workers (the difference was greater with psychosis than neurosis); attitudes were equally poor in the two groups, with most (72%) preferring not to marry, live, or work with someone with a mental disorder; only 30% of primary care workers were able to suggest primary care-based mental health-care options
Saudi Arabia (Al-Faris, 1997)	Primary health care	Randomised controlled trial (trained primary-care doctors vs untrained primary-care doctors from the same clinic vs untrained primary-care doctors from a different clinic)	Mental illnesses	Primary care doctors	20 tutorials (2 h duration) spread over 6 months by psychiatrists and family doctors	Primary care doctors with mental health training showed significant improvements in diagnostic accuracy for mental illness, whereas the other two groups did not
South Africa (Petersen, 1999)	Primary health care	Pre/post-evaluation of reorientation programme	Mental illnesses	Primary care nurses (tertiary and secondary prevention [monitoring of adherence, psychoeducation, filling of prescriptions, referral when necessary, counselling, emergency treatment when necessary])	Reorientation programme	Training led to improvements in skills (relationship, microcounselling, problem identification, and problem management)
Sri Lanka (Budosan, 2009)	Primary health care	Pre/post-evaluation of training programme	Mental illnesses	Primary care doctors and mid-level primary care staff (diagnosis and treatment)	Primary care doctors attended a 2-day training workshop and a less intense but extended on-the-job mental health training with supervision by psychiatrists; mid-level public primary-care staff attended a 1-day workshop and shorter and more intense theoretical training by trained primary-care doctors	Training led to significant improvements in diagnosis, appropriate treatment decisions, and communication with patients for both primary care doctors and mid-level primary care staff
Turkey (Arkar, 1997)	Academic institution	Non-randomised controlled trial (psychiatric training vs no psychiatric training [ophthalmology])	Mental illnesses	5th year medical students	3-week psychiatry training (about 98 h) as part of the medical training programme	No significant changes in attitudes of medical students after psychiatric training

(Continues on next page)

	Setting	Study design (comparison or assessment)	Mental illness	Workforce (role)	Training	Main findings
(Continued from previous page)						
Turkey (Ucok, 2006)	Primary health care	Pre/post-evaluation of anti-stigma education	Schizophrenia	Family doctors	Anti stigma education for family doctors by psychiatrists	3 months after the education session, fewer family doctors believed that schizophrenia could be recognised by appearances, that affected individuals are untrustworthy, and that they could harm children; more family doctors believed that patients with schizophrenia can be treated and that they can comprehend and apply suggested treatment
Community health-workers						
Brazil (Ramos-Cerqueira, 2005)	Community	Quasi-experimental (community health worker *vs* psychiatrist)	Dementia	Community health workers (detection and referral)	3-h training session (adapted from the 10/66 dementia research programme) by psychiatrists and psychologists	Positive predictive value 62·5%; community health workers can play a part in identification of cases of dementia in the general population
Chile [substudy] (Lewis, 1992)	Primary health care	Non-randomised controlled trial (lay health workers *vs* psychiatrist)	Minor psychiatric disorder	Lay health workers (detection)	2-h theoretical teaching, observation, and discussion by psychiatrists	Lay interviewers were as reliable as the psychiatrists in undertaking of assessments for minor psychiatric disorders
India (Chinnayya, 1990)	Primary health care	Pre/post-evaluation of a 1-week mental health training programme for multipurpose workers	Psychosis, mental retardation, epilepsy	Multipurpose workers (home visits, monitor various health and take appropriate action [emergency management, health education, referral to primary care and follow-up] as necessary)	1 week of training at the National Institute of Mental Health and Neuro Sciences in Bangalore, India, including lectures, case demonstrations, and role play	Trainees showed significant positive changes in attitudes about causation and management for psychosis, mental retardation, and epilepsy, immediately after the training course (last day of course)
India (Jacob, 2007)	Community	Quasi-experimental (screening [no comparison group])	Dementia	Community health workers (detection and referral)	2-h interactive training session (10/66 dementia research group training module) to identify people in their community with dementia	Informal screening by community-health-workers had low sensitivity and positive predictive values; community health workers were not effective in detecting people with dementia in the community (low prevalence rates)
India (Joel, 2003, 2006)	Community	Non-randomised controlled trial (biomedical education *vs* no education for community health workers)	Psychosis (schizophrenia)	Community health workers (detection)	2-h teaching programme on biomedical aspects of schizophrenia and local beliefs about mental illness, symptoms, causes, treatment, and referral	Treatment-seeking was significantly associated with receiving biomedical education at follow-up; education as effective in changing explanatory models of psychosis
India (Shaji, 2002)	Community	Quasi-experimental (Anganwadi [community] worker *vs* psychiatrist)	Dementia	Anganwadi workers (screening)	Introductory 90-min training session, practical application, and subsequent 1-h advanced training	Positive predictive value 65%; Anganwadi workers can have a role in identification of cases of dementia in the general population
Nigeria (Eaton, 2008)	Primary health care	Pre/post-evaluation of community-based awareness programme	Mental illnesses	Village health workers (detection, referral, and work with the nurse to maintain contact and provide follow-up monitoring)	Mental-health awareness programme by clinic psychiatric nurses and local primary-health-care coordinator	The awareness programme led by community psychiatric nurses and primary-health-care coordinators delivered to village health workers significantly increased use of community-based mental health services
Uganda (Kabura, 2005)	Community	Pre/post-assessment microcounselling skills training	Mental illnesses	Informal health workers	5-day intensive microcounselling-skills training programme (total 40 h)	Helpers who underwent microcounselling-skills training showed improved basic microcounselling skills and knowledge
Zimbabwe (Ball, 2000)	Primary health care	Cohort study (single arm)	Epilepsy	Community leaders—ie, local board members, teachers, nurses, police officers, traditional healers, prophets (detection and referral)	Education about epilepsy, its causes, and how it can be managed by orthodox medicine by members of the epilepsy support foundation (a Zimbabwean non-profit organisation to support people with epilepsy), and a doctor or pharmacist	At 6-month follow-up, no newly diagnosed patients were detected; training did not seem to be effective in increasing detection or treatment-seeking but without a comparison group the results are inconclusive
						(Continues on next page)

Nadja van Ginneken Thesis Page 264

	Setting	Study design (comparison or assessment)	Mental illness	Workforce (role)	Training	Main findings
Caregivers						
Brazil (Roque, 2009)	Community	Quasi-experimental (pre/post-evaluation of communication strategies training programme for caregivers)	Dementia	Caregivers (patients' management)	Four 1·5-hour sessions on communication strategies for caregivers by a speech-language pathologist	Increased use of the proposed strategies but no change with respect to effectiveness of these strategies
China (Xiang, 1994)	Community	Randomised controlled trial (psychoeducational family intervention and drugs vs drugs alone)	Schizophrenia and affective psychoses	Caregivers (management at home, monitoring, detection, problem-solving)	Psychoeducational family intervention aimed to teach family members basic knowledge of mental diseases and their treatment	Reduction in provision of insufficient or inappropriate actual maltreatment; higher total rate of improvement, higher proportion of people who could do full-time or part-time farm work or housework, greater reduction in the proportion of people who showed poor social functioning
China (Zhang, 1998)	Primary health care	Non-randomised controlled trial (psychoeducation and conventional services vs conventional services only)	Schizophrenia	Caregivers (management at home, monitoring, detection, problem-solving)	Psychoeducation included 14 lectures and five group discussions with conventional services	Greater improvements than control group at 2-year follow up (lower relapse rates, higher rate of regular work, less caregiver burden, better caregiver physical and mental health status, greater knowledge of caring for their relative with schizophrenia)
India (Das, 2006)	Hospital outpatient	Randomised controlled trial (educational programme on explanatory models vs no educational programme for caregivers)	Schizophrenia	Caregivers (patients' management)	Structured educational programme on explanatory and treatment models (two sessions)	Caregivers in the education group had significant reduction in non-biomedical explanatory beliefs of psychosis compared with control groups but no differences were found in treatment models
Iran (Assadollahi, 2000)	Hospital psychiatric department	Quasi-experimental (pre/post-assessment of training programme)	Schizophrenia	Caregivers (patients' management)	Curriculum-based training course	1 month after training, more parents had the necessary skills to manage the verbal and non-verbal behaviours of their children (parents' reaction to verbal and non-verbal behaviours and use of appropriate skills in dealing with both types of behaviours)
Russia (Gavrilova, 2009)	Primary health care	Randomised controlled trial (caregiver education and training plus medical care as usual vs medical care as usual)	Dementia	Caregivers (counselling, assessment, monitoring)	Caregiver received five weekly 0·5-h sessions at home by newly qualified doctors; newly qualified doctors with no previous experience working with patients with dementia and their families (eg, health worker) attended a structured, manual-based 2-day training programme comprising vignettes, role play, and live interviews	Caregivers in the education group had significantly greater improvements compared with controls at 6-month follow-up in caregiver burden; no significant differences were noted in caregivers' and patients' quality of life or caregivers' psychological distress

Table 2: **Summary of evidence on evaluation of training programmes for workforce capacity**

Complete reference list of studies on training for workforce capacity included in table 2

Author & Year	Reference
Abiodun, 1991	Abiodun OA. Knowledge and attitude concerning mental health of primary health care workers in Nigeria. *The International journal of social psychiatry*. 1991;37(2):113-20.
Al-Faris, 1997	Al-Faris E, Al-Subaie A, Khoja T, et al. Training primary health care physicians in Saudi Arabia to recognize psychiatric illness. *Acta psychiatrica Scandinavica*. 1997;96(6):439-44.
Arkar, 1997	Arkar H, Eker D. Influence of a 3-week psychiatric training programme on attitudes toward mental illness in medical students. *Social psychiatry and psychiatric epidemiology*. 1997;32(3):171-6.
Assadollahi, 2000	Assadollahi GA, Ghassemi GR, Mehrabi T. Training families to better manage schizophrenics' behaviour. *Eastern Mediterranean health journal*. 2000;6(1):118-27.
Ball, 2000	Ball DE, Mielke J, Adamolekun B, Mundanda T, McLean J. Community Leader Education to Increase Epilepsy Attendance at Clinics in Epworth, Zimbabwe. *Epilepsia*. 2000;41(8):1044-1045.
Budosan, 2009	Budosan B, Jones L. Evaluation of effectiveness of mental health training program for primary health care staff in Hambantota District, Sri Lanka post-tsunami. *Journal of Humanitarian Assistance*. 2009.
Chinnayya, 1990	Chinnayya HP, Chandrashekar CR, Moily S, Puttamma, Raghuram A, Subramanya KR, Shanmugham V, Udaykumar GS.. Training primary care health workers in mental health care: evaluation of attitudes towards mental illness before and after training. *The International journal of social psychiatry*. 1990;36(4):300-7.
Das, 2006	Das S, Saravanan B, Karunakaran KP, et al. Effect of a structured educational intervention on explanatory models of relatives of patients with schizophrenia: randomised controlled trial. *The British journal of psychiatry*. 2006;188:286-7.
Eaton, 2008	Eaton J, Agomoh AO. Developing mental health services in Nigeria : the impact of a community-based mental health awareness programme. *Social psychiatry and psychiatric epidemiology*. 2008;43(7):552-8.
Engin, 2009	Engin E, Cam O. Effect of self-awareness education on the self-efficacy and sociotropy-autonomy characteristics of nurses in a psychiatry clinic. *Archives of psychiatric nursing*. 2009;23(2):148-56.
Gavrilova, 2009	Gavrilova SI, Ferri CP, Mikhaylova N, et al. Helping carers to care--the 10/66 dementia research group's randomized control trial of a caregiver intervention in Russia. *International journal of geriatric psychiatry*. 2009;24(4):347-54.
Jacob 2007	Jacob KS, Senthil Kumar P, Gayathri K, Abraham S, Prince MJ. Can health workers diagnose dementia in the community? *Acta psychiatrica Scandinavica*. 2007;116(2):125-8.
Joel, 2003 & 2006	Joel D, Sathyaseelan M, Jayakaran R, et al. Explanatory models of psychosis among community health workers in South India. *Acta psychiatrica Scandinavica*. 2003;108(1):66-9. Joel D, Sathyaseelan M, Jayakaran R, Vijayakumar C, Muthurathnam S. A biomedical educational intervention to change explanatory models of psychosis among community health workers in South India The setting. *Indian Journal of Psychiatry*. 2006;48(3):138-142.
Kabura, 2005	Kabura P. Microcounseling Skills Training for Informal Helpers in Uganda. *International Journal of Social Psychiatry*. 2005;51(1):63-70.
Lewis, 1992	Lewis G, Pelosi AJ, Araya R, Dunn G. Measuring psychiatric disorder in the community: a standardized assessment for use by lay interviewers. *Psychological medicine*. 1992;22(2):465-86.
Mohit, 1999	Mohit A, Saeed K, Shahmohammadi D, Bolhari J, Bina M, Gater R, Mubashar M. Mental health manpower development in Afghanistan: a report on a training course for primary health care physicians. *Eastern Mediterranean Health Journal*. 1999;5(2):373-7.
Petersen, 1999	Petersen I. Training for transformation: reorientating primary health care nurses for the provision of mental health care in South Africa. *Journal of advanced nursing*. 1999;30(4):907-15.
Ramos-Cerqueira, 2005	Ramos-Cerqueira AT a, Torres AR, Crepaldi AL, et al. Identification of dementia cases in the community: a Brazilian experience. *Journal of the American Geriatrics Society*. 2005;53(10):1738-42.
Roque, 2009	Roque FP, Ortiz KZ, Araujo M da SC, Bertolucci PHF. Communicative strategies training effectiveness to caregivers of patients with dementia. *Pró-Fono Revista de Atualização Científica*. 2009;21(3):225-230.
Shaji, 2002	Shaji KS, Arun Kishore NR, Lal KP, Prince M. Revealing a hidden problem. An evaluation of a community dementia case-finding program from the Indian 10/66 dementia research network. *International journal of geriatric psychiatry*. 2002;17(3):222-5.
Sriram, 1990	Sriram TG, Chandrashekar CR, Isaac MK, et al. Development of case vignettes to assess the mental health training of primary care medical officers. *Acta psychiatrica Scandinavica*. 1990;82(2):174-7. Sriram TG, Chandrashekar CR, Isaac MK, Srinivasa Murthy R, Shanmugham V. Training primary care medical officers in mental health care: an evaluation using a multiple-choice questionnaire. *Acta psychiatrica Scandinavica*. 1990;81(5):414-7. Sriram TG, Moily S, Kumar GS, et al. Training of primary health care medical officers in mental health care. Errors in clinical judgment before and after training. *General hospital psychiatry*. 1990;12(6):384-9.
Ucok, 2006	Uçok A, Soygür H, Atakli C, et al. The impact of antistigma education on the attitudes of general practitioners regarding schizophrenia. *Psychiatry and clinical neurosciences*. 2006;60(4):439-43.
Xiang, 1994	Xiang M, Ran M, Li S. A controlled evaluation of psychoeducational family intervention in a rural Chinese community. *The British journal of psychiatry*. 1994;165(4):544-8.
Zhang, 1998	Zhang M, He Y, Gittelman M, Wong Z, Yan H. Group psychoeducation of relatives of schizophrenic patients: two-year experiences. *Psychiatry and clinical neurosciences*. 1998;52 Suppl:S344-7.

Appendix 2 - ethics approvals

2a. **LONDON SCHOOL OF HYGIENE**
& TROPICAL MEDICINE

ETHICS COMMITTEE

APPROVAL FORM
Application number: **5682**
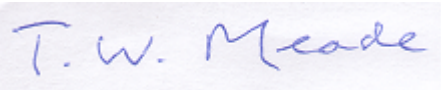
Name of Principal Investigator   **Dr Nadja van Ginneken**

Department   **Epidemiology and Population Health**

Head of Department   **Professor Laura Rodrigues**

Title: **The roles of non specialist health workers in mental health care provision in low-and-middle-income countries**

This application is approved by the Committee.

Chair of the Ethics Committee ....T. W. Meade........

Date ....26 March 2010 ……………………………………

Approval is dependent on local ethical approval having been received.

Any subsequent changes to the application must be submitted to the Committee via an E2 amendment form.

2b. SANGATH INSTITUTIONAL REVIEW BOARD

Title: The roles of non specialist health workers in mental health care provision in low-and-middle-income countries.

MEMBERS:	DECISION:
Dr. Amit Dias: Chairperson	Opinion of the Sangath Institutional review board:
Anita Haladi Professor in Economics	1. Approved : ✓
Gracy Andrew: Clinical Psychologist	2. Approved subject to suggested modifications (does not need further committee review)
Dr. Mirja Koschorke: Psychiatrist	3. Not approved _____ (can be resubmitted but will need second review)
Mudhumitta Balaji: Clinical Psychologist	4. Not approved _____

Dr. Maryam Shahmanesh:
Medical Epidemiologist

Dr. Neerja Chowdhary:
Psychiatrist

Raj Vaidya:
Pharmacist

Rajal Shinkre
Principal, Goa Home Science College

Dr. Sheela Gupte
Medical Practitioner

Mr. Vishram Gupte
Lawyer

Prof. Vikram Patel
Psychiatrist

The researcher is hereby informed that the Sangath Institutional review board will require the following:

1. A progress report to be submitted to the board annually
2. Upon completion of the study a final study report to be submitted
3. Any adverse event that is serious and un expected it is to be reported promptly to the board
4. One board member would be conducting a site visit and any adverse conditions reported by the member regarding the ethical considerations of the project would subject to a fresh review of the project.

Date: 19th May 2010

SANGATH
A SOCIETY FOR CHILD DEVELOPM.
AND FAMILY GUIDANCE
Reg. No. 138/GOA/96
841/1, Behind Electricity Dep:
Alto Porvorim ☎ 2414916

Dr. Amit Dias
Chairperson

Appendix 3 - Oral history (chapter 5) consent process and data collection tool

3a. Information sheet for informed consent – oral histories

The roles of non-specialist health workers in mental health care in low-and-middle income countries

Principal investigator
Dr Nadja van Ginneken, Nutrition and Public Health Intervention Research Unit, London School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Phone: +44 (0)7986107976, or +91 9902119005 or +91 (0)8041472653; Email: nadja.vanginneken@lshtm.ac.uk

Co-investigators
Professor Vikram Patel, Professor of International Mental Health, School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Email: vikram.patel@lshtm.ac.uk

Professor Virginia Berridge, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT, UK.
Email: Virginia.berridge@lshtm.ac.uk

Why is the study being done?
I, Nadja van Ginneken, am a PhD student from the London School of Hygiene and Tropical Medicine in the UK and would like to interview you with regards to community and primary health care provision of mental health in India.

Mental illness is a significant burden in developing countries. The scarcity of skilled mental health staff (psychiatrists, psychiatric nurses/social workers) and inequities in their distribution has led to many people not receiving the treatment they need. Shifting tasks to non-specialist health workers (NSHWs) (professionals - primary care doctors/nurses - and non-professionals - community health workers) can improve coverage of mental health care, as evidenced by some preliminary research.

India has pioneered community mental health services since the 1970s but so far has had limited success. The past is essential to informing the present. Understanding previous and current achievements, failures and roles of NSHWs within mental health care will inform policy makers on how to effectively implement and expand community mental health services in India and other low-and-middle income countries (LMICs). The aim of this project is to explore the history of NSHWs' roles in mental health care in India. Historical analysis of this period will help to gain insight into the reasons and challenges for current day mental health programmes. It also aims to describe NSHWs current roles. The final workshop with key international and Indian stakeholders will examine the acceptability and feasibility of non-specialists' roles to inform the development of policies in LMICs.

What will the interview involve?
We would like to ask your permission to be interviewed, however you are under no obligation to participate. An outline of the types of questions you'll be asked is outlined below:

1/ what position you held and what your roles were;
2/ what your views are on the development of mental health services in India,

1

3/ how you got involved, what your motivations were,
4/ how you feel your efforts fitted in with the prevailing national mental health and community health plans and socio-political context,
5/ what are the opportunities and challenges you saw within your field of work,
6/ what opportunity and challenges you see for the future.

These interviews will be tape recorded for the purpose of analysis, and will feed into my doctoral thesis for the London School of Hygiene and Tropical Medicine (LSHTM), and into potential publications and wider dissemination. My final thesis will be made available to all participants.

Your involvement.
I hope that you will agree to be one of the 'key informants' for the research. The interview can be as long or as short as you like and you are free to say as little or as much as you like within what you feel comfortable saying. It will be conducted by Nadja van Ginneken, a PhD student at the LSHTM with a background as a general practitioner, and/or by an Indian co-researcher/interpreter if you would like to conduct the interview in Kannada (or other local language).

No quotes or other results resulting from your participation in this study will be included in any reports, even anonymously without your agreement. Please indicate on the consent form your wishes.

If you agree to take part in a the witness seminar (focus group interview), the researcher will request that focus group members respect each others' confidentiality by not speaking to others about matters raised in the group.

Storage of data
The interview data would be kept in a locked filing cabinet and, material held on a computer would be password protected, stored in our office at the London School of Hygiene and Tropical Medicine.

We would like to ask your permission to archive the oral history interview transcripts and/or audio-recordings at a later date after our study. The reason for archiving material is for that data to be available in future to other researchers or members of the public that wish to explore similar issues, and in which the data would be valuable. Interview data will not be archived without your agreement.

Ethical approval.
This study has been approved by the London School of Hygiene and Tropical Medicine, and by the IRB of Sangath, Goa, India

3b. Consent form – oral histories

The roles of non-specialist health workers in mental health care in low-and-middle income countries

Principal investigator
Dr Nadja van Ginneken, Nutrition and Public Health Intervention Research Unit, London School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Phone: +44 (0)7986107976, or +91 9902119005 or +91 (0)8041472653; Email: nadja.vanginneken@lshtm.ac.uk

Co-investigators
Professor Vikram Patel, Professor of International Mental Health, School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Email: vikram.patel@lshtm.ac.uk

Professor Virginia Berridge, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT, UK.
Email: Virginia.berridge@lshtm.ac.uk

The purpose of this form is to allow the use of your interview for research purposes. Please fill in the form according to your wishes.

I have been invited to take part in a study on the roles of non-specialist health workers in mental health care in low-and-middle income countries. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I have the right to withdraw from the interview at any time without consequence.

I agree that the researcher is allowed to tape the interview.   [   ]
I agree to my name being used with quotes from the interview, in reports about it [   ]
I wish to be consulted before publication of named quotes.   [   ]
I wish quotes to be used anonymously in reports about it   [   ]
I do not agree to quotes or other results arising from my participation in the study being included even anonymously in any reports about the study   [   ]

Archiving:
I agree to a transcript of my interview being archived at a future date   [   ]
I agree to an audio-recording of my interview being archived at a future date   [   ]
I do not wish the archived transcript to be labelled with my name   [   ]

Name of participant: _____

Signed: _____ **Date:** _____
_____

Interviewer's statement
I, THE UNDERSIGNED, HAVE DEFINED AND EXPLAINED TO THE VOLUNTEER IN A LANGUAGE THAT SHE/HE UNDERSTANDS THE PROCEDURES TO BE FOLLOWED AND THE OBLIGATIONS OF THE INTERVIEWER.

Name of interviewer(s): (1)_____   (2)_____

Signed: _____   _____

Date: _____   _____

3c. In depth interview guide – oral histories

1. what position they held and what their roles were
2. how they got involved, what their motivations were
3. how did they feel their efforts fitted in with the prevailing national mental health and community health plans and socio-political context
4. what are the opportunities and challenges they saw (or see) within their own projects
5. what their views are on the development of mental health services in India
6. what opportunity and challenges do they see for the future

Appendix 4 - Case studies' (chapter 6) consent process and data collection tools

4a. Information sheet for informed consent (in-depth case studies)

The roles of non-specialist health workers in mental health care in low-and-middle income countries

<u>**Principal investigator**</u>
Dr Nadja van Ginneken, Nutrition and Public Health Intervention Research Unit, London School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Phone: +44 (0)7986107976, or +91 9902119005 or +91 (0)8041472653; Email: nadja.vanginneken@lshtm.ac.uk

<u>**Co-investigators**</u>
Professor Vikram Patel , Professor of International Mental Health, School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
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Professor Virginia Berridge, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT, UK.
Email: <u>Virginia.berridge@lshtm.ac.uk</u>

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I, Nadja van Ginneken, am a PhD student from the London School of Hygiene and Tropical Medicine in the UK and would like to interview you with regards to community and primary health care provision of mental health in India.

Mental illness is a significant burden in developing countries. The scarcity of skilled mental health staff (psychiatrists, psychiatric nurses/social workers) and inequities in their distribution has led to many people not receiving the treatment they need. Shifting tasks to non-specialist health workers (NSHWs) (professionals - primary care doctors/nurses - and non-professionals - community health workers) can improve coverage of mental health care, as evidenced by some preliminary research.

India has pioneered community mental health services since the 1970s but so far has had limited success. The past is essential to informing the present. Understanding previous and current achievements, failures and roles of NSHWs within mental health care will inform policy makers on how to effectively implement and expand community mental health services in India and other low-and-middle income countries (LMICs). The aim of this project is to explore the history of NSHWs' roles in mental health care in India. It also aims to describe NSHWs current roles. The final workshop with key international and Indian stakeholders will examine the acceptability and feasibility of non-specialists' roles to inform the development of policies in LMICs.

<u>**What will the case study involve?**</u>
We would like to ask your permission to be interviewed and/or observed, however you are under no obligation to participate. An outline of the types of questions you'll be asked, as well as an idea of what the observations entail are outlined below:

   a. **observations will look at**:
1/ present status (who are the stakeholders, organisational structure, population served);

2/what is the nature of current mental health services (including quality of service provided);
3/ how this relates to existing goals, protocols and guidelines;
4/ how mental health and other tasks are managed in your setting;
5/ How wide the remit of your work and your organisation's is within health care delivery (such as advocacy, political involvement, involvement in livelihood programs or social benefits);
6/ medication supply and usage;
7/ characteristics of human resources and what they do;
8/ adequacy of physical infrastructure and transportation;

b. The issues to be explored within the interviews of health workers:
1/ how was the programme founded? (including major achievements and milestones since its founding; what the current roles of NSHWs and specialists within mental health are;)
2/ how your roles fit into other roles/expectations of you within the health system;
3/ what is your support like (supervision, ongoing training, incentivisation);
4/ what vision do you see for future mental health care delivery in their programme and outside;

These interviews will be tape recorded for the purpose of analysis, and will feed into my doctoral thesis for the London School of Hygiene and Tropical Medicine (LSHTM), and into potential publications and wider dissemination. My final thesis will be made available to all participants.

Your involvement.
I hope that you will agree to be one of the 'key informants' for the research. The observations will take place over a month, with repeated visits and will be as unobtrusive as possible. Interviews can be as long or as short as you like and you are free to say as little or as much as you like within what you feel comfortable saying. It will be conducted by Nadja van Ginneken, a PhD student at the LSHTM with a background as a general practitioner, and/or by an Indian co-researcher/interpreter if you would like to conduct the interview in Kannada (or other local language).

No quotes or other results resulting from your participation in this study will be included in any reports, even anonymously without your agreement. Please indicate on the consent form your wishes.

If you require anonymity, this means we will not quote your name. However we will need to identify you by your professional status (e.g. nurse, volunteer, doctor etc) when writing up about the project, but not by any other characteristics.

Storage of data
The interview data would be kept in a locked filing cabinet and, material held on a computer would be password protected, stored in our office at the London School of Hygiene and Tropical Medicine.

Ethical approval
This study has been approved by the Ethical Boards of the London School of Hygiene and Tropical Medicine and by Sangath, Goa, India. It also has approval from the Health Secretary and the Director of Family and Child Welfare Services for Karnataka in Bangalore.

4b. Information sheet for informed consent (semi-structured interviews shorter case studies)

The roles of non-specialist health workers in mental health care in low-and-middle income countries

Principal investigator
Dr Nadja van Ginneken, Nutrition and Public Health Intervention Research Unit, London School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Phone: +44 (0)7986107976, or +91 9902119005 or +91 (0)8041472653; Email: nadja.vanginneken@lshtm.ac.uk

Co-investigators
Professor Vikram Patel , Professor of International Mental Health, School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Email: vikram.patel@lshtm.ac.uk

Professor Virginia Berridge, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT, UK.
Email: Virginia.berridge@lshtm.ac.uk

Why is the study being done?
I, Nadja van Ginneken, am a PhD student from the London School of Hygiene and Tropical Medicine in the UK and would like to interview you with regards to community and primary health care provision of mental health in India.

Mental illness is a significant burden in developing countries. The scarcity of skilled mental health staff (psychiatrists, psychiatric nurses/social workers) and inequities in their distribution has led to many people not receiving the treatment they need. Shifting tasks to non-specialist health workers (NSHWs) (professionals - primary care doctors/nurses - and non-professionals - community health workers) can improve coverage of mental health care, as evidenced by some preliminary research.

India has pioneered community mental health services since the 1970s but so far has had limited success. The past is essential to informing the present. Understanding previous and current achievements, failures and roles of NSHWs within mental health care will inform policy makers on how to effectively implement and expand community mental health services in India and other low-and-middle income countries (LMICs). The aim of this project is to explore the history of NSHWs' roles in mental health care in India. It also aims to describe NSHWs current roles. The final workshop with key international and Indian stakeholders will examine the acceptability and feasibility of non-specialists' roles to inform the development of policies in LMICs.

What will the interview involve?
We would like to ask your permission to be interviewed, however you are under no obligation to participate. An outline of the types of questions you'll be asked is outlined below:

- How you came to work in this field of mental health
- how was/were the programme(s) you worked for founded?; major achievements and milestones since its founding;
- Questions about your views on the use of non-specialist health workers within the setting you have worked in.(their roles, their support)
- what vision do you see for future mental health care delivery in their programme and outside;

These interviews will be audio recorded for the purpose of analysis, and will feed into my doctoral thesis for the London School of Hygiene and Tropical Medicine (LSHTM), and into potential publications and wider dissemination. My final thesis will be made available to all participants.

Your involvement.
I hope that you will agree to be one of the 'key informants' for the research. The interview can be as long or as short as you like and you are free to say as little or as much as you like within what you feel comfortable saying. It will be conducted by Nadja van Ginneken, a PhD student at the LSHTM with a background as a general practitioner, and/or by an Indian co-researcher/interpreter if you would like to conduct the interview in Kannada (or other local language).

No quotes or other results resulting from your participation in this study will be included in any reports, even anonymously without your agreement. Please indicate on the consent form your wishes.

Storage of data
The interview data would be kept in a locked filing cabinet and, material held on a computer would be password protected, stored in our office at the London School of Hygiene and Tropical Medicine.

Ethical approval.
This study has been approved by the London School of Hygiene and Tropical Medicine, by Sangath, Goa, India, and has state approval from the director of Family and Child Welfare Services for Karnataka in Bangalore.

4c. Consent form (in-depth case studies)

The roles of non-specialist health workers in mental health care in low-and-middle income countries

Principal investigator
Dr Nadja van Ginneken, Nutrition and Public Health Intervention Research Unit, London School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
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Co-investigators
Professor Vikram Patel, Professor of International Mental Health, School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Email: vikram.patel@lshtm.ac.uk

Professor Virginia Berridge, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT, UK.
Email: Virginia.berridge@lshtm.ac.uk

The purpose of this form is to allow the use of your interview for research purposes. Please fill in the form according to your wishes.

I have been invited to take part in a study on the roles of non-specialist health workers in mental health care in low-and-middle income countries. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I have the right to withdraw from the interview at any time without consequence.

I agree that the researcher is allowed to tape the interview.   [   ]
I agree to my name being used with quotes from the interview, in reports about it [   ]
I wish to be consulted before publication of named quotes.   [   ]
I wish quotes to be used anonymously in reports about it   [   ]
I do not agree to quotes or other results arising from my participation in the study being included even anonymously in any reports about the study   [   ]

Name of participant: _____

Signed: _____ **Date:** _____
_____
_____

Interviewer's statement
I, THE UNDERSIGNED, HAVE DEFINED AND EXPLAINED TO THE VOLUNTEER IN A LANGUAGE THAT SHE/HE UNDERSTANDS THE PROCEDURES TO BE FOLLOWED AND THE OBLIGATIONS OF THE INTERVIEWER.

Name of interviewer(s): (1)_____   (2)_____

Signed: _____   _____

Date: _____   _____

4d. Consent form (semi-structured interviews shorter case studies)

The roles of non-specialist health workers in mental health care in low-and-middle income countries

Principal investigator
Dr Nadja van Ginneken, Nutrition and Public Health Intervention Research Unit, London School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Phone: +44 (0)7986107976, or +91 9902119005 or +91 (0)8041472653; Email: nadja.vanginneken@lshtm.ac.uk

Co-investigators
Professor Vikram Patel, Professor of International Mental Health, School of Hygiene and Tropical Medicine, Keppel Street, WC1R 7HT.
Email: vikram.patel@lshtm.ac.uk

Professor Virginia Berridge, Centre for History in Public Health, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT, UK.
Email: Virginia.berridge@lshtm.ac.uk

The purpose of this form is to allow the use of your interview for research purposes. Please fill in the form according to your wishes.

I have been invited to take part in a study on the roles of non-specialist health workers in mental health care in low-and-middle income countries. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study and understand that I have the right to withdraw from the interview at any time without consequence.

I agree that the researcher is allowed to tape the interview.   [   ]
I agree to my name being used with quotes from the interview, in reports about it [   ]
I wish to be consulted before publication of named quotes.   [   ]
I wish quotes to be used anonymously in reports about it   [   ]
I do not agree to quotes or other results arising from my participation in the study being included even anonymously in any reports about the study   [   ]
Archiving:
I agree to a transcript of my interview being archived at a future date   [   ]
I agree to an audio-recording of my interview being archived at a future date   [   ]
I do not wish the archived transcript to be labelled with my name   [   ]

Name of participant: _____

Signed: _____ **Date:** _____

_____
_____

Interviewer's statement
I, THE UNDERSIGNED, HAVE DEFINED AND EXPLAINED TO THE VOLUNTEER IN A LANGUAGE THAT SHE/HE UNDERSTANDS THE PROCEDURES TO BE FOLLOWED AND THE OBLIGATIONS OF THE INTERVIEWER.

Name of interviewer(s): (1)_____   (2)_____

Signed: _____   _____

Date: _____   _____

4e. Hindi information sheet and consent form (semi-structured interviews, shorter case studies)

सूचित सहमति (इंफोर्मेड कंसेंट-Informed consent) के लिए जानकारी पत्र (इंफोर्मेशन शीट- information sheet) - ईन-डेप्थ इंटरव्यू (Indepth- interview)

कम और मध्यम इंकम देशों में मेनटल हेल्त केर में प्राथमिक स्वास्थ्य कार्यकर्ता [नॉन स्पेस्यलिस्ट कार्यकर्ताओं(NSHW)] की भूमिका

नादिया वैन गीनेकेन, नुट्रिशन एंड पब्लिक हेल्थ इंटरवेंशन रिसर्च यूनिट, लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन, केपेल स्ट्रीट, WC1R 7HT. फोन: 44 (0) 7986107976, या +91 9663534685 5, फैक्स: 44 (0)207 958 8111,ईमेल: nadja. vanginneken @ lshtm. ac.uk

को-इण्वेस्टिगेटर

विक्रम पटेल, ईंटरनॅशॉनल मेनटल हेल्त के प्रोफेसर, लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन, केपेल स्ट्रीट, WC1R 7HT.

ईमेल: vikrampatel @ lshtm. ac. uk

वर्जीनिया बेरिड्ज, सेंटर फोर हिस्टरि इन पब्लिक हेल्थ, लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन, केपेल स्ट्रीट, WC1R 7HT, ब्रिटेन.

ईमेल: virginia. berridge @ lshtm. ac.uk

क्यों अध्ययन किया जा रहा है

मैं नादिया वैन गीनेकेन, ब्रिटेन में लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन से एक पी.एच.डी के छात्र हूँ और समुदाय(कम्युनिटि) और भारत में प्राथमिक स्वास्थ्य मानसिक स्वास्थ्य (मेनटल हेल्त) की देखभाल के प्रावधान (प्रोविज़्हन) के संबंध के साथ इंटरव्यू करना चाहती हूँ1

मानसिक बीमारी डेवेलपिंग कंट्रिस में एक महत्वपूर्ण बोझ है. स्किल्ड मानसिक स्वास्थ्य स्टाफ [मनोचिकित्सकों, मनोरोग नर्सों / सामाजिक कार्यकर्ता (सैकियाट्रिस्ट, सैकियात्रिक नर्सों / सोशियल वर्कर्स] और उनके वितरण में कमी के कारण कई लोगों को जो ट्रीटमेंट की जरूरत है वह प्राप्त नहीं हो रहा हे . वह कार्य करने के लिए में प्राथमिक स्वास्थ्य कार्यकर्ता / सामाजिक कार्यकर्ता को सौंप गया है | जिसे प्रिलिमिनरि रिसर्च के साक्ष्य के द्वारा देखा गया हे कि मानसिक स्वास्थ्य की देखबाल के कवरेज में सुधड़ हो स्क्ता है.

भारत ने 1970 के दशक के बाद से कम्युनिटि मेनटल हेल्त सर्विस्स सेवाओं का बीड़ा उठाया है लेकिन अभी तक सीमित सफलता मिली है. अतीत वर्तमान सूचित करने के लिए आवश्यक है. पिछले और आज के अचीव्मेंट्स, विफलताओं और मेनटल हेल्त केर के भीतर NSHWs की भूमिका, पॉलिसि मेक्रस को सूचित करेगा कि कैसे प्रभावी ढंग से भारत और अन्य कम और मध्यम आय वाले देशों (LMICs) में कम्युनिटि मेनटल हेल्त सेवाओं का विस्तार कर सक्थे हे

इस परियोजना का उद्देश्य भारथ मे मेनटल हेल्त केर के भीतर NSHWs की भूमिका कि इतिहास को पता लगाने. यह भी उद्देश्य है कि प्राथमिक स्वास्थ्य कार्यकर्ता कार्यकर्ताओं / सामाजिक कार्यकर्ता हाज की भूमिका को वर्णन करना है.

अंतिम कार्यशाला(workshop) के साथ प्रमुख अंतरराष्ट्रीय और भारतीय स्टेक होल्डर के साथ की भूमिका के स्वीकार्यता और संभाव्यता को जांच करके LMICs में नीतियों के विकास को सूचित करेंगे

इंटर्व्यु में क्या शामिल होगा

हम आपकी इंटरव्यू करने के लिए अनुमति पूछना चाहते हैं, लेकिन आप भाग लेने के दायित्व के अधीन नहीं हैं. आप से जो सवाल पूछा जाएगा उसी प्रकार की एक रूपरेखा नीचे उल्लिखित(outlined) है

- आप कैसे मेनटल हेल्त के इस क्षेत्र में काम पे आए

- कैसे आप काम किया गया कार्यक्रम का स्थापना हुवा?; प्रमुख अचीव्मेंट्स और अपनी स्थापना के बाद से मैल्स्टोन;

- आप काम किया गया सेटिंग के अंड्र उपलब्द्दित नॉन स्पेस्यलिस्ट कार्यकर्ताओं(**NSHW**) पर अपने विचारों के बारे में प्रश्न (उनकी भूमिकाओं, उनके सपोर्ट)

- क्या दृष्टि आप भविष्य के अपने कार्यक्रम और बाहर में मेनटल हेल्त केर देलिवेरी के लिए देखते हैं

इन इंटरव्यू को ऑडियो विश्लेषण के प्रयोजन के लिए दर्ज हो सकता है, और लंदन स्कूल ऑफ़ ईजिन अंड ट्रॉपिकल मेडिसिन, के लिए मेरे डोक्टोरल थीसिस में फीड होंगे और संभावित पुब्लीकेशन और व्यापक प्रसार में होंगे. मेरा अंतिम थीसिस सब पर्टिसिपेंट्स के लिए उपलब्ध कराया जाएगा.

आपकी ईन्वोल्व्मेंट

रिसर्च के लिये की ईन्फोर्मेंट बने के लिए मुझे आशा है कि आप राज़ी होंगे. इंटरव्यू अप जैसे चाहिये वैसे लंबे या कम बी हो सकता हे और आप स्वतंत्र हैं कम या अप जैसे चाहिये वैसे बोल सक्थे हे. नादिया वैन गीनेकेन, एक सामान्य चिकित्सक, LSHTM में एक पीएचडी के छात्र है, और / या भारतीय co-researcher/interpreter द्वारा आयोजित किया जाएगा अगर आप कन्नड़ में स इंटरव्यू (या अन्य स्थानीय भाषा) आचरण करना चाहते हैं. आपकी सहमति के बिना, इस अध्ययन में आपकी पार्टिसिपेशन से उत्पन्न कोई उद्धरण या अन्य परिणाम किसी भी रिपोर्ट में शामिल नहीं किया जाएगा, आपकी सहमति के बिना गुमनाम भी नही. क्रिपया अपनी इच्छाओं को **कंसेंट** फार्म पर बतलाना.

डेटा स्टोरेज

इंटरव्यू डेटा एक बंद फाइलिंग कैबिनेट में रखा जाएगा और, एक कंप्यूटर पर आयोजित सामग्री पासवर्ड से सुरक्षित होगा, लंदन स्कूल ऑफ़ ईजिन अंड ट्रॉपिकल मेडिसिन में हमारे कार्यालय में संग्रहीत होगा.

नैतिक अनुमोदन(एथिकल अप्रूवल)

इस अध्ययन को लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन के द्वारा अप्रूवल किया गया है, Sangath, गोवा, भारत, और बंगलौर में डिरेक्टर ऑफ़ फॅमिली एंड चाइल्ड वेल्फेर सेर्विसेस फॉर कर्नाटक से स्टेट अप्रूवल बि है.

CONSENT FORM

सरटिफिकेट अफ़ कंसेंट _ ईन-डेप्थ इंटरव्यू (Indepth- interview)

कम और मध्यम इंकम देशों में मेनटल हेल्त केर में प्राथमिक स्वास्थ्य कार्यकर्ता / सामाजिक कार्यकर्ता की भूमिका

नादिया वैन गीनेकेन, नुट्रिशन एंड पब्लिक हेल्थ इंटरवेंशन रिसर्च यूनिट, लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन, केपेल स्ट्रीट, WC1R 7HT. फोन: 44 (0) 7986107976, या +91 9663534685 , फैक्स: 44 (0)207 958 8111,ईमेल: Nadja. vanginneken @ lshtm. ac. uk

को-इन्वेस्टिगेटर

विक्रम पटेल, ईंटरनॅशॅनल मेंटळ   हेल्थ के प्रोफेसर, लंदन स्कूल ऑफ़ हईजिन अंड ट्रॉपिकल मेडिसिन, केपेल स्ट्रीट, WC1R 7HT.

ईमेल: vikram patel @ lshtm. ac. uk

 वर्जीनिया बेरिंड्ज, सेंटर   फ़ोर हिस्टरि ईन पब्लिक हेल्थ, लंदन स्कूल ऑफ़ हईजिन अंड   ट्रॉपिकल मेडिसिन, केपेल स्ट्रीट, WC1R 7HT, ब्रिटेन.

 ईमेल: virginia. berridge @ lshtm. ac.uk

इस फार्म के उद्देश्य रिसर्च पर्पस के लिए आपके इंटरव्यू का उपयोग करने के लिए अनुमति के लिए . कृपया अपनी इच्छा के अनुसार हिस फार्म को भरिये.

मैं कम और मध्यम आय वाले देशों में मानसिक स्वास्थ्य देखभाल के क्षेत्र में गैर विशेषज्ञ स्वास्थ्य कार्यकर्ताओं की भूमिका पर एक अध्ययन में भाग लेने के लिए आमंत्रित किया गया है. मैं पूर्वगामी जानकारी पढ़ा है, या यह मेरे लिए पढ़ा है. मैं इसके बारे में सवाल और मैं अपनी संतुष्टि के लिए उतर दिया गया है कहा है कोई प्रश्न पूछने के अवसर पड़ा है. मैं स्वेच्छा से इस अध्ययन में एक भागीदार बनने के लिए सहमति और समझते हैं कि मैं परिणाम के बिना किसी भी समय साक्षात्कार से वापस लेने का अधिकार है.

मैं मानता / मानती हूँ कि रिसर्चर को इंटरव्यू टेप करने की अनुमति दी है.   [   ]

मैं मानता / मानती हूँ कि इसके बारे में रिपोर्ट में इंटरव्यू   से उत्पन्न हुवा उद्धरण (quotes) के साथ   नाम इस्तेमाल करने के लिए सहमत हैं   [   ]

मैं नाम उद्धरण (named quotes) के पुब्लीकेशन से पहले कंस्ल्ट किया जाना चाहता हूँ   [   ]

मैं इसके बारे में रिपोर्ट में उद्धरण (quotes) के लिए इस्तेमाल किया गुमनाम(anonymously) चाहता हूँ [   ]

मैं उद्धरण या अन्य अध्ययन के बारे में कोई रिपोर्ट में भी गुमनाम शामिल अध्ययन में मेरी भागीदारी(participation) से उत्पन्न होने वाले परिणाम के लिए सहमत नहीं   [   ]

संग्रह करना:

मैं एक भविष्य की तारीख में संग्रहीत किया जा रहा मेरे इंटरव्यू के एक प्रतिलेख(archived) के लिए सहमत हूँ.   [   ]

मैं मेरा इंटरव्यू की ऑडियो रिकॉर्डिंग(अदियों रेकर्डिंग) एक भविष्य की तारीख में संग्रहीत करने के लिए सहमत हू.   [   ]

मैं संग्रहीत प्रतिलेख(archived) मेरे नाम के साथ लेबल की इच्छा नहीं हे   [   ]

पर्टिसिपेंट का नाम: _____**सई**: _____ **दिनांक**: _____

इंटेर्वुवेरका स्टेट्मेंट

मैं, अधोहस्ताक्षरी, परिभाषित और एक भाषा में स्वयंसेवक समझाया कि वह / वे का पालन किया जाना प्रक्रियाओं और साक्षात्कारकर्ता के दायित्वों को समझता है.

_____

इंटेर्वुवेरका(साक्षात्कारकर्ता) का नाम:1)_____ **2)**_____

सैण्ड: _____

 दिनांक: _____

4f. Kannada information sheets and consent forms
(in-depth and shorter case studies)

ಪ್ರಜ್ಞಾಪೂರ್ವಕ ಅನುಮತಿಗಾಗಿ ಮಾಹಿತಿ ಪತ್ರ : ಪ್ರಸಂಗ ಅಧ್ಯಯನಗಳು

ಕಡಿಮೆ ಹಾಗೂ ಮಧ್ಯಮ ಆದಾಯವಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ತಜ್ಞೇತರರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಪಾತ್ರಗಳು

ಪ್ರಧಾನ ಸಂಶೋಧಕರು

ಡಾ|| ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್, ಪೋಷಕಾಂಶ ಹಾಗೂ ಸಾರ್ವಜನಿಕ ಆರೋಗ್ಯ ಮಧ್ಯಸ್ಥಿಕೆಯ ಸಂಶೋಧನಾ ಘಟಕ, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯುಸಿ1ಆರ್7ಎಚ್ಟಿ.
ದೂ: +44 (0)7986107976, ಅಥವಾ +91 966 3534 685, ಫ್ಯಾಕ್ಸ್: +44 (0)207 958 8111;
ಈ-ಮೇಲ್: nadja.vanginneken#lshtm.ac.uk

ಸಹ-ಸಂಶೋಧಕರು

ಪ್ರೊ. ವಿಕ್ರಮ್ ಪಟೇಲ್, ಪ್ರೊಫೆಸರ್ – ಇಂಟರ್ನ್ಯಾಷನಲ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್, ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ಸ್ಟ್ರೀಟ್, ಡಬ್ಲ್ಯುಸಿ1ಆರ್7ಎಚ್ಟಿ. ಈ-ಮೇಲ್: vikram.patel@lshtm.ac.uk

ಪ್ರೊ. ವರ್ಜೀನಿಯಾ ಬೆರ್ರಿಡ್ಜ್, ಸೆಂಟರ್ ಫಾರ್ ಹಿಸ್ಟರಿ ಇನ್ ಪಬ್ಲಿಕ್ ಹೆಲ್ತ್, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯುಸಿ1ಆರ್7ಎಚ್ಟಿ, ಯುಕೆ. ಈ-ಮೇಲ್: Virginia.berridge@lshtm.ac.uk

ಈ ಅಧ್ಯಯನವನ್ನು ಏಕೆ ನಡೆಸಲಾಗುತ್ತಿದೆ?

ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್ ಎಂಬ ನಾನು, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಯು.ಕೆ.ಯಲ್ಲಿ ಸಂಶೋಧನೆ ಪದವಿಯ ವಿದ್ಯಾರ್ಥಿನಿ ಹಾಗೂ ಭಾರತದಲ್ಲಿ ಸಮುದಾಯ ಹಾಗೂ ಪ್ರಾಥಮಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಯೋಜನೆ ಕುರಿತಾಗಿ ನಿಮ್ಮನ್ನು ಸಂದರ್ಶಿಸಲು ಇಚ್ಛಿಸುತ್ತೇನೆ.

ಅಭಿವೃದ್ಧಿ ಹೊಂದುತ್ತಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಅಸ್ವಸ್ಥೆಯು ಗಮನಾರ್ಹವಾದ ಹೊರೆಯಾಗಿದೆ. ನುರಿತ ಮಾನಸಿಕ ಆರೋಗ್ಯದ ಸಿಬ್ಬಂದಿಯ (ಮನಃಶಾಸ್ತ್ರಜ್ಞರು, ಮನೋವೈದ್ಯಕೀಯ ನರ್ಸ್‌ಗಳು/ಸಾಮಾಜಿಕ ಕಾರ್ಯಕರ್ತರು) ಕೊರತೆ ಹಾಗೂ ಅವರ ಹಂಚುವಿಕೆಯಲ್ಲಿನ ಅಸಮಾನತೆಗಳ ಕಾರಣದಿಂದ, ಅವರಿಗೆ ಅಗತ್ಯವಾದ ಚಿಕಿತ್ಸೆಯು ಅನೇಕ ಜನರಿಗೆ ದೊರೆಯುತ್ತಿಲ್ಲ. ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಪೂರೈಕೆಯ ಕಾರ್ಯಗಳನ್ನು ತಜ್ಞೇತರರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರಿಗೆ (ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯುಗಳು) ವರ್ಗಾಯಿಸುವ ಮೂಲಕ (ವೃತ್ತಿಪರರು – ಪ್ರಾಥಮಿಕ ಆರೋಗ್ಯ ವೈದ್ಯರು / ನರ್ಸ್‌ಗಳು – ಹಾಗೂ ತಜ್ಞೇತರರಲ್ಲದ ವೃತ್ತಿಪರರು – ಸಮುದಾಯ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರು) ಅದನ್ನು ಸುಧಾರಿಸಲು ಸಾಧ್ಯವೆಂದು ಪ್ರಾರಂಭಿಕ ಸಂಶೋಧನೆಯು ಒದಗಿಸಿದ ಕೆಲವು ಸಾಕ್ಷ್ಯಾಧಾರಗಳ ಮೇಲೆ ತಿಳಿದು ಬಂದಿದೆ.

1970ರ ದಶಕದಿಂದ, ಭಾರತವು ಸಮುದಾಯ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಸೇವೆಗಳ ಮುಂಚೂಣಿಯಲ್ಲಿದೆ, ಆದರೆ ಇಲ್ಲಿಯತನಕ ಸೀಮಿತ ಯಶಸ್ಸನ್ನು ಕಂಡಿದೆ. ಇಂದಿನ ಬಗ್ಗೆ ಹೆಚ್ಚು ತಿಳಿದುಕೊಳ್ಳಲು, ಹಿಂದಿನ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಳ್ಳುವುದು ಅಗತ್ಯ. ಭಾರತ ಹಾಗೂ ಇತರ ಅಗ್ಗ-ಹಾಗೂ-ಮಧ್ಯಮ ಆದಾಯದ ದೇಶಗಳಲ್ಲಿ (ಎಲ್‌ಎಮ್‌ಐಸಿಗಳು), ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯುಗಳ ಹಿಂದಿನ ಹಾಗೂ ಇಂದಿನ ಸಾಧನೆಗಳು, ಸೋಲುಗಳು ಹಾಗೂ ಪಾತ್ರಗಳನ್ನು ತಿಳಿದುಕೊಂಡಾಗ, ಸಮುದಾಯ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಸೇವೆಗಳನ್ನು ಪರಿಣಾಮಕಾರಿಯಾಗಿ ಅನುಷ್ಠಾನಗೊಳಿಸಿ ಹಾಗೂ ವಿಸ್ತರಿಸುವುದು ಹೇಗೆಂಬುದನ್ನು ಕಾರ್ಯನೀತಿ ನಿರೂಪಕರಿಗೆ ತಿಳಿಸುತ್ತದೆ.

ಭಾರತದಲ್ಲಿ ಸಮುದಾಯ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ಎಸ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯುಗಳ ಪಾತ್ರಗಳ ಚರಿತ್ರೆಯನ್ನು ಕಂಡುಕೊಳ್ಳುವುದು ಈ ಯೋಜನೆಯ ಉದ್ದೇಶವಾಗಿದೆ. ಎಸ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯುಗಳ ಪ್ರಸ್ತುತ ಪಾತ್ರಗಳನ್ನುವಿವರಿಸುವ ಉದ್ದೇಶವನ್ನೂಈ ಯೋಜನೆಯು ಹೊಂದಿದೆ. ಎಲ್‌ಎಮ್‌ಐಸಿಗಳಲ್ಲಿ ಕಾರ್ಯನೀತಿಗಳ ಅಭಿವೃದ್ಧಿಯಲ್ಲಿ ತಜ್ಞೇತರರ ಪಾತ್ರಗಳ ಸ್ವೀಕರಾರ್ಹತೆ ಹಾಗೂ ಸಾಧ್ಯತೆಯನ್ನು ಕಂಡುಕೊಳ್ಳಲು, ಪ್ರಮುಖ ಅಂತರರಾಷ್ಟ್ರೀಯ ಹಾಗೂ ಭಾರತೀಯ ಮಧ್ಯಸ್ಥಗಾರರೊಡನೆ ಯೋಜಿಸಲಾದ ಅಂತಿಮ ಕಾರ್ಯಾಗಾರದಲ್ಲಿ ಪರಿಶೀಲನೆ ಮಾಡಲಾಗುತ್ತದೆ.

ಈ ಜನಾಂಗ ವಿವರಣೆಯ ಪ್ರಸಂಗ ಅಧ್ಯಯನದಲ್ಲಿ ಅಡಕವಾಗಿರುವ ಅಂಶಗಳು ಯಾವುವು?
ನಿಮ್ಮನ್ನುಸಂದರ್ಶಿಸಲು ನಿಮ್ಮ ಅನುಮತಿಯನ್ನುನಾವು ಕೋರುತ್ತೇವೆ, ಆದರೆ ನೀವು ಪಾಲ್ಗೊಳ್ಳಬೇಕೆಂಬ ಯಾವುದೇ ಕಟ್ಟುಪಾಡು ಇಲ್ಲ. ನಿಮ್ಮನ್ನು ಕೇಳಬಹುದಾದ ಪ್ರಶ್ನೆಗಳ ವಿಧಾನಗಳ ರೂಪರೇಷೆಯನ್ನುಕೆಳಗೆ ನೀಡಲಾಗಿದೆ:

ಜನಾಂಗೀಯ ಗಮನಿಕೆಗಳು ಕೆಳಕಂಡ ಷಯಗಳನು ಅಳವಡಿಸಿಕೊಂಡಿದ:
1. ಪ್ರಸ್ತುತ ಸ್ಥಾನಮಾನ (ಫಲಾನುಭಗಳು ಯಾರು, ವ್ಯವಸ್ಥಾತ್ಮಕ ರಚನೆ, ಸೇವೆ ಪಡೆಯುವ ಜನಸಂಖ್ಯೆ);
2. ಪ್ರಸ್ತುತ ಲಭ್ಯರುವ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಸೇವೆಗಳ ಸ್ವರೂಪವೇನು (ಸೇವೆಯ ಗುಣಮಟ್ಟವೂ ಸೇರಿದಂತೆ);
3. ಜಾರಿಯಲ್ಲಿರುವ ಗುರಿಗಳು, ವಿವಿಧಾಚರಣೆಗಳು ಹಾಗೂ ಕಾರ್ಯಸೂಚಿಗಳೊಂದಿಗೆ ಇದರ ಸಂಬಂಧ;
4. ನಿಮ್ಮ ಸ್ಥಾಪನೆಯಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಹಾಗೂ ಇತರ ಕಾರ್ಯಗಳು ನಿರ್ವಹಣೆ ಆಗುವ ಬಗೆ;
5. ಆರೋಗ್ಯ ಆರೈಕೆ ಸಲ್ಲಿಸುವಿಕೆಯಲ್ಲಿ, ನಿಮ್ಮ ಹಾಗೂ ನಿಮ್ಮ ಸಂಸ್ಥೆಯ ವ್ಯಾಪ್ತಿಗೆ ಒಳಪಡಿಸುವ ಅಂಶಗಳು ಎಷ್ಟಿವೆ (ಅಂದರೆ ಸಮರ್ಥನೆ, ರಾಜಕೀಯ ತೊಡಗುವಿಕೆ, ಜೀವನೋಪಾಯ ಕಾರ್ಯಕ್ರಮಗಳು ಅಥವಾ ಸಾಮಾಜಿಕ ಪ್ರಯೋಜನಗಳಲ್ಲಿ ತೊಡಗುವಿಕೆ);
6. ಔಷಧ ಸರಬರಾಜು ಹಾಗೂ ಬಳಕೆ;
7. ಮಾನವ ಸಂಪನ್ಮೂಲಗಳ ಗುಣಲಕ್ಷಣಗಳು ಹಾಗೂ ಅವು ಮಾಡುವುದೇನು;
8. ಭೌತಿಕ ಅಡಿರಚನೆ ಹಾಗೂ ಸಂಚಾರ ವ್ಯವಸ್ಥೆಯ ಸೂಕ್ತತೆ;

a. ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಜನಾಂಗೀಯ ಸಂದರ್ಶನಗಳಲ್ಲಿ ಕಂಡುಕೊಳ್ಳಬೇಕಾದ ಷಯಗಳು:
1. ಕಾರ್ಯಕ್ರಮದ ಸ್ಥಾಪನೆ ಆದುದು ಯಾವಾಗ? (ಅದರ ಸ್ಥಾಪನೆ ಆದ ದಿನದಿಂದ, ಪ್ರಮುಖ ಸಾಧನಗಳು ಹಾಗೂ ಮೈಲಿಗಲ್ಲುಗಳು; ಮಾನಸಿಕ ಆರೋಗ್ಯದ ಒಳಗೆ ಎಸ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯುಗಳು ಹಾಗೂ ತಜ್ಞರ ಪ್ರಸ್ತುತ ಪಾತ್ರಗಳು ಒಳಗೊಂಡಂತೆ;)
2. ಆರೋಗ್ಯ ವ್ಯವಸ್ಥೆಯ ಒಳಗೆ ನಿಮ್ಮನ್ನುಕುರಿತಾಗಿ ಇರುವ ಇತರ ಪಾತ್ರಗಳು/ಅಪೇಕ್ಷೆಗಳಲ್ಲಿ ನೀವು ಹೇಗೆ ಹೊಂದಿಕೊಳ್ಳುವಿರಿ;
3. ನಿಮ್ಮನೆರವು ಯಾವ ರೀತಿಯದು (ಮೇಲ್ವಿಚಾರಣೆ, ನಡೆಯುತ್ತಿರುವ ತರಬೇತಿ, ಉತ್ತೇಜನಾಕರಣ);
4. ಅವರ ಕಾರ್ಯಕ್ರಮ ಹಾಗೂ ಅದರಾಚೆ, ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಪೂರೈಕೆಗೆ ಇರುವ ಭವಿಷ್ಯವನ್ನುಕುರಿತಾಗಿ ನಿಮ್ಮ ಚಿಂತನೆ ಏನು;

ಈ ಸಂದರ್ಶನಗಳ ಧ್ವನಿಮುದ್ರಣಗಳನ್ನು ವಿಶ್ಲೇಷಣೆಯ ಉದ್ದೇಶಗಳಿಗಾಗಿ ಮಾಡಲಾಗುತ್ತದೆ, ಹಾಗೂ ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸಿನ್ (ಎಲ್‌ಎಸ್‌ಎಚ್‌ಟಿಎಮ್)ನ ನನ್ನ ಮಹಾ ಪ್ರಬಂಧಕ್ಕೆ ವಸ್ತುವಿಷಯವನ್ನುನೀಡಿ, ಸಂಭವನೀಯ ಪ್ರಕಟಣೆಗಳು ಹಾಗೂ ವಿಸ್ತೃತ ಹಂಚಿಕೆಯಲ್ಲಿ ನೆರವಾಗುತ್ತದೆ. ಎಲ್ಲ ಭಾಗಾರ್ಥಿಗಳಿಗೂ ನನ್ನ ಅಂತಿಮ ಪ್ರಬಂಧವನ್ನು ಲಭ್ಯಗೊಳಿಸಲಾಗುತ್ತದೆ.

ನಿಮ್ಮ ತೊಡಗುವಿಕೆ
ಸಂಶೋಧನೆಯ 'ಪ್ರಮುಖ ಮಾಹಿತಿ ನೀಡುವವರು' ನೀವಾಗಲು ಒಪ್ಪುವಿರೆಂದು ನಾನು ಆಶಿಸುತ್ತೇನೆ. ಸಂದರ್ಶನವ ನೀವು ಬಯಸಿದಷ್ಟು ಚಿಕ್ಕದಾಗಿ ಅಥವಾ ದೊಡ್ಡದಾಗಿ ಇರಬಹುದು ಹಾಗೂ ನಿಮಗೆ ಇಚ್ಛೆಯಂತೆ ಆದಷ್ಟುಕಡಿಮೆ ಅಥವಾ ಆದಷ್ಟು ಹೆಚ್ಚುಹೇಳುವ ಹಾಗೂ ಅದರಲ್ಲಿ ನೀವ ಕಸಿವಿಸಿಗೊಳ್ಳದೆ, ಆರಾಮವಾಗಿ ಹೇಳುವ ಸ್ವತಂತ್ರ ನಿಮಗಿದೆ. ಸಾಮಾನ್ಯ ವೈದ್ಯದ ಹಿನ್ನೆಲೆಯಿರುವ ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್ ಎಂಬ ಎಲ್‌ಎಸ್‌ಎಚ್‌ಟಿಎಮ್‌ನ ಪಿಎಚ್.ಡಿ ವಿದ್ಯಾರ್ಥಿನಿ, ಹಾಗೂ/ಅಥವಾ ನೀವು ಕನ್ನಡದಲ್ಲಿ (ಅಥವಾ ಇತರ ಸ್ಥಳೀಯ ಭಾಷೆಯಲ್ಲಿ) ಸಂದರ್ಶನ ನಡೆಯಲು ಬಯಸಿದರೆ, ಭಾರತೀಯ ಸಹ–ಸಂಶೋಧಕರು/ದುಭಾಷಿಗಳು (ಅನುವಾದಕರು) ಈ ಸಂದರ್ಶನವನ್ನು ನಡೆಸುತ್ತಾರೆ.

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುಕೆಯಿಂದ ಬಂದ ಯಾವುದೇ ಹೇಳಿಕೆಗಳು ಪರಿಣಾಮಗಳನ್ನು ನಿಮ್ಮ ಅನುಮತಿ ಇಲ್ಲದೆ,

ಅನಾಮಿಕವಾಗಿಯೂ, ಸೇರಿಸಲಾಗುವುದಿಲ್ಲ. ಸಮ್ಮತಿಯ ಫಾರಂನಲ್ಲಿ ನಿಮ್ಮ ಅನಿಸಿಕೆಗಳನ್ನು ದಯವಿಟ್ಟು ಸೂಚಿಸಿ.

ನಿಮಗೆ ಅನಾಮಿಕತೆಯ ಅಗತ್ಯವಿದ್ದರೆ, ನಿಮ್ಮ ಹೆಸರನ್ನು ನಾವು ಉಲ್ಲೇಖಿಸುವುದಿಲ್ಲ. ಆದರೆ, ಯೋಜನೆಯನ್ನು ಕುರಿತಾಗಿ ಬರೆಯುವಾಗ, ನಿಮ್ಮ ವೃತ್ತಿ–ಸಂಬಂಧಿತ ಸ್ಥಾನಮಾನಗಳಿಂದ ನಿಮ್ಮನ್ನು ಗುರುತಿಸಲಾಗುವುದೇ ಹೊರತು (ಉದಾ: ನರ್ಸ್, ಸ್ವಯಂಸೇವಕ, ವೈದ್ಯ, ಇತ್ಯಾದಿ), ಬೇರೆ ಯಾವ ಗುಣಲಕ್ಷಣಗಳಿಂದಲೂ ಅಲ್ಲ.

ಮಾಹಿತಿಯ ಸಂಗ್ರಹಣೆ

ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್‌ನಲ್ಲಿರುವ ನಮ್ಮ ಕಛೇರಿಯಲ್ಲಿ ಸಂದರ್ಶನದ ಮಾಹಿತಿಯನ್ನು ಕಡತಗಳ ಕಪಾಟಿನಲ್ಲಿ ಬೀಗ ಹಾಕಿ ಇರಿಸಲಾಗುವುದು, ಹಾಗೂ, ಕಂಪ್ಯೂಟರ್‌ನಲ್ಲಿರುವ ವಿಷಯಗಳನ್ನು ಗುಪ್ತಪದದ ಮೂಲಕ ರಕ್ಷಣೆ ಮಾಡಲಾಗುವುದು.

ನೈತಿಕ ಅನುಮತಿ

ಈ ಅಧ್ಯಯನವನ್ನು ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್ ಹಾಗೂ ಭಾರತದ ಸಂಗತ್, ಗೋವಾದವರು ಅನುಮೋದಿಸಿದ್ದು, ಬೆಂಗಳೂರಿನ ಕರ್ನಾಟಕದ ಕುಟುಂಬ ಹಾಗೂ ಮಕ್ಕಳ ಕಲ್ಯಾಣ ಸೇವೆಗಳ ಕಾರ್ಯದರ್ಶಿ ಹಾಗೂ ನಿರ್ದೇಶಕರ ರಾಜ್ಯ ಅನುಮತಿಯನ್ನೂ ಪಡೆದಿದೆ.

ಅನುಮತಿ ಪ್ರಮಾಣಪತ್ರ : ಆಳವಾದ ಸಂದರ್ಶನಗಳು

ಕಡಿಮೆ ಹಾಗೂ ಮಧ್ಯಮ ಆದಾಯವಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ತಜ್ಞೇತರರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಪಾತ್ರಗಳು

ಪ್ರಧಾನ ಸಂಶೋಧಕರು

ಡಾ॥ ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್, ಪೋಷಕಾಂಶ ಹಾಗೂ ಸಾರ್ವಜನಿಕ ಆರೋಗ್ಯ ಮಧ್ಯಸ್ಥಿಕೆಯ ಸಂಶೋಧನಾ ಘಟಕ, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್ಟಿ. ದೂ: +44 (0)7986107976, ಅಥವಾ +91 966 3534 685, ಫ್ಯಾಕ್ಸ್: +44 (0)207 958 8111; ಈ–ಮೇಲ್: nadja.vanginneken#lshtm.ac.uk

ಸಹ-ಸಂಶೋಧಕರು

ಪ್ರೊ. ವಿಕ್ರಮ್ ಪಟೇಲ್, ಪ್ರೊಫೆಸರ್ – ಇಂಟರ್ನ್ಯಾಷನಲ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್, ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ಸ್ಟ್ರೀಟ್, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್ಟಿ. ಈ–ಮೇಲ್: vikram.patel@lshtm.ac.uk

ಪ್ರೊ. ವರ್ಜೀನಿಯಾ ಬೆರಿಡ್ಜ್, ಸೆಂಟರ್ ಫಾರ್ ಹಿಸ್ಟರಿ ಇನ್ ಪಬ್ಲಿಕ್ ಹೆಲ್ತ್, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್ಟಿ, ಯುಕೆ. ಈ–ಮೇಲ್: Virginia.berridge@lshtm.ac.uk

ಸಂಶೋಧನಾ ಉದ್ದೇಶಗಳಿಗಾಗಿ ನಿಮ್ಮ ಸಂದರ್ಶನವನ್ನು ಬಳಸಲು ಅನುಮತಿ ಪಡೆಯುವುದು ಈ ಫಾರಂನ ಉದ್ದೇಶ ನಿಮಗೆ ಬಯಸಿದ ರೀತಿಯಲ್ಲಿ ಈ ಫಾರಂನ್ನು ದಯವಿಟ್ಟು ಭರ್ತಿ ಮಾಡಿ.

ಕಡಿಮೆ ಹಾಗೂ ಮಧ್ಯಮ ಆದಾಯವಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ತಜ್ಞೇತರರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಪಾತ್ರಗಳು ಎಂಬ ಅಧ್ಯಯನದ ಭಾಗವಾಗಲು ನನಗೆ ಆಮಂತ್ರಣ ದೊರೆತಿದೆ. ಮೇಲ್ಕಂಡ ಮಾಹಿತಿಯನ್ನು ನಾನು ಓದಿದ್ದೇನೆ ಅಥವಾ ಅದನ್ನು ನನಗೆ ಓದಿ ಹೇಳಲಾಗಿದೆ. ಅದನ್ನು ಕುರಿತಾಗಿ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳುವ ಅವಕಾಶ ನನಗೆ ದೊರೆತಿದೆ ಹಾಗೂ ನನಗೆ ಸಮಾಧಾನ ಆಗುವ ರೀತಿಯಲ್ಲಿ ನನ್ನ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರ ದೊರೆತಿದೆ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನನ್ನ ಸ್ವ-ಇಷ್ಟೆಯಿಂದ ಸಮ್ಮತಿಯನ್ನು ನೀಡಿದ್ದೇನೆ, ಹಾಗೂ ಯಾವುದೇ ಪರಿಣಾಮಗಳಿಲ್ಲದೆ, ಸಂದರ್ಶನದಿಂದ ಹಿಂದೆ ಸರಿಯಲು ನನಗೆ ಹಕ್ಕಿರುವುದೆಂದು ನಾನು ಅರ್ಥ ಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಸಂಶೋಧಕರು ಸಂದರ್ಶನದ ಧ್ವನಿಮುದ್ರಣ ಮಾಡಲು ನಾನು ಒಪ್ಪಿದ್ದೇನೆ ☐

ಅದನ್ನು ಕುರಿತಾದ ವರದಿಗಳಲ್ಲಿ, ಸಂದರ್ಶನದಿಂದ ನನ್ನನ್ನು ಉಲ್ಲೇಖಿಸುವಾಗ ನನ್ನ ಹೆಸರನ್ನು ಬಳಸಲು ನನ್ನ ಒಪ್ಪಿಗೆ ಇದೆ ☐

ಹೆಸರಿನ ಉಲ್ಲೇಖನಗಳಿಗೆ ಮುನ್ನ ನನ್ನ ಅಭಿಪ್ರಾಯವನ್ನು ಪಡೆಯಬೇಕೆಂದು ನಾನು ಬಯಸುತ್ತೇನೆ ☐

ಅದನ್ನು ಕುರಿತಾದ ವರದಿಗಳಲ್ಲಿ ಉಲ್ಲೇಖನಗಳನ್ನು ಅನಾಮಧೇಯವಾಗಿ ಬಳಸಬೇಕೆಂದು ನಾನು ಇಚ್ಛಿಸುತ್ತೇನೆ ☐

ಅಧ್ಯಯನದ ಬಗೆಗಿನ ಯಾವುದೇ ವರದಿಗಳಲ್ಲಿ, ಅಧ್ಯಯನಗಳಲ್ಲಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯಿಂದ ಮೂಡಿದ ಉಲ್ಲೇಖನಗಳು ಅಥವಾ ಯಾವುದೇ ಫಲಿತಾಂಶಗಳನ್ನು ಅನಾಮಧೇಯವಾಗಿ ಬಳಸುವುದೂ ಕೂಡ ನನಗೆ ಒಪ್ಪಿಗೆ ಇಲ್ಲ ☐

ದಸ್ತಾವೇಜು:

ಭವಿಷ್ಯದ ತಾರೀಖಿನಲ್ಲಿ ನನ್ನ ಸಂದರ್ಶನದ ಪ್ರತಿಲೇಖನದ ದಸ್ತಾವೇಜನ್ನು ಮಾಡಲು ನಾನು ಒಪ್ಪುತ್ತೇನೆ ☐

ಭವಿಷ್ಯದ ತಾರೀಖಿನಲ್ಲಿ ನನ್ನ ಸಂದರ್ಶನದ ಧ್ವನಿಮುದ್ರಣವನ್ನು ದಸ್ತಾವೇಜು ಮಾಡಲು ನಾನು ಒಪ್ಪುತ್ತೇನೆ ☐

ದಸ್ತಾವೇಜಾದ ಪ್ರತಿಲೇಖನದ ಮೇಲೆ ನನ್ನ ಹೆಸರನ್ನು ಲಗತ್ತಿಸುವುದು ನನಗೆ ಇಷ್ಟವಿಲ್ಲ ☐

ಭಾಗಾರ್ಥಿಯ ಹೆಸರು:...

ಸಹಿ: ....ದಿನಾಂಕ:...

ಸಂದರ್ಶಕರ ಹೇಳಿಕೆ

ಕೆಳಗೆ ರುಜುಮಾಡಿರುವ ನಾನು, ಸಂದರ್ಶನಕ್ಕೆ ಒಳಗಾಗಲು ಸ್ವ–ಇಚ್ಛೆಯಿಂದ ಸಮ್ಮತಿಸಿದ ವ್ಯಕ್ತಿಗೆ ಆತ/ಆಕೆ ಅರ್ಥ ಮಾಡಿಕೊಳ್ಳುವ ಭಾಷೆಯಲ್ಲಿ ಪಾಲಿಸಬೇಕಾದ ಕ್ರಮಗಳನ್ನು ಹಾಗೂ ಸಂದರ್ಶಕರ ಕರ್ತವ್ಯಗಳನ್ನು ಸ್ಪಷ್ಟೀಕರಿಸಿ, ವಿವರಿಸಿದ್ದೇನೆ

ಸಂದರ್ಶಕರ(ರು)ರ ಹೆಸರು: (1)...

ಸಹಿ:...

ದಿನಾಂಕ:...

ಸಂದರ್ಶಕರ(ರು)ರ ಹೆಸರು: (2)...

ಸಹಿ:...

ದಿನಾಂಕ:...

ಅನುಮತಿ ಪ್ರಮಾಣಪತ್ರ : ಕುಲವಂಶಿಯ ಪ್ರಸಂಗ ಅಧ್ಯಯನಗಳು

ಕಡಿಮೆ ಹಾಗೂ ಮಧ್ಯಮ ಆದಾಯವಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ತಜ್ಞೇತರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಪಾತ್ರಗಳು

ಪ್ರಧಾನ ಸಂಶೋಧಕರು

ಡಾ॥ ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್, ಪೋಷಕಾಂಶ ಹಾಗೂ ಸಾರ್ವಜನಿಕ ಆರೋಗ್ಯ ಮಧ್ಯಸ್ಥಿಕೆಯ ಸಂಶೋಧನಾ ಘಟಕ, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್‌ಟಿ. ದೂ: +44 (0)7986107976, ಅಥವಾ +91 966 3534 685, ಫ್ಯಾಕ್ಸ್: +44 (0)207 958 8111; ಈ-ಮೇಲ್ : nadja.vanginneken#lshtm.ac.uk

ಸಹ-ಸಂಶೋಧಕರು

ಪ್ರೊ. ವಿಕ್ರಮ್ ಪಟೇಲ್, ಪ್ರೊಫೆಸರ್ – ಇಂಟರ್‌ನ್ಯಾಷನಲ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್, ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ಸ್ಟ್ರೀಟ್, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್‌ಟಿ. ಈ-ಮೇಲ್: vikram.patel@lshtm.ac.uk

ಪ್ರೊ. ವರ್ಜೀನಿಯಾ ಬೆರ್ರಿಡ್ಜ್, ಸೆಂಟರ್ ಫಾರ್ ಹಿಸ್ಟ್ರಿ ಇನ್ ಪಬ್ಲಿಕ್ ಹೆಲ್ತ್, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್‌ಟಿ, ಯುಕೆ. ಈ-ಮೇಲ್: Virginia.berridge@lshtm.ac.uk

ಸಂಶೋಧನಾ ಉದ್ದೇಶಗಳಿಗಾಗಿ ನಿಮ್ಮ ಸಂದರ್ಶನವನ್ನು ಬಳಸಲು ಅನುಮತಿ ಪಡೆಯುವುದು ಈ ಫಾರಂನ ಉದ್ದೇಶ ನಿಮಗೆ ಬಯಸಿದ ರೀತಿಯಲ್ಲಿ ಈ ಫಾರಂನ್ನು ದಯವಿಟ್ಟು ಭರ್ತಿ ಮಾಡಿ.

ಕಡಿಮೆ ಹಾಗೂ ಮಧ್ಯಮ ಆದಾಯವಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ತಜ್ಞೇತರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಪಾತ್ರಗಳು ಎಂಬ ಅಧ್ಯಯನದ ಭಾಗವಾಗಲು ನನಗೆ ಆಮಂತ್ರಣ ದೊರೆತಿದೆ. ಮೇಲ್ಕಂಡ ಮಾಹಿತಿಯನ್ನು ನಾನು ಓದಿದ್ದೇನೆ ಅಥವಾ ಅದನ್ನು ನನಗೆ ಓದಿ ಹೇಳಲಾಗಿದೆ. ಅದನ್ನು ಕುರಿತಾಗಿ ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳುವ ಅವಕಾಶ ನನಗೆ ದೊರೆತಿದೆ ಹಾಗೂ ನನ್ನಗೆ ಸಮಾಧಾನ ಆಗುವ ರೀತಿಯಲ್ಲಿ ನನ್ನ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರ ದೊರೆತಿದೆ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನನ್ನ ಸ್ವ-ಇಷ್ಟೆಯಿಂದ ಸಮ್ಮತಿಯನ್ನು ನೀಡಿದ್ದೇನೆ, ಹಾಗೂ ಯಾವುದೇ ಪರಿಣಾಮಗಳಿಲ್ಲದೆ, ಸಂದರ್ಶನದಿಂದ ಹಿಂದೆ ಸರಿಯಲು ನನಗೆ ಹಕ್ಕಿರುವುದೆಂದು ನಾನು ಅರ್ಥ ಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಸಂಶೋಧಕರು ಸಂದರ್ಶನದ ಧ್ವನಿಮುದ್ರಣ ಮಾಡಲು ನಾನು ಒಪ್ಪಿದ್ದೇನೆ ☐

ಅದನ್ನು ಕುರಿತಾದ ವರದಿಗಳಲ್ಲಿ, ಸಂದರ್ಶನದಿಂದ ನನ್ನನ್ನು ಉಲ್ಲೇಖಿಸುವಾಗ ನನ್ನ ಹೆಸರನ್ನು ಬಳಸಲು ನನ್ನ ಒಪ್ಪಿಗೆ ಇದೆ ☐

ಹೆಸರಿನ ಉಲ್ಲೇಖನಗಳಿಗೆ ಮುನ್ನ ನನ್ನ ಅಭಿಪ್ರಾಯವನ್ನು ಪಡೆಯಬೇಕೆಂದು ನಾನು ಬಯಸುತ್ತೇನೆ ☐

ಅದನ್ನು ಕುರಿತಾದ ವರದಿಗಳಲ್ಲಿ ಉಲ್ಲೇಖನಗಳನ್ನು ಅನಾಮಧೇಯವಾಗಿ ಬಳಸಬೇಕೆಂದು ನಾನು ಇಚ್ಛಿಸುತ್ತೇನೆ ☐

ಅಧ್ಯಯನದ ಬಗೆಗಿನ ಯಾವುದೇ ವರದಿಗಳಲ್ಲಿ, ಅಧ್ಯಯನಗಳಲ್ಲಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯಿಂದ ಮೂಡಿದ ಉಲ್ಲೇಖನಗಳು ಅಥವಾ ಯಾವುದೇ ಫಲಿತಾಂಶಗಳನ್ನು ಅನಾಮಧೇಯವಾಗಿ ಬಳಸುವುದೂ ಕೂಡ ನನಗೆ ಒಪ್ಪಿಗೆ ಇಲ್ಲ ☐

ಭಾಗಾರ್ಥಿಯ ಹೆಸರು:...

ಸಹಿ: ....ದಿನಾಂಕ:...

ಸಂದರ್ಶಕರ ಹೇಳಿಕೆ

ಕೆಳಗೆ ರುಜುಮಾಡಿರುವ ನಾನು, ಸಂದರ್ಶನಕ್ಕೆ ಒಳಗಾಗಲು ಸ್ವ-ಇಚ್ಛೆಯಿಂದ ಸಮ್ಮತಿಸಿದ ವ್ಯಕ್ತಿಗೆ ಆತ/ಆಕೆ ಅರ್ಥ ಮಾಡಿಕೊಳ್ಳುವ ಭಾಷೆಯಲ್ಲಿ ಪಾಲಿಸಬೇಕಾದ ಕ್ರಮಗಳನ್ನು ಹಾಗೂ ಸಂದರ್ಶಕರ ಕರ್ತವ್ಯಗಳನ್ನು ಸ್ಪಷ್ಟೀಕರಿಸಿ, ವಿವರಿಸಿದ್ದೇನೆ

ಸಂದರ್ಶಕರ(ರು)ರ ಹೆಸರು: (1)..

ಸಹಿ:...

ದಿನಾಂಕ:...

ಸಂದರ್ಶಕರ(ರು)ರ ಹೆಸರು: (2)..

ಸಹಿ:...

ದಿನಾಂಕ:...

ಪ್ರಜ್ಞಾಪೂರ್ವಕ ಅನುಮತಿಗಾಗಿ ಮಾಹಿತಿ ಪತ್ರ : ಆಳವಾದ ಸಂದರ್ಶನಗಳು

ಕಡಿಮೆ ಹಾಗೂ ಮಧ್ಯಮ ಆದಾಯವಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ತಜ್ಞೇತರರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಪಾತ್ರಗಳು

ಪ್ರಧಾನ ಸಂಶೋಧಕರು
ಡಾ‖ ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್, ಪೋಷಕಾಂಶ ಹಾಗೂ ಸಾರ್ವಜನಿಕ ಆರೋಗ್ಯ ಮಧ್ಯಸ್ಥಿಯ ಸಂಶೋಧನಾ ಘಟಕ, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್ಟಿ.
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ಈ–ಮೇಲ್: nadja.vanginneken#lshtm.ac.uk

ಸಹ-ಸಂಶೋಧಕರು
ಪ್ರೊ. ವಿಕ್ರಮ್ ಪಟೇಲ್, ಪ್ರೊಫೆಸರ್ – ಇಂಟರ್‌ನ್ಯಾಷನಲ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್, ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ಸ್ಟ್ರೀಟ್, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್ಟಿ. ಈ–ಮೇಲ್: vikram.patel@lshtm.ac.uk

ಪ್ರೊ. ವರ್ಜೀನಿಯಾ ಬೆರ್ರಿಡ್ಜ್, ಸೆಂಟರ್ ಫಾರ್ ಹಿಸ್ಟರಿ ಇನ್ ಪಬ್ಲಿಕ್ ಹೆಲ್ತ್, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಕೆಪ್ಪೆಲ್ ರಸ್ತೆ, ಡಬ್ಲ್ಯೂಸಿ1ಆರ್7ಎಚ್ಟಿ, ಯುಕೆ. ಈ–ಮೇಲ್: Virginia.berridge@lshtm.ac.uk

ಈ ಅಧ್ಯಯನವನ್ನು ಏಕೆ ನಡೆಸಲಾಗುತ್ತಿದೆ?

ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್ ಎಂಬ ನಾನು, ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್, ಯು.ಕೆ.ಯಲ್ಲಿ ಸಂಶೋಧನೆ ಪದವಿಯ ವಿದ್ಯಾರ್ಥಿನಿ ಹಾಗೂ ಭಾರತದಲ್ಲಿ ಸಮುದಾಯ ಹಾಗೂ ಪ್ರಾಥಮಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಯೋಜನೆ ಕುರಿತಾಗಿ ನಿಮ್ಮನ್ನು ಸಂದರ್ಶಿಸಲು ಇಚ್ಛಿಸುತ್ತೇನೆ.

ಅಭಿವೃದ್ಧಿ ಹೊಂದುತ್ತಿರುವ ದೇಶಗಳಲ್ಲಿ ಮಾನಸಿಕ ಅಸ್ವಸ್ಥೆಯು ಗಮನಾರ್ಹವಾದ ಹೊರೆಯಾಗಿದೆ. ನುರಿತ ಮಾನಸಿಕ ಆರೋಗ್ಯದ ಸಿಬ್ಬಂದಿಯ (ಮನಃಶಾಸ್ತ್ರಜ್ಞರು, ಮನೋವೈದ್ಯಕೀಯ ನರ್ಸ್‌ಗಳು/ಸಾಮಾಜಿಕ ಕಾರ್ಯಕರ್ತರು) ಕೊರತೆ ಹಾಗೂ ಅವರ ಹಂಚುವಿಕೆಯಲ್ಲಿನ ಅಸಮಾನತೆಗಳ ಕಾರಣದಿಂದ, ಅವರಿಗೆ ಅಗತ್ಯವಾದ ಚಿಕಿತ್ಸೆಯು ಅನೇಕ ಜನರಿಗೆ ದೊರೆಯುತ್ತಿಲ್ಲ. ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಪೂರೈಕೆಯ ಕಾರ್ಯಗಳನ್ನು ತಜ್ಞೇತರರಲ್ಲದ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರಿಗೆ (ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯೂಗಳು) ವರ್ಗಾಯಿಸುವ ಮೂಲಕ (ವೃತ್ತಿಪರರು – ಪ್ರಾಥಮಿಕ ಆರೋಗ್ಯ ವೈದ್ಯರು / ನರ್ಸ್‌ಗಳು – ಹಾಗೂ ತಜ್ಞೇತರರಲ್ಲದ ವೃತ್ತಿಪರರು – ಸಮುದಾಯ ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರು) ಆದನ್ನು ಸುಧಾರಿಸಲು ಸಾಧ್ಯವೆಂದು ಪ್ರಾರಂಭಿಕ ಸಂಶೋಧನೆಯು ಒದಗಿಸಿದ ಕೆಲವು ಸಾಕ್ಷ್ಯಾಧಾರಗಳ ಮೇಲೆ ತಿಳಿದು ಬಂದಿದೆ.

1970ರ ದಶಕದಿಂದ, ಭಾರತವು ಸಮುದಾಯ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಸೇವೆಗಳ ಮುಂಚೂಣಿಯಲ್ಲಿದೆ, ಆದರೆ ಇಲ್ಲಿಯತನಕ ಸೀಮಿತ ಯಶಸ್ಸನ್ನು ಕಂಡಿದೆ. ಇಂದಿನ ಬಗ್ಗೆ ಹೆಚ್ಚುತಿಳಿದುಕೊಳ್ಳಲು, ಹಿಂದಿನ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಳ್ಳುವುದು ಅಗತ್ಯ. ಭಾರತ ಹಾಗೂ ಇತರ ಅಗ್ಗ–ಹಾಗೂ–ಮಧ್ಯಮ ಆದಾಯದ ದೇಶಗಳಲ್ಲಿ (ಎಲ್‌ಎಮ್‌ಐಸಿಗಳು), ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯೂಗಳ ಹಿಂದಿನ ಹಾಗೂ ಇಂದಿನ ಸಾಧನೆಗಳು, ಸೋಲುಗಳು ಹಾಗೂ ಪಾತ್ರಗಳನ್ನು ತಿಳಿದುಕೊಂಡಾಗ, ಸಮುದಾಯ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಸೇವೆಗಳನ್ನು ಪರಿಣಾಮಕಾರಿಯಾಗಿ ಅನುಷ್ಠಾನಗೊಳಿಸಿ ಹಾಗೂ ವಿಸ್ತರಿಸುವುದು ಹೇಗೆಂಬುದನ್ನು ಕಾರ್ಯನೀತಿ ನಿರೂಪಕರಿಗೆ ತಿಳಿಸುತ್ತದೆ.

ಭಾರತದಲ್ಲಿ ಸಮುದಾಯ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯಲ್ಲಿ ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯೂಗಳ ಪಾತ್ರಗಳ ಚರಿತ್ರೆಯನ್ನು ಕಂಡುಕೊಳ್ಳುವುದು ಈ ಯೋಜನೆಯ ಉದ್ದೇಶವಾಗಿದೆ. ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯೂಗಳ ಪ್ರಸ್ತುತ ಪಾತ್ರಗಳನ್ನು ವಿವರಿಸುವ ಉದ್ದೇಶವನ್ನೂ ಈ ಯೋಜನೆಯು ಹೊಂದಿದೆ. ಎಲ್‌ಎಮ್‌ಐಸಿಗಳಲ್ಲಿ ಕಾರ್ಯನೀತಿಗಳ ಅಭಿವೃದ್ಧಿಯಲ್ಲಿ ತಜ್ಞೇತರರ ಪಾತ್ರಗಳ ಸ್ವೀಕಾರಾರ್ಹತೆ ಹಾಗೂ ಸಾಧ್ಯತೆಯನ್ನು ಕಂಡುಕೊಳ್ಳಲು, ಪ್ರಮುಖ ಅಂತರರಾಷ್ಟ್ರೀಯ ಹಾಗೂ ಭಾರತೀಯ ಮಧ್ಯಸ್ಥಗಾರರೊಡನೆ ಯೋಜಿಸಲಾದ ಅಂತಿಮ ಕಾರ್ಯಾಗಾರದಲ್ಲಿ ಪರಿಶೀಲನೆ ಮಾಡಲಾಗುತ್ತದೆ.

ಈ ಜನಾಂಗ ವಿವರಣೆಯ ಪ್ರಸಂಗ ಅಧ್ಯಯನದಲ್ಲಿ ಅಡಕವಾಗಿರುವ ಅಂಶಗಳು ಯಾವುವು?

ನಿಮ್ಮನ್ನು ಸಂದರ್ಶಿಸಲು ನಿಮ್ಮ ಅನುಮತಿಯನ್ನು ನಾವು ಕೋರುತ್ತೇವೆ, ಆದರೆ ನೀವು ಪಾಲ್ಗೊಳ್ಳಬೇಕೆಂಬ ಯಾವುದೇ ಕಟ್ಟುಪಾಡು ಇಲ್ಲ. ನಿಮ್ಮನ್ನು ಕೇಳಬಹುದಾದ ಪ್ರಶ್ನೆಗಳ ವಿಧಾನಗಳ ರೂಪರೇಷೆಯನ್ನು ಕೆಳಗೆ ನೀಡಲಾಗಿದೆ:

ಜನಾಂಗೀಯ ಗಮನಿಕೆಗಳು ಕೆಳಕಂಡ ಷಯಗಳನು ಅಳವಡಿಸಿಕೊಂಡಿದ:

1. ಪ್ರಸ್ತುತ ಸ್ಥಾನಮಾನ (ಫಲಾನುಭಗಳು ಯಾರು, ವ್ಯವಸ್ಥಾತ್ಮಕ ರಚನೆ, ಸೇವೆ ಪಡೆಯುವ ಜನಸಂಖ್ಯೆ);

2. ಪ್ರಸ್ತುತ ಲಭ್ಯರುವ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಸೇವೆಗಳ ಸ್ವರೂಪವೇನು (ಸೇವೆಯ ಗುಣಮಟ್ಟವೂ ಸೇರಿದಂತೆ);

3. ಜಾರಿಯಲ್ಲಿರುವ ಗುರಿಗಳು, ವಿವಿಧಾಚರಣೆಗಳು ಹಾಗೂ ಕಾರ್ಯಸೂಚಿಗಳೊಂದಿಗೆ ಇದರ ಸಂಬಂಧ;

4. ನಿಮ್ಮ ಸ್ಥಾಪನೆಯಲ್ಲಿ ಮಾನಸಿಕ ಆರೋಗ್ಯ ಹಾಗೂ ಇತರ ಕಾರ್ಯಗಳು ನಿರ್ವಹಣೆ ಆಗುವ ಬಗೆ;

5. ಆರೋಗ್ಯ ಆರೈಕೆ ಸಲ್ಲಿಸುವಿಕೆಯಲ್ಲಿ, ನಿಮ್ಮ ಹಾಗೂ ನಿಮ್ಮ ಸಂಸ್ಥೆಯ ವ್ಯಾಪ್ತಿಗೆ ಒಳಪಡಿಸುವ ಅಂಶಗಳು ಎಷ್ಟಿವೆ (ಅಂದರೆ ಸಮರ್ಥನೆ, ರಾಜಕೀಯ ತೊಡಗುವಿಕೆ, ಜೀವನೋಪಾಯ ಕಾರ್ಯಕ್ರಮಗಳು ಅಥವಾ ಸಾಮಾಜಿಕ ಪ್ರಯೋಜನಗಳಲ್ಲಿ ತೊಡಗುವಿಕೆ);

6. ಔಷಧ ಸರಬರಾಜು ಹಾಗೂ ಬಳಕೆ;

7. ಮಾನವ ಸಂಪನ್ಮೂಲಗಳ ಗುಣಲಕ್ಷಣಗಳು ಹಾಗೂ ಅವು ಮಾಡುವುದೇನು;

8. ಭೌತಿಕ ಅಡಿರಚನೆ ಹಾಗೂ ಸಂಚಾರ ವ್ಯವಸ್ಥೆಯ ಸೂಕ್ತತೆ;

a. ಆರೋಗ್ಯ ಕಾರ್ಯಕರ್ತರ ಜನಾಂಗೀಯ ಸಂದರ್ಶನಗಳಲ್ಲಿ ಕಂಡುಕೊಳ್ಳಬೇಕಾದ ಷಯಗಳು:

1. ಕಾರ್ಯಕ್ರಮದ ಸ್ಥಾಪನೆ ಆದುದು ಯಾವಾಗ? (ಅದರ ಸ್ಥಾಪನೆ ಆದ ದಿನದಿಂದ, ಪ್ರಮುಖ ಸಾಧನಗಳು ಹಾಗೂ ಮೈಲಿಗಲ್ಲುಗಳು; ಮಾನಸಿಕ ಆರೋಗ್ಯದ ಒಳಗೆ ಎನ್‌ಎಸ್‌ಎಚ್‌ಡಬ್ಲ್ಯೂಗಳು ಹಾಗೂ ತಜ್ಞರ ಪ್ರಸ್ತುತ ಪಾತ್ರಗಳು ಒಳಗೊಂಡಂತೆ;)

2. ಆರೋಗ್ಯ ವ್ಯವಸ್ಥೆಯ ಒಳಗೆ ನಿಮ್ಮನ್ನು ಕುರಿತಾಗಿ ಇರುವ ಇತರ ಪಾತ್ರಗಳು/ಅಪೇಕ್ಷೆಗಳಲ್ಲಿ ನೀವು ಹೇಗೆ ಹೊಂದಿಕೊಳ್ಳುವಿರಿ;

3. ನಿಮ್ಮ ನೆರವು ಯಾವ ರೀತಿಯದು (ಮೇಲ್ವಿಚಾರಣೆ, ನಡೆಯುತ್ತಿರುವ ತರಬೇತಿ, ಉತ್ತೇಜನಾಕರಣ);

4. ಅವರ ಕಾರ್ಯಕ್ರಮ ಹಾಗೂ ಅದರಾಚೆ, ಮಾನಸಿಕ ಆರೋಗ್ಯ ಆರೈಕೆಯ ಪೂರೈಕೆಗೆ ಇರುವ ಭವಿಷ್ಯವನ್ನು ಕುರಿತಾಗಿ ನಿಮ್ಮ ಚಿಂತನೆ ಏನು;

ಈ ಸಂದರ್ಶನಗಳ ಧ್ವನಿಮುದ್ರೆಗಳನ್ನು ವಿಶ್ಲೇಷಣೆಯ ಉದ್ದೇಶಗಳಿಗಾಗಿ ಮಾಡಲಾಗುತ್ತದೆ, ಹಾಗೂ ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್ (ಎಲ್‌ಎಸ್‌ಎಚ್‌ಟಿಎಮ್)ನ ನನ್ನ ಮಹಾ ಪ್ರಬಂಧಕ್ಕೆ ವಸ್ತುವಿಷಯವನ್ನು ನೀಡಿ, ಸಂಭವನೀಯ ಪ್ರಕಟಣೆಗಳು ಹಾಗೂ ವಿಸ್ತೃತ ಹಂಚಿಕೆಯಲ್ಲಿ ನೆರವಾಗುತ್ತದೆ. ಎಲ್ಲ ಭಾಗಾರ್ಥಿಗಳಿಗೂ ನನ್ನ ಅಂತಿಮ ಪ್ರಬಂಧವನ್ನು ಲಭ್ಯಗೊಳಿಸಲಾಗುತ್ತದೆ.

ನಿಮ್ಮ ತೊಡಗುವಿಕೆ

ಸಂಶೋಧನೆಯ 'ಪ್ರಮುಖ ಮಾಹಿತಿ ನೀಡುವವರು' ನೀವಾಗಲು ಒಪ್ಪುವಿರೆಂದು ನಾನು ಆಶಿಸುತ್ತೇನೆ. ಸಂದರ್ಶನವು ನೀವು ಬಯಸಿದಷ್ಟು ಚಿಕ್ಕದಾಗಿ ಅಥವಾ ದೊಡ್ಡದಾಗಿ ಇರಬಹುದು ಹಾಗೂ ನಿಮಗೆ ಇಚ್ಛೆಯಂತೆ ಆದಷ್ಟೂ ಕಡಿಮೆ ಅಥವಾ ಆದಷ್ಟೂ ಹೆಚ್ಚು ಹೇಳುವ ಹಾಗೂ ಅದರಲ್ಲಿ ನೀವು ಕಸಿವಿಸಿಗೊಳ್ಳದೆ, ಆರಾಮವಾಗಿ ಹೇಳುವ ಸ್ವತಂತ್ರ ನಿಮಗಿದೆ. ಸಾಮಾನ್ಯ ವೈದ್ಯರ ಹಿನ್ನೆಲೆಯಿರುವ ನಾಡ್ಯ ವಾನ್ ಗಿನ್ನೆಕೆನ್ ಎಂಬ ಎಲ್‌ಎಸ್‌ಎಚ್‌ಟಿಎಮ್‌ನ ಪಿಹೆಚ್.ಡಿ ವಿದ್ಯಾರ್ಥಿನಿ, ಹಾಗೂ/ಅಥವಾ ನೀವು ಕನ್ನಡದಲ್ಲಿ (ಅಥವಾ ಇತರ ಸ್ಥಳೀಯ ಭಾಷೆಯಲ್ಲಿ) ಸಂದರ್ಶನ ನಡೆಯಲು ಬಯಸಿದರೆ, ಭಾರತೀಯ ಸಹ–ಸಂಶೋಧಕರು/ದುಭಾಷಿಗಳು (ಅನುವಾದಕರು) ಈ ಸಂದರ್ಶನವನ್ನು ನಡೆಸುತ್ತಾರೆ.

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಿಮ್ಮ ಭಾಗವಹಿಸುಕೆಯಿಂದ ಬಂದ ಯಾವುದೇ ಹೇಳಿಕೆಗಳು ಅಥವಾ ಪರಿಣಾಮಗಳನ್ನು ನಿಮ್ಮ ಅನುಮತಿ ಇಲ್ಲದೆ, ಅನಾಮಿಕವಾಗಿಯೂ, ಸೇರಿಸಲಾಗುವುದಿಲ್ಲ. ಸಮ್ಮತಿಯ ಫಾರಂನಲ್ಲಿನಿಮ್ಮ ಅನಿಸಿಕೆಗಳನ್ನು ದಯವಿಟ್ಟು ಸೂಚಿಸಿ.

ನಿಮಗೆ ಅನಾಮಿಕತೆಯ ಅಗತ್ಯವಿದ್ದರೆ, ನಿಮ್ಮ ಹೆಸರನ್ನು ನಾವು ಉಲ್ಲೇಖಿಸುವುದಿಲ್ಲ. ಆದರೆ, ಯೋಜನೆಯನ್ನುಕುರಿತಾಗಿ ಬರೆಯುವಾಗ, ನಿಮ್ಮ ವೃತ್ತಿ–ಸಂಬಂಧಿತ ಸ್ಥಾನಮಾನಗಳಿಂದ ನಿಮ್ಮನ್ನು ಗುರುತಿಸಲಾಗುವುದೇ ಹೊರತು (ಉದಾ: ನರ್ಸ್, ಸ್ವಯಂಸೇವಕ, ವೈದ್ಯ, ಇತ್ಯಾದಿ), ಬೇರೆ ಯಾವ ಗುಣಲಕ್ಷಣಗಳಿಂದಲೂ ಅಲ್ಲ.

ಮಾಹಿತಿಯ ಸಂಗ್ರಹಣೆ

ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್‌ನಲ್ಲಿರುವ ನಮ್ಮ ಕಛೇರಿಯಲ್ಲಿ ಸಂದರ್ಶನದ ಮಾಹಿತಿಯನ್ನು ಕಡತಗಳ ಕಪಾಟಿನಲ್ಲಿಬೀಗ ಹಾಕಿ ಇರಿಸಲಾಗುವುದು, ಹಾಗೂ, ಕಂಪ್ಯೂಟರ್‌ನಲ್ಲಿರುವ ವಿಷಯಗಳನ್ನು ಗುಪ್ತಪದದ ಮೂಲಕ ರಕ್ಷಣೆ ಮಾಡಲಾಗುವುದು.

ನೈತಿಕ ಅನುಮತಿ

ಈ ಅಧ್ಯಯನವನ್ನು ಲಂಡನ್ ಸ್ಕೂಲ್ ಆಫ್ ಹೈಜೀನ್ ಆಂಡ್ ಟ್ರಾಪಿಕಲ್ ಮೆಡಿಸನ್ ಹಾಗೂ ಭಾರತದ ಸಂಗತ್, ಗೋವಾದವರು ಅನುಮೋದಿಸಿದ್ದು, ಬೆಂಗಳೂರಿನ ಕರ್ನಾಟಕದ ಕುಟುಂಬ ಹಾಗೂ ಮಕ್ಕಳ ಕಲ್ಯಾಣ ಸೇವೆಗಳ ಕಾರ್ಯದರ್ಶಿ ಹಾಗೂ ನಿರ್ದೇಶಕರ ರಾಜ್ಯ ಅನುಮತಿಯನ್ನೂಪಡೆದಿದೆ.

Appendix 4g. Data collection tools (in-depth case studies)

1. Questions for interviews/ in conversations

Interviewees	Domains
Founders, managers, NGO headquarters, long term staff	A) **Domain 1 HISTORY OF THE PROGRAM** 1) The program is very interesting and unique so can you present the flashback of this program like when, was the program initiated, why was it developed, for whom and how the program evolved over the period of time. By whom the program was developed? 2) Your understandings of the mental health care program since you are in this program and working for a cause.
Founders managers, all staff	B) **Domain 2: KEY EVENTS** 3) What have been the key milestones in your programme? 4) The problems, the success you have encountered in this situation in delivering mental health. If problems arose what you think could be done to solve these problems. It might be the patients' myth towards mental health or fear, concerns and expectation. 5) Your experiences within this program (obstacles/ difficulties/ sociocultural/ language) 6) What are the major achievements of the program since it began?
NSHWs, NCS, specialists	C) **Domain 3: ENVIRONMENT IN WHICH THE PROGRAM FUNCTIONS** 7) What categories of people come to you? Do wealthy people come to you or do they prefer going to the city? 8) Do people get differential treatment depending on their socioeconomic background? 9) Which community is the majority here? What is their attitude towards the minorities? 10) What are the people's outlooks of coming to you as you belong to a different caste/ religion? Any examples where the patients had an issue because of that reason? 11) What is the major occupation of the people here?
NSHWs Specialists Managers PO (progr.off) Other health providers in locality **Managers/ Founders/? Doctors/**	D) **Domain 4: HEALTH SYSTEM IN WHICH THE PROGRAM FUNCTIONS** 12) What other health providers including MH service providers are there in the area/ at proximity? 13) If people don't come to you for service then whom do they go to? Do you recommend the patients to go to them? 14) How does the NSHW program differ from other mental health provision in the area? 15) How does the mental health service function within the PHC system? 16) What links does it have to regional/national or international health systems?

specialists	17) What links to the spiritual/religious/traditional sector? 18) Is it in competition with any other services (any of the above or other allopaths – private sector, independent pharmacies etc) 19) What kind of other health service is available in the area? How many centres are there? Does it have facilities for major operations?
Founders/ coordinators/ NSHWs	E) **Domain 5: PROGRAM CONCEPTUAL FRAMEWORK**[3] 20) What do feel is the main vision/ focus of this programme? 21) What is your evaluation procedure? Do the government or anyone in charge come to evaluate? How do they evaluate? What are the criteria for evaluating? 22) What indicators do you use for evaluation? (activity monitoring or also quality indicators?)
Founders/ coordinators/ doctors	F) **Domain 6: ENGAGEMENT WITH BROADER SYSTEMS** 23) Has the programme been accepted or had any difficulties at political level? 24) Apart from with the health system, does the programme engage with any other systems (social justice, economics, welfare, education, transport etc) 25) Does the programme do any advocacy work at local, national and international levels? Does it have any direct contact with policy makers?

Non-clinical staff (NCS) NSHW Specialists Coordinators	G) **Domain 7: PROGRAM RESOURCES**
	
	Human
	26) How many NSHWs (doctors / nurses/psychologist/social workers/ volunteers) and how many people supporting them (programme officer, psychiatric specialist)?
	    a) In the clinic programme
	    b) Other organisation in the area and proximity
	27) How many and which non-clinical staff are included? (managerial, supporting staff)
	28) Are there enough clinical staff to take care of the number of patients in that locality? Have you had any situation when there were too many patients and you felt the need of having more people in the team? When was that?
	29) In which activities other than delivering mental health does the NSHW involve and eg- in community participation?
	
	Transportation
	30) Is the centre located in the center for all the people coming from nearby villages to visit?
	31) What are the means of transportation?
	32) Is there any bus/van facilities provided by the programme for the other villagers to come here?
	
	Funding
	33) What is the NSHW salary? Any other incentives?

NSHWs	34) What funding do you get for your programme? From whom? (diversity of funding)
Coordinators/	35) Do you believe your support system and financial resources are

doctors **ALL and PO**	adequate?
	H) **Domain 8: PROGRAM MANAGEMENT**
ALL	**Organisational structure** 36) Give the program organogram and who among them are in touch with the mental health patients or family and the major activities/roles. Specify who works at community level and who works in the clinic.
NSHW Specialists NCS Coordinators **NSHWs**	**Delivery/ implementation of the program** 37) How have the staff been selected? (transferred there, community selection, their own personal selection to work here) 38) What training have you had? Have you been on job training? How does this compare to other standard training methods. 39) Are you in your position able to utilise the knowledge and skills acquired during your training? 40) What is your view on your current mental health roles (is it easy or difficult, what is their workload like) 41) Are they able to combine /integrate their mental health roles satisfatorally into their other health roles? How is the 'combination of having to do everything'. Do they use any shortcuts? 42) What do NSHWs perceive as being patients' fears, concerns and expectations, and how do they address these? 43) What specialist, technical and managerial support is provided to NSHWs? What support for other cadres? 44) Your expectation from the team supervising you and the team below you.
Coordinators NCS, MO **All**	45) How do managers/coordinators view that mental health and other tasks are managed (the distribution of tasks and the balance between administrative task and clinical care delivery) 46) Is there support from the broader system (government, district, national, international) 47) What is the relation between the staff/different cadres? Any tension between them? 48) Who is in charge here? What is the chain of command like? Who takes care of what? 49) What kinds of facilities are available if the people are from very low socio- economic background, or for equity of service provision (gender, cast, other vulnerable groups)
Coordinators NCS District PO	**Finances** 50) Who takes care of the finances? Have you ever had a situation where you have trouble with your programme finances? Eg. Stocking medicines 51) Who takes care of the centre? Who makes sure that all the resources, medicines are in stock? Who provides money for that?
NSHW Specialists	**Safety** 52) What kind of security does the staff when they have community visits? Have the family members or any patient behaved violent? What were the measures taken? 53) What kind of mechanism for keeping the patient or carers safe? (e.g. keeping a carer safe from a violent patient, or keeping a stigmatised patient safe from their oppressive family)
Founders/	**Plans for improvement and/or scaling up?**

Coordinators NSHW / Specialists (opinions)	54) Do you have any plans for the improvement of the system in the future? If yes, then what are they? How will they implement it? 55) Who makes decisions about the programming priorities in the health facility 56) Do you plan or have you tried to scale-up the programme? If so how? What were the facilitating and/or inhibiting factors? 57) Do you think your programme is sustainable? Or could be reproduced in other areas? What factors are important for this to happen?
NSHWs Specialists	**I) Domain 9: PATHWAYS TO CARE & REFERRAL NETWORKS** **Patterns of help seeking /pathways to care/case finding** 58) How do the patients find you? Do they come on their own? 59) What background of people comes to you for treatment/ consultation? What is their main occupation? 60) Do you get referrals from anywhere(other PHC's, other healers)? **Community level Case finding and detection** 61) Do you go door to door and find people with problems/case finding? 62) What kinds of facilities are available if the people are from very low socio- economic background? **Referral networks** 63) Who do you refer the patients to if the problem is serious? When do you refer? 64) What is the protocol for referring a patient?
NSHWs **Specialists**	**J) Domain 10: CLIENT POPULATIONS** 65) What background of people comes to you for treatment/ consultation? What is their main occupation? 66) To what extent the people utilise this program 67) What are the main conditions you treat here? (SMD, CMD, epilepsy, MR, Substance abuse etc) 68) Are any of the conditions more or less difficult to treat in your setting with your resources?
NSHWs Specialists (all questions) **Coordinators**	**K) Domain 11: CLINICAL INTERVENTIONS** 69) What form of case finding do you do in the clinic? Do you opportunistically ask people at high risk of mental disorders any screening questions? Do you follow up the children of whose parents have mental disorders What kind of interventions do you do? For eg- A patient with OCD, depression, anxiety, Panic attacks, phobia, psychosis 70) What kind of mental health treatments are available in the clinic/ programme? 71) Do they provide outreach services? (for eg treated at door to door) 72) How and who provides it? Is it free or paying? When are these treatments available? 73) Do you have any protocols or guidelines? 74) What are your methods of evaluating the impact of your interventions? 75) What are the outcomes of these interventions? 76) Comparison of handling mental health cases before and after non

	specialist involvement in the program 77) Are you satisfied with the services rendered by the non specialist team?(question for **specialist**) 78) Are the types of interventions provided related to other health activities NSHWs are doing? (ie are NSHWs doing opportunistic interventions, are the fact they have 'physical health' problems affect how well/thoroughly they deal with mental health issues?) 79) Do NSHWs only deal with mental health issues during their 'mental health clinics' or also in normal clinics? To what extent? 80) DO you follow up patients with disorders so that they don't relapse? What is the mechanism for follow-up?
NSHW Coordinators/ NCS pharmacists	L) **Domain 12: MEDICATIONS** 81) What kind of medications are prescribed? 82) Who's in charge of the medicines (stocking, checking)? Where are they stocked, and who provides the money for them? 83) Has there been any situation when you run out of stock of medicines? If so where did you source? Which are the reliable drug companies? 84) Is there any pharmacist closeby.
NSHWs Specialists (all questions) **Coordinators**	M) **Domain 13: PSYCHOSOCIAL INTERVENTIONS** 85) Which psycho- social interventions (if any) are used and for which patients/ dx categories (non-pharmacological therapies, but also empowerment, re-training for employment, reintegration into community etc)? For eg- A patient with OCD, depression, anxiety, Panic attacks, phobia, psychosis 86) What prevention or promotion interventions do you do? When? 87) Any support with benefit systems? Which NSHWs are responsible for this (if any?) 88) Do you have any protocols or guidelines for these? 89) How do you evaluate their impact? 90) What outcomes to you measure? And what are the outcomes of these programmes?
NSHWs Specialists Coordinators	N) **Domain 13 a: SHGs and LIVELIHOOD PROGRAMS** 91) Are they running any self help groups or livelihood programmes? How, when for who, by who, etc
NSHWs Specialists Coordinators	O) **Domain 14: ACCESSIBILITY OF SERVICES** 92) Is the location central, is the provision of transportation accessible for patients? Is there any pharmacy close by? 93) Are there affordable fees? 94) What are your opening and closing hours? How much time do you give each client 95) What in-home/outreach services are provided?
Coordinators NCS NSHW	P) **Domain 15: INFORMATION SYSTEM** 96) Do you maintain records of the patients? Their follow ups? Who maintains? What are the rules /guidelines for keeping records? How long does it take to maintain records

	97) Do you keep administrative records 98) Who is the information for? Is it analysed to improve practice and care. 99) How was the information system created? Is it standardised with other PHCs or does it vary?
All	**SWOT ANALYSIS+LESSONS & NEEDS FOR FURTHER RESEARCH** **Strengths/Weaknesses:** 100) Do you think your programme is sustainable? Or could be reproduced in other areas? What factors are important for this to happen? **Opportunities:** 101) Suggestions for improving the NSHW way of delivering mental health 102) Do you wish you could implement NSHW concepts and practices on a great scale **Threats:** 103) What are the factors (including resources) which inhibit you from implementing NSHW care concepts ? 104) **Lessons learned** 105) **Research currently undertaken or research needs identified**

2. Observation tool/guide

GENERAL OBSERVATIONS IN AND AROUND THE CLINIC AND OF NON-CLINICAL STAFF

Domain 3: environment

1) What is the physical setting like? Is it adequate for what it is trying to do? Are things functional?
2) What are the socio-cultural attitudes
3) What socioeconomic measures does the clinic seem to take for patients of different SE backgrounds?
4) Outside and inside the clinic what is the political environment?

Domain 4: Health system in which the programme functions (ie try to go an meet some of the other health systems in that area eg private providers, healers, pharmacists, other PHCs)

5) What MH and general health services and alternative services are close by?
6) How does the mental health service function within the PHC system?
7) What links does it have to regional/national or international health systems?
8) What links to the spiritual/religious/traditional sector?
9) Is it in competition with any other services (any of the above or other allopaths – private sector, independent pharmacies etc)

Domain 6: engagement with broader systems

10) What is the visible advocacy work or work with broader systems? Any meetings that took place around this? Any discussions?

Domain 7: program resources

11) Are there any visible discrepancy of resources around the clinic? (human, financial, transportation, other)

Domain 8: project management

12) Who are the stakeholders? Do these seem to fit with the organogram (official one or that gained from interviews)
13) How mental health and other tasks are managed by the NCS (including which providers are doing what, when, etc). What is the balance between administrative tasks and clinical care delivery overall in the program?

Domain 12: Medications

1) What is the medication supply like? Look at coldchain, stocks, expiry dates, completeness of stock
2) What is the medication usage like?

Domain 14: accessibility of services

3) Is the location central, is the provision of transportation accessible for patients? Is there any pharmacy close by?
4) Are there affordable fees?
5) What are your opening and closing hours? How much time do you give each client
6) What in-home/outreach services are provided?

OBSERVATIONS of PHWS AND SPECIALISTS DURING CONSULTATIONS AND OTHER DAILY WORK WITH PATIENTS

Domain 7: Program resources

7) How many doctors / nurses/psychologist/social workers/ volunteers?
8) How many and which other staff are included
9) What volume of patients are coming to clinic? Does it seem representative compared to the expected volume? Is there a feeling of whether there is the adequate number of staff for the current patient population?
10) Are the patients coming from as wide a range of locations as is claimed? Are there any transport facilities?
11) As a marker of adequate funding of the programme, are the things people have said have been funded actually functioning or in existance.

Domain 8: Project Management (delivery and implementation and safety)

12) What is the NSHW workload like? (and specialist and NCS's workload). What general health roles to do they have?
13) The way the mental health knowledge and skills is adopted in their every day practice(clinical consultations, quality of their diagnostic skills and treatment regimens? Ie how do the MH roles fit into their general roles, are they detecting mental health problems opportunistically? Do they seem overburdened, taking shortcuts, etc
14) What activities are they doing (re safety, according to their job profile?)
15) Quality of consultations with patients with mental disorders: What are their attitudes in consultation? Any discrepancies according to certain groups? Cultural appropriateness of any interaction with patient consultation? Are the patient's fears, concerns and expectations addressed?
16) Are the lay health workers (LHW) able to build a reliable and secure relationships with the community(beneficiary).
17) Are the LHWs/ other NSHWs able to respond to psychosocial as well as medical needs? E.g.- a client of one volunteer was dropping out of the program because of the constrains of money, so the volunteer is worried and tries to do something about it.
18) What support do they get during or after consultations from specialists? (face to face, by phone/ any other way)?
19) Is there any on the job training? Receiving any incentives (financial or other reward)
20) What are the relationships between different cadres, who's in charge, what is the chain of command etc?
21) What seem to be their visible opportunities and challenges?
22) What contextual factors are influencing the running of the program

Domain 10: Client populations

23) Look in consultations what types of diagnoses people have who come in.
24) Who are the type of people coming in (age, sex, socio economic status, minority or vulnerable groups). Are there carers as well?

Domain 11: Clinical interventions

25) What treatments (pharmacological and non-pharmacological) treatments are they providing?
26) Where are they providing these (in clinic or outreach)
27) Are these delivered the way they are meant to be (according to pay structure and guidelines)
28) Do NSHWs only deal with mental health issues during their 'mental health clinics' or also in normal clinics? To what extent?

Domain 12: Medications

29) What kind of medications are prescribed? Adequate doses and quality?

Domain 13: psychosocial interventions AND 13a: SHGs and livelihood programmes

30) Any psychosocial interventions/preventions/promotion activities occuring or support with benefits?
31) Are they running any self help groups or livelihood programmes?.

3. Documentary analysis (if available)

RECORDS ANALYSIS

<u>**Administrative records and other literature on the clinic**</u> **(meeting notes, reports, evaluations etc):-**

14) Local language and terminology to describe phenomena
15) **Domains 1 and 2: History of the program and key events**: when the program was established, where, why, what, who and how. Timeline and major achivements
16) **Domains 3 and 14: environment in which the program functions and accessibility of services**
    a. figures of the locality (population covered socio-economic groups, patient characteristics, number of people from different backgrounds, ages, sex).
    b. Details of the locality of Gumballi
    c. Details of the infrastructure of the building and programme
    d. Affordable fees, service hours, in home/outreach services? Do the plans (in written proposals and recommendations) match the current status of the clinic?
17) **Domains 4 and 6: health system and broader systems:** What information can we find from reports or internal documents and wider reading (perhaps ask at district level) about the existing health system and the programme's engagement with broader systems (political, social systems, advocacy etc)
18) **Domain 5: programme conceptual framework**
    a. What is documented as the programme's conceptual framework and orientation of services.
    b. For evaluation: what are their indicators? Just service indicators/monitoring of activities or also quality indicators (how is this changing patient outcomes, improvement in patient care, improvement in accessing the right populations etc)? Have there been any previous evaluations?
19) **Domain 7: Program resources:**
    a. facts and figures on types/quantity/quality of resources (human, financial, transportation, other) and change over time (increase, decrease, changes of resources etc)
20) **Domain 8: project management**

a. Look to collect and photocopy all staff job profiles and training manuals or courses to compare to their actual work.

b. See if we can have access to the budget or financial statements in reports to look at financial stability of the project

21) **Domains 9 and 10: pathways to care, referrals and client populations**

a. Any reports, publications from that project on pathways to care, help-seeking, referral networks etc.

b. Administrative records for sociodemographic characteristics,

22) **Domains 11, 12, 13 and 13b: interventions and medicines**

a. Any reports/evaluations with outcomes analysis of interventions from records or studies.

b. Any records about medication supply and usage

23) **Domains 14: Accessibility of services**

a. Any reports or feasibility studies or evaluations that look at distance and cost (geographical accessibility and affordability)

MEDICAL RECORDS

24) **Domain 10: Client populations**

a. What background of people whose records are kept? Sociodemographic characteristics

b. What are the main conditions treated?

c. Nadja to evaluate how adequate the diagnostic categories are

d. What is the treatment coverage by diagnostic category

25) **Domain 11: clinical interventions**

a. Adequacy of diagnosis

b. What treatment offered, adequacy (how often, effective doses, correct treatment, changes in types or quantitites of specific interventions).

c. Are guidelines followed/ protocols?

d. What are the outcomes? How are they followed-up?

26) **Domain 12: medications:** adequacy of meds prescribed. Any documentation of their being gaps in meds and why?

27) **Domain 13: psychosocial interventions:** are any psychosoc interventions documented? Which and for what? How are they monitored and followed-up? Any support with benefits

Appendix 4h. Data collection tools (shorter case studies)

1. Interview guide for semi-structured interviews

Category	Content	Interview Guide	Prompts
Questions to all staff (founders/ managers/ coordinators/ NSHWs) about the programme and various roles	1)Program description	1a). Why and what the programme is for?	• Why the program started/was founded? Philosophy of the program? What personal reason for setting up a program?
		1b). Major achievements and milestones since the program began	• Can you share examples of what issues have come up over time that may have changed the direction of your programme or refined your current work? • have you helped designing practices which respond to mental health concerns? Examples to illustrate. • And also review available documents
	2) Role description of non specialised workers	2a) The role of NSHWs within the mental health program?	• Prompts: NSHW roles in detecting, treating mental disorders, follow up, training of other NSHWs
		2b) Other NSHW roles	• Prompts: roles in advocacy, livelihood programmes

		2c) Who are the NSHWs?
		  • Titles
		  • Their roles
		  • How MH roles fit in non-MH roles? Challenges to this.
		  • Their workload	

		2d) Do you have any role as supervisor/coordinator toward NSHWs ?	• Who supports NSHWs in their MH work?
	3) Specialist/ supervisory staff Qualifications, expertise and roles	3a)Founder/manager/ coordinator's expertise/background in delivering mental health 3b)NSHW expertise in delivering mental health (Ongoing expertise and oversight in the area of mental health services)	• what is your background/ training? • What training do the NSHW's /specialists get? (the Length of training and if it's repeated) • experience of the person who provides this

Category	Content	Interview Guide	Prompts
		3c). What supervisory roles to the coordinator / roles of specialists(MH specialists) ?	expertise for the program • What roles: support, supervision, training, overseeing
**Specific questions if the staff are recovered patients /users)	1)**Staff (who are recovered patients) views 2) their contributio n to the program me	1) clients view about their work and mental health which relates to their status as recovered users 2) any specific roles they can have related to them being a recovered user	• 1a. Do their patients accept them as recovered patients and also as staff? • 1b. Give examples of some of your strengths and weaknesses as a recovered user in your work.
**Specific questions for religious leaders		Specific questions relating to the religious element	• 1)Did any client oppose you saying that you are not specialised. • Any circumstance where the client s were unhappy about the service • What are their linkages to the allopathic system?
	1) Is the service affordable and is it accessible to patients?	1a.) How much does it cost to get from door to door 1b)How often do they need to come to clinic 1c) How far is the clinic 1d) Other indirect costs to the patients	• Are they (clients) able to reach the service place • Are there situations where the programme is running in one place and the service is accessed dominantly in number by other village people • Are they(clients) able to afford to come and take the mental health care service
	2)Socio-Demograph ic details	2a) What category of people come to them and their income level 2b) What are their reasons for attending	

	3)Service characteris tics	3a) What are the most prevalent disorders they see (& presentations
		3b) Infrastructure of the MH service
		   • Capacity of the clinic
		   • Drug supply (from where, cost, reliablility/stock)
		3c. Linkages to
		   • DMHP/NRHM
		   • Other MH services/	

Category	Content	Interview Guide	Prompts
		organisations Traditional/religious healers	
Interventions by NSHWs and by others (see how it links with specialist interventions; e.g.: psychiatric nurses/social workers/ psychiatrists)	1)Addressing mental health concerns	1a) Identifying the mental health concerns/screening 1b) Awareness raising and Screening 1c) Treatment- Which by national (NSHWs) 1d) Follow up And supervision	• What role do you play in the program's efforts to conduct screening to identify mental sickness • What treatments doe NSHWs perform? (prompts: prescribing, counselling, motivational interviewing etc) • How do you coordinate services to ensure that mental health needs are communicated, and that follow-up occurs? • Can you share an example of a referral made this year and its resolution? • What follow-up is done by NSHWs? By which NSHWs?
Other interventions	2)What are the other livelihood program for the community (patients family) with the mental health programme	2a) SHG self help groups 2b) Income generating activities 2c) Any other groups/ interventions	
Monitoring	Monitoring	1) Ongoing monitoring and overview of the programme	• What do you do if you detect problems or weaknesses with the programme's mental health services? • How do you monitor delivery of the programme's mental health services and the programme's compliance with regulations? • Have you requested formally patient feedback
Success or limitations of implement	Implementing Mental Health Services/im	1)Success and limitations in regard to NSHWs • Recruiting NSHWs • Training/Ongoing	• What challenges of using NSHWs = examples of

Category	Content	Interview Guide	Prompts
ation	pact	training	situations • Any of the Project challenge or opportunities like issues of funding, acceptability for NSHW, • Acceptability for NSHW community users
		• Supervision	• Supervision/support from specialists at government/local policies • How often do you visit each setting? How is the schedule implemented across all program options
		• Quality of their work	• How is your work /competency evaluated
		• Retaining	• How are you rewarded for your involvement
		2)Community Involvement	• How are NSHW involved in clients (patients), family (community), information, observations, and concerns about the mental health?
	Future of Mental Health Programme	1) Your opinion on the future of mental health program you are working in and the future roles as non specialised health care workers	• Do you think this program will sustain with non specialised care workers + why? • Any recommendation you had given for the programme to make it more nice/ improve your own programme.

2. General observations during site visits

Domain 3: environment

1) What is the physical setting like? Is it adequate for what it is trying to do? Are things functional?

Domain 4: Health system in which the programme functions (ie try to go an meet some of the other health systems in that area eg private providers, healers, pharmacists, other PHCs)

2) What MH and general health services and alternative services are close by?
3) How does the mental health service function within the PHC system?

Domain 7: program resources

4) Are there any visible discrepancy of resources around the clinic? (human, financial, transportation, other)

Domain 14: accessibility of services

5) Is the location central, is the provision of transportation accessible for patients? Is there any pharmacy close by?
6) What are your opening and closing hours?
7) What in-home/outreach services are provided?

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Appendix 6 - further contents of the systematic review (chapter 4)

[redacted table content]

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[redacted footnote text]

A P P E N D I C E S

Appendix 1. Search strategies

CENTRAL

#1	MeSH descriptor Allied Health Personnel, this term only
#2	MeSH descriptor Community Health Workers, this term only
#3	MeSH descriptor Nurses' Aides, this term only
#4	MeSH descriptor Psychiatric Aides, this term only
#5	MeSH descriptor Caregivers, this term only

#6	MeSH descriptor Voluntary Workers, this term only
#7	MeSH descriptor Community Networks, this term only
#8	MeSH descriptor Self-Help Groups explode all trees
#9	MeSH descriptor Social Support, this term only
#10	MeSH descriptor Health Manpower, this term only
#11	MeSH descriptor Personnel Staffing and Scheduling, this term only
#12	(lay NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)):ti,ab
#13	((voluntary or volunteer*) NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)):ti,ab
#14	(untrained NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*)):ti,ab
#15	(trained NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*)):ti,ab
#16	(unlicensed NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*)):ti,ab
#17	((nonprofessional* or "non professional" or "non professionals) NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)):ti,ab
#18	(("non medical" or "non health" or "non healthcare" or "non health care") NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)):ti,ab
#19	(community NEAR/3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)):ti,ab
#20	(paraprofessional* or paramedic or paramedics or "paramedical worker" or "paramedical workers" or "paramedical personnel" or "allied health personnel" or "allied health worker" or "allied health workers" or support NEXT worker* or "non NEXT specialist* or "specially trained" or barefoot NEXT doctor* or nurse* NEXT aide* or psychiatric NEXT aide* or psychiatric NEXT attendant* or social NEXT worker* or teacher* or "school staff" or trainer*):ti,ab
#21	((health* or medical*) NEAR/3 (auxiliary or auxiliaries)):ti,ab

#22	(nurse* NEAR/1 (auxiliary or auxiliaries)):ti,ab
#23	(informal NEXT (caregiver* or "care giver" or "care givers" or carer*)):ti,ab
#24	("self help group" or "self help groups" or "support group" or "support groups"):ti,ab
#25	((social or psychosocial) NEXT (care or support)):ti,ab
#26	(village NEAR/3 worker*):ti,ab
#27	"community based":ti,ab
#28	(community NEAR/3 intervention*):ti,ab
#29	("community network" or "community networks"):ti,ab
#30	((health or "health care" or healthcare) NEXT manpower):ti,ab
#31	"human resources":ti,ab
#32	(task NEAR/3 shift* or taskshift*):ti,ab
#33	(staff* NEAR/3 chang*):ti,ab
#34	(#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33)
#35	MeSH descriptor Mentally Ill Persons, this term only
#36	MeSH descriptor Mentally Disabled Persons, this term only
#37	MeSH descriptor Mental Disorders explode all trees
#38	MeSH descriptor Drug Users, this term only
#39	MeSH descriptor Nervous System Diseases, this term only
#40	MeSH descriptor Epilepsy, this term only
#41	MeSH descriptor Mental Health Services, this term only
#42	MeSH descriptor Community Mental Health Services, this term only
#43	MeSH descriptor Emergency Services, Psychiatric, this term only
#44	MeSH descriptor Social Work, Psychiatric, this term only

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(Continued)

#45	((mentally or psycholog*) NEXT (ill or disabled or handicapped or retarded or disturb* or traumati* or deficient)):ti,ab
#46	(intellectually NEXT (disabled or handicapped or retarded or deficient)):ti,ab
#47	(mental NEXT (retardation or deficienc*)):ti,ab
#48	((mental or behavioural or behavioral or anxiety or obsessive or compulsive or panic or phobic or schizotypal or delusional or stress or cognitive or cognition or dissociative or personality or "impulse control" or mood or affective or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or "nervous system" or eating) NEXT (disorder* or illness* or disease*)):ti,ab
#49	(("substance related" or alcohol or opioid or morphine or marijuana or heroin or cocaine) NEXT (disorder* or illness* or dependence or abuse or misuse)):ti,ab
#50	(depression or anxiety or schizophrenia or psychoses or stress NEXT syndrome* or distress NEXT syndrome* or combat NEXT disorder* or war NEXT disorder* or pain NEXT disorder* or dementia or Alzheimer* or epilepsy or down* NEXT syndrome or alcoholism or "substance abuse" or drug NEXT addict* or drug NEXT abus* or "drug misuse" or drug NEXT user*):ti,ab
#51	(psychiatric NEXT (patient* or service* or care or assistance or help or work)):ti,ab
#52	("mental health service" or "mental health services" or "mental health care" or "mental healthcare" or "mental care"):ti,ab
#53	((psychiatric or psychosocial) NEXT (service* or care or assistance or help or work)):ti,ab
#54	(#35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53)
#55	MeSH descriptor Developing Countries, this term only
#56	(Africa or Asia or Caribbean or "West indies" or "South America" or "Latin America" or "Central America"):ti,ab,kw
#57	(Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brasil or Brazil or Bulgaria or "Burkina Faso" or "Burkina Fasso" or "Upper Volta" or Burundi or Urundi or Cambodia or "Khmer Republic" or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or "Cape Verde" or "Central African Republic" or Chad or Chile or China or Colombia or Comoros or "Comoro Islands" or Comores or Mayotte or Congo or Zaire or "Costa Rica" or "Cote d'Ivoire" or "Ivory Coast" or Croatia or Cuba or Cyprus or Czechoslovakia or "Czech Republic" or Slovakia or "Slovak Republic"):ti,ab,kw
#58	(Djibouti or "French Somaliland" or Dominica or "Dominican Republic" or "East Timor" or "East Timur" or "Timor Leste" or Ecuador or Egypt or "United Arab Republic" or "El Salvador" or Eritrea or Estonia or Ethiopia or Fiji or Gabon or "Gabonese Republic" or Gambia or Gaza or Georgia or Georgian or Ghana or "Gold Coast" or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or "Isle of Man" or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or "Kyrgyz Republic" or Kirghiz or Kirgizstan or "Lao PDR" or Laos or Latvia or Lebanon or Lesotho or Basutoland or Liberia or Libya or Lithuania):ti,ab,kw

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)   **330**

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#59	(Macedonia or Madagascar or "Malagasy Republic" or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta or "Marshall Islands" or Mauritania or Mauritius or "Agalega Islands" or Mexico or Micronesia or "Middle East" or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or "Netherlands Antilles" or "New Caledonia" or Nicaragua or Niger or Nigeria or "Northern Mariana Islands" or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or Poland or Portugal or "Puerto Rico"):ti,ab,kw
#60	(Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or "Saint Kitts" or "St Kitts" or Nevis or "Saint Lucia" or "St Lucia" or "Saint Vincent" or "St Vincent" or Grenadines or Samoa or "Samoan Islands" or "Navigator Island" or "Navigator Islands" or "Sao Tome" or "Saudi Arabia" or Senegal or Serbia or Montenegro or Seychelles or "Sierra Leone" or Slovenia or "Sri Lanka" or Ceylon or "Solomon Islands" or Somalia or "South Africa" or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or "Togolese Republic" or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or USSR or "Soviet Union" or "Union of Soviet Socialist Republics" or Uzbekistan or Uzbek or Vanuatu or "New Hebrides" or Venezuela or Vietnam or "Viet Nam" or "West Bank" or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia):ti,ab, kw
#61	(developing or less* NEXT developed or "under developed" or underdeveloped or "middle income" or low* NEXT income or underserved or "under served" or deprived or poor*) NEXT (countr* or nation* or population* or world):ti,ab,kw
#62	(developing or less* NEXT developed or "under developed" or underdeveloped or "middle income" or low* NEXT income) NEXT (economy or economies):ti,ab,kw
#63	low* NEXT (gdp or gnp or "gross domestic" or "gross national"):ti,ab,kw
#64	(low NEAR/3 middle NEAR/3 countr*):ti,ab,kw
#65	(lmic or lmics or "third world" or "lami country" or "lami countries"):ti,ab,kw
#66	("transitional country" or "transitional countries"):ti,ab,kw
#67	(#55 OR #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #64 OR #65 OR #66)
#68	(#34 AND #54 AND #67)
#69	(#68) [Trials]

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1	Allied Health Personnel/	9631
2	Community Health Workers/	2765
3	Nurses' Aides/	3368

4	Psychiatric Aides/	367
5	Caregivers/	18,003
6	Voluntary Workers/	6700
7	Community Networks/	4699
8	exp Self-Help Groups/	8279
9	Social Support/	45,043
10	Health Manpower/	10,846
11	"Personnel Staffing and Scheduling"/	12,958
12	(lay adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	1277
13	((voluntary or volunteer?) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	2035
14	(untrained adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	493
15	(trained adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	11,082
16	(unlicensed adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	305
17	((nonprofessional? or non professional?) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,	319

	ab	
18	((non medical or non health or non healthcare or non health care) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	470
19	(community adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	9714
20	(paraprofessional? or paramedic or paramedics or paramedical worker? or paramedical personnel or allied health personnel or allied health worker? or support worker? or non specialist? or specially trained or barefoot doctor? or nurs* aid* or psychiatric aide? or psychiatric attendant? or social worker? or teacher? or school staff or trainer?).ti,ab	44,576
21	((health* or medical*) adj3 (auxiliary or auxiliaries)).ti,ab	378
22	(nurs* adj1 (auxiliary or auxiliaries)).ti,ab.	427
23	(informal adj (caregiver? or care giver? or carer?)).ti,ab.	1340
24	(self help group? or support group?).ti,ab.	5301
25	((social or psychosocial) adj (care or support)).ti,ab.	22,438
26	(village adj3 worker?).ti,ab.	383
27	community based.ti,ab.	29,705
28	(community adj3 intervention?).ti,ab.	4180
29	community network?.ti,ab.	236
30	((health or health care or healthcare) adj manpower).ti,ab.	768
31	human resources.ti,ab.	3604
32	(task? adj3 shift*).ti,ab.	830
33	(staff* adj3 chang*).ti,ab.	936
34	or/1-33	218,880

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35	Mentally Ill Persons/	3934
36	Mentally Disabled Persons/	2063
37	exp Mental Disorders/	860,728
38	Drug Users/	744
39	Nervous System Diseases/	32,711
40	Epilepsy/	56,267
41	Mental Health Services/	23,168
42	Community Mental Health Services/	15,935
43	Emergency Services, Psychiatric/	2007
44	Social Work, Psychiatric/	2537
45	((mentally or psycholog*) adj (ill or disabled or handicapped or retarded or disturb* or traumati* or deficient)).ti,ab	17,550
46	(intellectually adj (disabled or handicapped or retarded or deficient)).ti,ab	350
47	(mental adj (retardation or deficienc*)).ti,ab.	23,058
48	((mental or behavioural or behavioral or anxiety or obsessive or compulsive or panic or phobic or schizotypal or delusional or stress or cognitive or cognition or dissociative or personality or impulse control or mood or affective or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or nervous system or eating) adj (disorder? or illness* or disease?)).ti,ab	167,813
49	((substance related or alcohol or opioid or morphine or marijuana or heroin or cocaine) adj (disorder? or illness* or dependence or abuse or misuse)).ti,ab	22,607
50	(depression or anxiety or schizophrenia or psychoses or stress syndrome? or distress syndrome? or combat disorder? or war disorder? or pain disorder? or dementia or alzheimer or epilepsy or down syndrome or alcoholism or substance abuse or drug addict* or drug abus* or drug misuse or drug user?).ti,ab	514,850
51	(psychiatric adj (patient? or service? or care or assistance or help or work)).ti,ab	17,026

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52	(mental health service? or mental health care or mental health-care or mental care).ti,ab	14,476
53	((psychiatric or psychosocial) adj (service? or care or assistance or help or work)).ti,ab	8657
54	or/35-53	1,236,906
55	Developing Countries.sh,kf.	68,442
56	(Africa or Asia or Caribbean or West Indies or South America or Latin America or Central America).hw,kf,ti,ab,cp	161,347
57	(Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brazil or Brasil or Bulgaria or Burkina Faso or Burkina Fasso or Upper Volta or Burundi or Urundi or Cambodia or Khmer Republic or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or Cape Verde or Central African Republic or Chad or Chile or China or Colombia or Comoros or Comoro Islands or Comores or Mayotte or Congo or Zaire or Costa Rica or Cote d'Ivoire or Ivory Coast or Croatia or Cuba or Cyprus or Czechoslovakia or Czech Republic or Slovakia or Slovak Republic or Djibouti or French Somaliland or Dominica or Dominican Republic or East Timor or East Timur or Timor Leste or Ecuador or Egypt or United Arab Republic or El Salvador or Eritrea or Estonia or Ethiopia or Fiji or Gabon or Gabonese Republic or Gambia or Gaza or Georgia Republic or Georgian Republic or Ghana or Gold Coast or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or Isle of Man or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or Kyrgyz Republic or Kirghiz or Kirgizstan or Lao PDR or Laos or Latvia or Lebanon or Lesotho or Basutoland or Liberia or Libya or Lithuania or Macedonia or Madagascar or Malagasy Republic or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta or Marshall Islands or Mauritania or Mauritius or Agalega Islands or Mexico or Micronesia or Middle East or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Netherlands Antilles or New Caledonia or Nicaragua or Niger or Nigeria or Northern Mariana Islands or Oman or Muscat or	2,596,659

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	Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or Poland or Portugal or Puerto Rico or Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or Saint Kitts or St Kitts or Nevis or Saint Lucia or St Lucia or Saint Vincent or St Vincent or Grenadines or Samoa or Samoan Islands or Navigator Island or Navigator Islands or Sao Tome or Saudi Arabia or Senegal or Serbia or Montenegro or Seychelles or Sierra Leone or Slovenia or Sri Lanka or Ceylon or Solomon Islands or Somalia or South Africa or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or Togolese Republic or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or USSR or Soviet Union or Union of Soviet Socialist Republics or Uzbekistan or Uzbek or Vanuatu or New Hebrides or Venezuela or Vietnam or Viet Nam or West Bank or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia) .hw,kf,ti,ab,cp	
58	((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world)).ti,ab	47,759
59	((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies)).ti,ab	216
60	(low* adj (gdp or gnp or gross domestic or gross national)).ti, ab	115
61	(low adj3 middle adj3 countr*).ti,ab.	1901
62	(lmic or lmics or third world or lami countr*).ti,ab.	2881
63	transitional countr*.ti,ab.	82
64	or/55-63	2,688,977
65	randomized controlled trial.pt.	329,912
66	controlled clinical trial.pt.	84,322
67	multicenter study.pt.	145,092
68	(randomised or randomized or randomly).ti,ab.	462,610
69	placebo.ti,ab.	140,808

70	trial.ti,ab.	304,308
71	groups.ti,ab.	1,194,565
72	intervention*.ti,ab.	450,065
73	evaluat*.ti,ab.	1,875,064
74	control*.ti,ab.	2,273,078
75	effect?.ti,ab.	3,399,512
76	impact.ti,ab.	394,702
77	(time series or time points).ti,ab.	50,864
78	((pretest or pre test) and (posttest or post test)).ti,ab.	5274
79	(quasi experiment* or quasiexperiment*).ti,ab.	4655
80	((multicenter or multicentre or multi center or multi centre) adj study).ti,ab	19,004
81	repeated measure*.ti,ab.	22,128
82	or/65-81	7,097,338
83	Animals/	4,963,387
84	Humans/	12,343,636
85	83 not (83 and 84)	3,640,602
86	82 not 85	5,374,334
87	34 and 54 and 64 and 86	3313
88	(diagnos* or detect* or case finding?).ti,ab.	2,673,184
89	34 and 54 and 64 and 88	1011
90	87 or 89	3662
91	"comment on".cm.	507,804
92	(systematic review or literature review).ti.	34,294
93	(editorial or comment or meta-analysis or news or review).pt	2,561,432

94	"cochrane database of systematic reviews".jn.	8573
95	or/91-94	2,567,662
96	90 not 95	3422

EMBASE (OvidSP)

1	Paramedical Personnel/	10,488
2	Health Auxiliary/	2282
3	Nursing Assistant/	3274
4	Caregiver/	30,543
5	Voluntary Worker/	5187
6	Self Help/	10,343
7	Social Support/	48,504
8	Health Care Manpower/	9483
9	(lay adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	1425
10	((voluntary or volunteer?) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	2320
11	(untrained adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	517
12	(trained adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	13,341

13	(unlicensed adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	312
14	((nonprofessional? or non professional?) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	327
15	((non medical or non health or non healthcare or non health care) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	624
16	(community adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	10,935
17	(paraprofessional? or paramedic or paramedics or paramedical worker? or paramedical personnel or allied health personnel or allied health worker? or support worker? or non specialist? or specially trained or barefoot doctor? or nurs* aid* or psychiatric aide? or psychiatric attendant? or social worker? or teacher? or school staff or trainer?).ti,ab	51,499
18	((health* or medical*) adj3 (auxiliary or auxiliaries)).ti,ab	348
19	(nurs* adj1 (auxiliary or auxiliaries)).ti,ab.	430
20	(informal adj (caregiver? or care giver? or carer?)).ti,ab.	1592
21	(self help group? or support group?).ti,ab.	6863
22	((social or psychosocial) adj (care or support)).ti,ab.	27,333
23	(village adj3 worker?).ti,ab.	318
24	community based.ti,ab.	34,193
25	(community adj3 intervention?).ti,ab.	5061
26	community network?.ti,ab.	262

27	((health or health care or healthcare) adj manpower).ti,ab.	732
28	human resources.ti,ab.	4047
29	(task? adj3 shift*).ti,ab.	938
30	(staff* adj3 chang*).ti,ab.	1109
31	or/1-30	236,211
32	Mental Patient/	15,718
33	exp Mental Disease/	1,400,373
34	Mental Health Care/	16,342
35	Home Mental Health Care/	115
36	Mental Health Service/	39,847
37	Psychosocial Care/	9196
38	Neurologic Disease/	83,038
39	Epilepsy/	84,332
40	((mentally or psycholog*) adj (ill or disabled or handicapped or retarded or disturb* or traumati* or deficient)).ti,ab	19,493
41	(intellectually adj (disabled or handicapped or retarded or deficient)).ti,ab	447
42	(mental adj (retardation or deficienc*)).ti,ab.	27,388
43	((mental or behavioural or behavioral or anxiety or obsessive or compulsive or panic or phobic or schizotypal or delusional or stress or cognitive or cognition or dissociative or personality or impulse control or mood or affective or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or nervous system or eating) adj (disorder? or illness* or disease?)).ti,ab	215,937
44	((substance related or alcohol or opioid or morphine or marijuana or heroin or cocaine) adj (disorder? or illness* or dependence or abuse or misuse)).ti,ab	28,684

(Continued)

45	(depression or anxiety or schizophrenia or psychoses or stress syndrome? or distress syndrome? or combat disorder? or war disorder? or pain disorder? or dementia or alzheimer or epilepsy or down syndrome or alcoholism or substance abuse or drug addict* or drug abus* or drug misuse or drug user?).ti,ab	642,797
46	(psychiatric adj (patient? or service? or care or assistance or help or work)).ti,ab	20,401
47	(mental health service? or mental health care or mental health-care or mental care).ti,ab	17,975
48	((psychiatric or psychosocial) adj (service? or care or assistance or help or work)).ti,ab	11,075
49	or/32-48	1,785,107
50	Developing Country.sh.	69,992
51	(Africa or Asia or Caribbean or West Indies or South America or Latin America or Central America).hw,ti,ab,cp	184,606
52	(Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brazil or Brasil or Bulgaria or Burkina Faso or Burkina Fasso or Upper Volta or Burundi or Urundi or Cambodia or Khmer Republic or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or Cape Verde or Central African Republic or Chad or Chile or China or Colombia or Comoros or Comoro Islands or Comores or Mayotte or Congo or Zaire or Costa Rica or Cote d'Ivoire or Ivory Coast or Croatia or Cuba or Cyprus or Czechoslovakia or Czech Republic or Slovakia or Slovak Republic or Djibouti or French Somaliland or Dominica or Dominican Republic or East Timor or East Timur or Timor Leste or Ecuador or Egypt or United Arab Republic or El Salvador or Eritrea or Estonia or Ethiopia or Fiji or Gabon or Gabonese Republic or Gambia or Gaza or Georgia Republic or Georgian Republic or Ghana or Gold Coast or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or Isle of Man or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or Kyrgyz Republic or Kirghiz or Kirgizstan or Lao PDR or Laos or Latvia or Lebanon or Lesotho or Basutoland or Liberia or Libya or	2,576,041

(Continued)

Lithuania or Macedonia or Madagascar or Malagasy Republic or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta or Marshall Islands or Mauritania or Mauritius or Agalega Islands or Mexico or Micronesia or Middle East or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Netherlands Antilles or New Caledonia or Nicaragua or Niger or Nigeria or Northern Mariana Islands or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or Poland or Portugal or Puerto Rico or Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or Saint Kitts or St Kitts or Nevis or Saint Lucia or St Lucia or Saint Vincent or St Vincent or Grenadines or Samoa or Samoan Islands or Navigator Island or Navigator Islands or Sao Tome or Saudi Arabia or Senegal or Serbia or Montenegro or Seychelles or Sierra Leone or Slovenia or Sri Lanka or Ceylon or Solomon Islands or Somalia or South Africa or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or Togolese Republic or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or USSR or Soviet Union or Union of Soviet Socialist Republics or Uzbekistan or Uzbek or Vanuatu or New Hebrides or Venezuela or Vietnam or Viet Nam or West Bank or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia) .hw,ti,ab,cp

53	((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world)).ti,ab	54,293
54	((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies)).ti,ab	257
55	(low* adj (gdp or gnp or gross domestic or gross national)).ti,ab	140
56	(low adj3 middle adj3 countr*).ti,ab.	2153
57	(lmic or lmics or third world or lami countr*).ti,ab.	3179
58	transitional countr*.ti,ab.	99
59	or/50-58	2,692,822

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Continued
(Continued)

60	Randomized Controlled Trial/	323,003
61	Controlled Clinical Trial/	389,305
62	(randomised or randomized or randomly).ti,ab.	579,937
63	Time Series Analysis/	11,636
64	(time series or time points).ti,ab.	63,741
65	intervention*.ti,ab.	562,252
66	evaluat*.ti,ab.	2,316,859
67	control*.ti,ab.	2,647,026
68	effect?.ti,ab.	3,857,543
69	impact.ti,ab.	504,137
70	((pretest or pre test) and (posttest or post test)).ti,ab.	6116
71	(quasi experiment* or quasiexperiment*).ti,ab.	5334
72	((multicenter or multicentre or multi center or multi centre) adj study).ti,ab	25,517
73	repeated measure*.ti,ab.	27,338
74	or/60-73	7,718,259
75	Nonhuman/	3,853,444
76	74 not 75	5,951,391
77	31 and 49 and 59 and 76	4463
78	(diagnos* or detect* or case finding?).ti,ab.	3,181,233
79	31 and 49 and 59 and 78	1668
80	77 or 79	5101
81	(systematic review or literature review).ti.	41,493
82	"cochrane database of systematic reviews".jn.	3773
83	81 or 82	45,261

(Continued)

84	80 not 83	5078
85	limit 84 to embase	3662

CINAHL (EBSCOhost)

S90	S34 and S56 and S74 and S88 [Exclude MEDLINE records]	781
S89	S34 and S56 and S74 and S88	2326
S88	S75 or S76 or S77 or S78 or S79 or S80 or S81 or S82 or S83 or S84 or S85 or S86 or S87	917,136
S87	TI (intervention* or controlled or control W0 group* or compare or compared or before N5 after or pre N5 post or pretest or "pre test" or posttest or "post test" or quasiexperiment* or quasi W0 experiment* or evaluat* or effect or impact or "time series" or time W0 point* or repeated W0 measur*) OR AB (intervention* or controlled or control W0 group* or compare or compared or before N5 after or pre N5 post or pretest or "pre test" or posttest or "post test" or quasiexperiment* or quasi W0 experiment* or evaluat* or effect or impact or "time series" or time W0 point* or repeated W0 measur*)	515,774
S86	TI (randomis* or randomiz* or random* W0 allocat*) OR AB (randomis* or randomiz* or random* W0 allocat*)	63,905
S85	MH "Health Services Research"	5825
S84	MH "Multicenter Studies"	5806
S83	MH "Quasi-Experimental Studies+"	6116
S82	MH "Pretest-Posttest Design+"	18,858
S81	MH "Experimental Studies"	11,576
S80	MH "Nonrandomized Trials"	126
S79	MH "Intervention Trials"	4177
S78	MH "Clinical Trials"	74,670
S77	MH "Randomized Controlled Trials"	9725
S76	PT research	732,410

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)   **344**

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S75	PT clinical trial	51,042
S74	S57 or S58 or S59 or S60 or S61 or S62 or S63 or S64 or S65 or S66 or S67 or S68 or S69 or S70 or S71 or S72 or S73	204,905
S73	TI transitional W0 countr* OR AB transitional W0 countr*	25
S72	TI (lmic or lmics or third W0 world or lami W0 countr*) OR AB (lmic or lmics or third W0 world or lami W0 countr*)	357
S71	TI low N3 middle N3 countr* OR AB low N3 middle N3 countr*	518
S70	TI (low* W0 (gdp or gnp or gross W0 domestic or gross W0 national)) OR AB (low* W0 (gdp or gnp or gross W0 domestic or gross W0 national))	6
S69	TI ((developing or less* W0 developed or under W0 developed or underdeveloped or middle W0 income or low* W0 income) W0 (economy or economies)) OR AB ((developing or less* W0 developed or under W0 developed or underdeveloped or middle W0 income or low* W0 income) W0 (economy or economies))	33
S68	TI ((developing or less* W0 developed or under W0 developed or underdeveloped or middle W0 income or low* W0 income or underserved or under W0 served or deprived or poor*) W0 (countr* or nation or nations or population* or world or area or areas)) OR AB ((developing or less* W0 developed or under W0 developed or underdeveloped or middle W0 income or low* W0 income or underserved or under W0 served or deprived or poor*) W0 (countr* or nation or nations or population* or world or area or areas))	8198
S67	TI Afghanistan or Bangladesh or Benin or "Burkina Faso" or Burundi or Cambodia or "Central African Republic" or Chad or Comoros or Congo or "Cote d'Ivoire" or Eritrea or Ethiopia or Gambia or Ghana or Guinea or Haiti or India or Kenya or Korea or Kyrgyz or Kyrgyzstan or Lao or Laos or Liberia or Madagascar or Malawi or Mali or Mauritania or Melanesia or Mongolia or Mozambique or Burma or Myanmar or Nepal or Niger or Nigeria or Pakistan or Rwanda or "Salomon Islands" or "Sao Tome" or Senegal or "Sierra Leone" or Somalia or Sudan or Tajikistan or Tanzania or Timor or Togo or Uganda or Uzbekistan or Vietnam or "Viet Nam" or Yemen or Zambia or Zimbabwe	13,199

S66	TX Albania or Algeria or Angola or Armenia or Azerbaijan or Belarus or Bhutan or Bolivia or Bosnia or Herzegovina or "Cape Verde" or Cameroon or China or Colombia or Congo or Cuba or Djibouti or "Dominican Republic" or Ecuador or Egypt or "El Salvador" or Fiji or Gaza or Georgia or Guam or Guatemala or Guyana or Honduras or "Indian Ocean Islands" or Indonesia or Iran or Iraq or Jamaica or Jordan or Kiribati or Lesotho or Macedonia or Maldives or "Marshall Islands" or Micronesia or "Middle East" or Moldova or Morocco or Namibia or Nicaragua or Palestin* or Paraguay or Peru or Philippines or Samoa or "Sri Lanka" or Suriname or Swaziland or Syria or "Syrian Arab Republic" or Thailand or Tonga or Tunisia or Turkmenistan or Ukraine or Vanuatu or "West Bank"	68,169
S65	TX "American Samoa" or Argentina or Belize or Botswana or Brazil or Brasil or Bulgaria or Chile or Comoros or "Costa Rica" or Croatia or Dominica or Guinea or Gabon or Grenada or Grenadines or Hungary or Kazakhstan or Latvia or Lebanon or Libia or libyan or Libya or Lithuania or Malaysia or Mauritius or Mayotte or Mexico or Micronesia or Montenegro or Nevis or "Northern Mariana Islands" or Oman or Palau or Panama or Poland or Romania or Russia or "Russian Federation" or Samoa or "Saint Lucia" or "St Lucia" or "Saint Kitts" or "St Kitts" or "Saint Vincent" or "St Vincent" or Serbia or Seychelles or Slovakia or "Slovak Republic" or "South Africa" or Turkey or Uruguay or Venezuela or Yugoslavia	76,875
S64	TI (Africa or Asia or "South America" or "Latin America" or "Central America") OR AB (Africa or Asia or "South America" or "Latin America" or "Central America")	10,039
S63	(MH "Asia+")	70,391
S62	(MH "West Indies+")	4121
S61	(MH "South America+")	18,325
S60	(MH "Latin America")	986
S59	(MH "Central America+")	1715
S58	(MH "Africa+")	23,802
S57	(MH "Developing Countries")	7212
S56	S35 or S36 or S37 or S38 or S39 or S40 or S41 or S42 or S43 or S44 or S45 or S46 or S47 or S48 or S49 or S50 or S51 or S52 or S53 or S54 or S55	268,600

(*Continued*)

S55	TI ((psychiatric or psychosocial) W0 (service* or assistance or help or work)) OR AB ((psychiatric or psychosocial) W0 (service* or care or assistance or help or work))	2777
S54	TI ((mental W0 health W0 service* or "mental health care" or "mental healthcare" or "mental care")) OR AB ((mental W0 health W0 service* or "mental health care" or "mental healthcare" or "mental care"))	7729
S53	TI (psychiatric W0 (patient* or service* or care or assistance or help or work)) OR AB (psychiatric W0 (patient* or service* or care or assistance or help or work))	3312
S52	TI ((depression or anxiety or schizophrenia or psychoses or stress W0 syndrome* or distress W0 syndrome* or combat W0 disorder* or war W0 disorder* or pain W0 disorder* or dementia or alzheimer or epilepsy or down* W0 syndrome or alcoholism or substance W0 abus* or drug W0 addict* or drug W0 abus* or drug W0 misuse or drug W0 user*)) OR AB ((depression or anxiety or schizophrenia or psychoses or stress W0 syndrome* or distress W0 syndrome* or combat W0 disorder* or war W0 disorder* or pain W0 disorder* or dementia or alzheimer or epilepsy or down* W0 syndrome or alcoholism or substance W0 abus* or drug W0 addict* or drug W0 abus* or drug W0 misuse or drug W0 user*))	88,617
S51	TI (("substance related" or alcohol or opioid or morphine or marijuana or heroin or cocaine) W0 (disorder* or illness* or dependence or abuse or misuse)) OR AB (("substance related" or alcohol or opioid or morphine or marijuana or heroin or cocaine) W0 (disorder* or illness* or dependence or abuse or misuse))	4339
S50	TI ((mental or behavioural or behavioral or anxiety or obsessive or compulsive or panic or phobic or schizotypal or delusional or stress or cognitive or cognition or dissociative or personality or "impulse control" or mood or affective or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or eating) W0 (disorder* or illness* or disease*)) OR AB ((mental or behavioural or behavioral or anxiety or obsessive or compulsive or panic or phobic or schizotypal or delusional or stress or cognitive or cognition or dissociative or personality or "impulse control" or mood or affective or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or eating) W0 (disorder* or illness* or disease*))	29,445

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S49	TI (mental W0 (retardation or deficienc*)) OR AB (mental W0 (retardation or deficienc*))	1450
S48	TI (intellectually W0 (disabled or handicapped or retarded or deficient)) OR AB (intellectually W0 (disabled or handi-capped or retarded or deficient))	121
S47	TI ((mentally or psycholog*) W0 (ill or disabled or handi-capped or retarded or disturb* or traumati* or deficient)) OR AB ((mentally or psycholog*) W0 (ill or disabled or handi-capped or retarded or disturb* or traumati* or deficient))	2829
S46	(MH "Social Work, Psychiatric")	519
S45	(MH "Psychiatric Emergencies")	595
S44	(MH "Emergency Services, Psychiatric")	77
S43	(MH "Community Mental Health Nursing")	1628
S42	(MH "Community Mental Health Services")	5226
S41	(MH "Mental Health Services")	14,691
S40	(MH "Epilepsy")	4719
S39	(MH "Nervous System Diseases")	2663
S38	(MH "Substance Abusers+")	3348
S37	(MH "Mentally Disabled Persons")	1275
S36	(MH "Psychiatric Patients+")	7664
S35	(MH "Mental Disorders+")	208,797
S34	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30 or S31 or S32 or S33	103,048
S33	TI staff* N3 chang* OR AB staff* N3 chang*	886
S32	TI ((task or tasks) N3 shift*) OR AB ((task or tasks) N3 shift*)	135
S31	TI "human resources" OR AB "human resources"	1490

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S30	TI ((health or healthcare) W0 manpower) OR AB ((health or healthcare) W0 manpower)	51
S29	TI community W0 network* OR AB community W0 network*	105
S28	TI community N3 intervention* OR AB community N3 intervention*	2298
S27	TI "community based" OR AB "community based"	11,426
S26	TI village N3 worker* OR AB village N3 worker*	46
S25	TI ((social or psychosocial) W0 (care or support)) OR AB ((social or psychosocial) W0 (care or support))	13,431
S24	TI ("self help group" or "self help groups" or "support group" or "support groups") OR AB ("self help group" or "self help groups" or "support group" or "support groups")	3318
S23	TI (informal W0 (caregiver* or "care giver" or "care givers" or carer*)) OR AB (informal W0 (caregiver* or "care giver" or "care givers" or carer*))	1004
S22	TI (nurs* N1 (auxiliary or auxiliaries)) OR AB (nurs* N1 (auxiliary or auxiliaries))	271
S21	TI ((health* or medical*) N3 (auxiliary or auxiliaries)) OR AB ((health* or medical*) N3 (auxiliary or auxiliaries))	49
S20	TI (paraprofessional* or paramedic or paramedics or paramedical W0 worker* or paramedical W0 personnel or "allied health personnel" or "allied health worker" or "allied health workers" or support W0 worker* or non W0 specialist* or "specially trained" or barefoot W0 doctor* or nurs* W0 aide* or psychiatric W0 aide* or psychiatric W0 attendant* or social W0 worker* or teacher* or "school staff" or trainer*) OR AB (paraprofessional* or paramedic or paramedics or paramedical W0 worker* or paramedical W0 personnel or "allied health personnel" or "allied health worker" or "allied health workers" or support W0 worker* or non W0 specialist* or "specially trained" or barefoot W0 doctor* or nurs* W0 aide* or psychiatric W0 aide* or psychiatric W0 attendant* or social W0 worker* or teacher* or "school staff" or trainer*)	20,386
S19	TI (community N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or	6052

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	counselor* or counsellor* or assistant* or staff)) OR AB (community N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff))	
S18	TI (("non medical" or "non health" or "non healthcare") N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor or counsellor* or assistant* or staff)) OR AB (("non medical" or "non health" or "non healthcare") N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor or counsellor* or assistant* or staff))	121
S17	TI ((nonprofessional* or "non professional" or "non professionals") N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)) OR AB ((nonprofessional* or "non professional" or "non professionals") N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff))	132
S16	TI (unlicensed N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*)) OR AB (unlicensed N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*))	423
S15	TI (trained N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*)) OR AB (trained N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*))	3714

S14	TI (untrained N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*)) OR AB (untrained N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff or nurse* or doctor* or physician* or therapist*))	132
S13	TI ((voluntary or volunteer*) N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)) OR AB ((voluntary or volunteer*) N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff))	1075
S12	TI (lay N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff)) OR AB (lay N3 (worker* or visitor* or attendant* or aide or aides or support* or person* or helper* or carer* or caregiver* or "care giver" or "care givers" or consultant* or advisor* or counselor* or counsellor* or assistant* or staff))	572
S11	(MH "Home Health Aides")	892
S10	(MH "Health Personnel, Unlicensed")	2092
S9	(MH "Personnel Staffing and Scheduling")	12,221
S8	(MH "Health Manpower")	1106
S7	(MH "Support Groups")	5721
S6	(MH "Community Networks")	1069
S5	(MH "Volunteer Workers")	7170
S4	(MH "Caregivers")	13,761
S3	(MH "Nursing Assistants")	4579

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S2	(MH "Community Health Workers")	769
S1	(MH "Allied Health Personnel")	1726

PsycINFO (OvidSP)

1	Nonprofessional Personnel/	150
2	Paraprofessional Personnel/	1351
3	Allied Health Personnel/	590
4	Psychiatric Aides/	122
5	Home Care Personnel/	259
6	Caregivers/	15,761
7	Volunteers/	3007
8	Support Groups/	3249
9	Social Support/	24,057
10	(lay adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	1051
11	((voluntary or volunteer?) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	1532
12	(untrained adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	213
13	(trained adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	4021

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)

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(Continued)

14	(unlicensed adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff or nurse? or doctor? or physician? or therapist?)).ti,ab	52
15	((nonprofessional? or non professional?) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	391
16	((non medical or non health or non healthcare or non health care) adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	83
17	(community adj3 (worker? or visitor? or attendant? or aide or aides or support* or person* or helper? or carer? or caregiver? or care giver? or consultant? or advisor? or counselor? or counsellor? or assistant? or staff)).ti,ab	8567
18	(paraprofessional? or paramedic or paramedics or paramedical worker? or paramedical personnel or allied health personnel or allied health worker? or support worker? or non specialist? or specially trained or barefoot doctor? or nurs* aid* or psychiatric aide? or psychiatric attendant? or social worker? or teacher? or school staff or trainer?).ti,ab	138,610
19	((health* or medical*) adj3 (auxiliary or auxiliaries)).ti,ab	28
20	(nurs* adj1 (auxiliary or auxiliaries)).ti,ab.	82
21	(informal adj (caregiver? or care giver? or carer?)).ti,ab.	987
22	(self help group? or support group?).ti,ab.	6342
23	((social or psychosocial) adj (care or support)).ti,ab.	30,609
24	(village adj3 worker?).ti,ab.	37
25	community based.ti,ab.	15,516
26	(community adj3 intervention?).ti,ab.	3086
27	community network?.ti,ab.	219

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(Continued)

28	((health or health care or healthcare) adj manpower).ti,ab.	60
29	human resources.ti,ab.	2764
30	(task? adj3 shift*).ti,ab.	848
31	(staff* adj3 chang*).ti,ab.	576
32	or/1-31	229,404
33	Psychiatric Patients/	26,383
34	exp Mental Disorders/	388,263
35	exp Mental Retardation/	37,021
36	exp Behavior Disorders/	117,436
37	exp Nervous System Disorders/	178,225
38	Epilepsy/	14,888
39	Mental Health Services/	23,413
40	Community Mental Health Services/	6086
41	exp Crisis Intervention Services/	2025
42	((mentally or psycholog*) adj (ill or disabled or handicapped or retarded or disturb* or traumati* or deficient)).ti,ab	26,193
43	(intellectually adj (disabled or handicapped or retarded or deficient)).ti,ab	531
44	(mental adj (retardation or deficienc*)).ti,ab.	14,880
45	((mental or behavioural or behavioral or anxiety or obsessive or compulsive or panic or phobic or schizotypal or delusional or stress or cognitive or cognition or dissociative or personality or impulse control or mood or affective or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or nervous system or eating) adj (disorder? or illness* or disease?)).ti,ab	182,926
46	((substance related or alcohol or opioid or morphine or marijuana or heroin or cocaine) adj (disorder? or illness* or dependence or abuse or misuse)).ti,ab	16,798

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(Continued)

47	(depression or anxiety or schizophrenia or psychoses or stress syndrome? or distress syndrome? or combat disorder? or war disorder? or pain disorder? or dementia or alzheimer or epilepsy or down syndrome or alcoholism or substance abuse or drug addict* or drug abus* or drug misuse or drug user?).ti,ab	391,381
48	(psychiatric adj (patient? or service? or care or assistance or help or work)).ti,ab	20,821
49	(mental health service? or mental health care or mental health-care or mental care).ti,ab	21234
50	((psychiatric or psychosocial) adj (service? or care or assistance or help or work)).ti,ab	9123
51	or/33-50	839,743
52	Developing Countries.sh.	3138
53	(Africa or Asia or Caribbean or West Indies or South America or Latin America or Central America).hw,ti,ab	17,428
54	(Afghanistan or Albania or Algeria or Angola or Antigua or Barbuda or Argentina or Armenia or Armenian or Aruba or Azerbaijan or Bahrain or Bangladesh or Barbados or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brazil or Brasil or Bulgaria or Burkina Faso or Burkina Fasso or Upper Volta or Burundi or Urundi or Cambodia or Khmer Republic or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or Cape Verde or Central African Republic or Chad or Chile or China or Colombia or Comoros or Comoro Islands or Comores or Mayotte or Congo or Zaire or Costa Rica or Cote d'Ivoire or Ivory Coast or Croatia or Cuba or Cyprus or Czechoslovakia or Czech Republic or Slovakia or Slovak Republic or Djibouti or French Somaliland or Dominica or Dominican Republic or East Timor or East Timur or Timor Leste or Ecuador or Egypt or United Arab Republic or El Salvador or Eritrea or Estonia or Ethiopia or Fiji or Gabon or Gabonese Republic or Gambia or Gaza or Georgia Republic or Georgian Republic or Ghana or Gold Coast or Greece or Grenada or Guatemala or Guinea or Guam or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or Isle of Man or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or Kyrgyz Republic or Kirghiz or Kirgizstan or Lao PDR or Laos or Latvia or Lebanon or Lesotho or Basutoland or Liberia or Libya or	108,507

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)

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	Lithuania or Macedonia or Madagascar or Malagasy Republic or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Nyasaland or Mali or Malta or Marshall Islands or Mauritania or Mauritius or Agalega Islands or Mexico or Micronesia or Middle East or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Netherlands Antilles or New Caledonia or Nicaragua or Niger or Nigeria or Northern Mariana Islands or Oman or Muscat or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or Poland or Portugal or Puerto Rico or Romania or Rumania or Roumania or Russia or Russian or Rwanda or Ruanda or Saint Kitts or St Kitts or Nevis or Saint Lucia or St Lucia or Saint Vincent or St Vincent or Grenadines or Samoa or Samoan Islands or Navigator Island or Navigator Islands or Sao Tome or Saudi Arabia or Senegal or Serbia or Montenegro or Seychelles or Sierra Leone or Slovenia or Sri Lanka or Ceylon or Solomon Islands or Somalia or Sudan or Suriname or Surinam or Swaziland or Syria or Tajikistan or Tadzhikistan or Tadjikistan or Tadzhik or Tanzania or Thailand or Togo or Togolese Republic or Tonga or Trinidad or Tobago or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uruguay or USSR or Soviet Union or Union of Soviet Socialist Republics or Uzbekistan or Uzbek or Vanuatu or New Hebrides or Venezuela or Vietnam or Viet Nam or West Bank or Yemen or Yugoslavia or Zambia or Zimbabwe or Rhodesia) .hw,ti,ab	
55	((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world)).ti,ab	7959
56	((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies)).ti,ab	153
57	(low* adj (gdp or gnp or gross domestic or gross national)).ti, ab	17
58	(low adj3 middle adj3 countr*).ti,ab.	540
59	(lmic or lmics or third world or lami countr*).ti,ab.	795
60	transitional countr*.ti,ab.	35
61	or/52-60	125,331

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62	32 and 51 and 61	2757
63	limit 62 to ("0400 empirical study" or "0410 experimental replication" or "0430 followup study" or "0451 prospective study" or 1800 quantitative study or "2000 treatment outcome/ randomized clinical trial")	1963
64	(randomised or randomized or randomly allocated or random allocation or control* or evaluat* or effect? or impact or intervention* or time series or time points or quasi experiment* or quasiexperiment*).ti,ab	1,330,022
65	((pretest or pre test) and (posttest or post test)).ti,ab.	7667
66	((multicenter or multicentre or multi center or multi centre) adj study).ti,ab	1387
67	repeated measure*.ti,ab.	9130
68	or/64-67	1,333,401
69	62 and 68	1451
70	63 or 69	2293
71	(diagnos* or detect* or case finding?).ti,ab.	261,949
72	32 and 51 and 61 and 71	436
73	70 or 72	2337

LILACS (VHL: regional.bvsalud.org/php/index.php?lang=en**)**
(mental* or psyc* or psiq*) **AND** (nurse or nurses or midwife or midwives or physician or physicians or clinician or clinicians or doctor or doctors or practitioner or practitioners or dentist or dentists or pharmacist or pharmacists or "health care staff" or "healthcare staff" or "medical staff" or "health personnel" or "health care personnel" or "healthcare personnel" or "medical personnel" or "health worker" or "health workers" or "health care worker" or "health care workers" or "healthcare worker" or "healthcare workers" or "medical worker" or "medical workers" or "health professional" or "health professionals" or "health care professional" or "health care professionals" or "healthcare professional" or "healthcare professionals" or "medical professional" or "medical professionals" or "health provider" or "health providers" or "health care provider" or "health care providers" or "healthcare provider" or "healthcare providers" or "medical provider" or "medical providers" or "health workforce" or "health care workforce" or "healthcare workforce" or "medical workforce" or "health manpower" or "human resources" or enfermer* or enfermeir* or medico* or odontologo* or farmaceutico* or partera* or parteira* or "equipo sanitario" or "trabajadores de salud" or "trabajadores de la salud" or "profissionais de saude" or "recursos humanos") **AND** (recruit* or retain* or retention or distribut* or "scale up" or "scaling up" or turnover or "turn over" or "brain drain" or maldistribut* or distribucion or retencion or distribuicao or fixacao or retencao) **AND** (randomised or randomized or "random allocation" or "randomly allocated" or "controlled trial" or "control group" or "control groups" or effect or evaluat* or intervention* or impact or "multicenter study" or "multi center study" or "multicentre study" or "multi centre study" or (pretest and posttest) or quasiexperiment* or (quasi and experiment*) or "time series" or "time point" or "time points" or "repeated measure" or "repeated measures" or "repeated measurement" or "repeated measurements" or "ensayo clinico controlado aleatorio" or "ensayo clinico controlado" or "ensaio clinico controlado

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aleatorio" or "ensaio clinico controlado" or aleatorios or azar or acaso or efecto or efectos or efeito or efeitos or evaluar or evaluacion or avaliacao or intervencion* or intervencao* or impacto or impactos or (estudio* and multicentrico*) or (estudo* and multicentrico*) or (ensaio* and multicentrico*) or (preteste and posteste) or ("pre teste" and "pos teste") or cuasiexperiment* or (cuasi and experiment*) or quaseexperiment* or (quase and experiment*) or "serie temporal" or "series temporal" or "serie temporales" or "series temporales" or "series temporais" or "puntos de tiempo" or "puntos temporales" or "pontos temporais" or "medida repetida" or "medida repetidas" or "medidas repetida" or "medidas repetidas" or "medicion repetida" or "medicion repetidas" or "mediciones repetida" or "mediciones repetidas")

WHO Global Health Library
(AIM (AFRO), IMEMR (EMRO), IMSEAR (SEARO), WPRIM (WPRO), WHOLIS (KMS)

((non and specialist* and health* and worker*) or (nonprofessional* and health* and worker*) or (non and professional* and health* and worker*) or (untrained and health* and worker*) or (unlicensed and health* and worker*) or (lay and health* and worker*) or (voluntary and health* and worker*) or (volunteer* and health* and worker*) or (community and health* and worker*) or (paraprofessional* and health* and worker*) or (informal and health* and worker*) or (village and health* and worker*) **or** (non and specialist* and health* and personnel) or (nonprofessional* and health* and personnel) or (non and professional* and health* and personnel) or (untrained and health* and personnel) or (unlicensed and health* and personnel) or (lay and health* and personnel) or (voluntary and health* and personnel) or (volunteer* and health* and personnel) or (community and health* and personnel) or (paraprofessional* and health* and personnel) or (informal and health* and personnel) or (village and health* and personnel) **or** (non and specialist* and health* and carer*) or (nonprofessional* and health* and carer*) or (non and professional* and health* and carer*) or (untrained and health* and carer*) or (unlicensed and health* and carer*) or (lay and health* and carer*) or (voluntary and health* and carer*) or (volunteer* and health* and carer*) or (community and health* and carer*) or (paraprofessional* and health* and carer*) or (informal and health* and carer*) or (village and health* and carer*) **or** (non and specialist* and health* and caregiver*) or (nonprofessional* and health* and caregiver*) or (non and professional* and health* and caregiver*) or (untrained and health* and caregiver*) or (unlicensed and health* and caregiver*) or (lay and health* and caregiver*) or (voluntary and health* and caregiver*) or (volunteer* and health* and caregiver*) or (community and health* and caregiver*) or (paraprofessional* and health* and caregiver*) or (informal and health* and caregiver*) or (village and health* and caregiver*) **or** (non and specialist* and health* and (care and giver*)) or (nonprofessional* and health* and (care and giver*)) or (non and professional* and health* and (care and giver*)) or (untrained and health* and (care and giver*)) or (unlicensed and health* and (care and giver*)) or (lay and health* and (care and giver*)) or (voluntary and health* and (care and giver*)) or (volunteer* and health* and (care and giver*)) or (community and health* and (care and giver*)) or (paraprofessional* and health* and (care and giver*)) or (informal and health* and (care and giver*)) or (village and health* and (care and giver*)) **or** (non and specialist* and health* and provider*) or (nonprofessional* and health* and provider*) or (non and professional* and health* and provider*) or (untrained and health* and provider*) or (unlicensed and health* and provider*) or (lay and health* and provider*) or (voluntary and health* and provider*) or (volunteer* and health* and provider*) or (community and health* and provider*) or (paraprofessional* and health* and provider*) or (informal and health* and provider*) or (village and health* and provider*) **or** (social and worker*) or teacher* or (school and staff) or (self and help and group*) or (support and group*) or (task* and shift*) or taskshift* or (health* and manpower) or (human and resources)) AND ((mental* and ill) or (mental* and illness*) or (mental* and disorder*) or (mental* and disabled) or (mental* and deficien*) or (mental and disease*) or (mental* and morbid*) or (mental* and handicapped) or (mental* and retarded) or (mental* and traumati*) or (mental* and patient*) or (psych* and ill) or (psych* and illness*) or (psych* and disorder*) or (psych* and disabled) or (psych* and deficien*) or (psych* and disease*) or (psych* and morbid*) or (psych* and handicapped) or (psych* and retarded) or (psych* and traumati*) or (psych* and patient*) or (intellectually and disabled) or (intellectually and handicapped) or (intellectually and retarded) or (intellectually and deficien*) or (behavioural and disorder*) or (behavioral and disorder*) or anxiety or (obsessive and disorder*) or (compulsive and disorder*) or panic or phobic or schizotypal or delusional or (cognitive and disorder*) or (cognition and disorder*) or dissociative or (personality and disorder*) or (impulse and control and disorder*) or (mood and disorder*) or (affective and disorder) or bipolar or depressive or neurotic or paranoid or psychotic or somatoform or neurologic* or nervous or (eating and disorder*) or (substance and related and disorder*) or (substance and abuse) or (drug and addict*) or (drug and abuse) or (drug and misuse) or alcoholism or alcoholic* or (alcohol and abuse) or (alcohol and misuse) or (alcohol and dependenc*) or (drinking and behaviour) or (drinking and behaviour) or (opioid and abuse) or (opioid and misuse) or (opioid and dependenc*) or (opioid and addict*) or (morphine and abuse) or (morphine and misuse) or (morphine and dependenc*) or (morphine and addict*) or (marijuana and abuse) or (marijuana and misuse) or (marijuana and dependenc*) or (marijuana and addict*) or (heroin and abuse) or (heroin and misuse) or (heroin and dependenc*) or (heroin and addict*) or (cocaine and abuse) or (cocaine and misuse) or (cocaine and dependenc*) or (cocaine and addict*) or depression or anxiety or schizophrenia or psychoses or (stress and syndrome*) or (distress and syndrome*) or (combat and disorder*) or (pain and disorder*) or dementia or Alzheimer* or epilepsy or (down* and syndrome)) AND (randomiz* or randomis* or (controlled and trial) or (multicenter and study) or (multicentrer and study) or (cluster and trial) or (controlled and

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before and after) or pretest or (pre and test) or posttest or (post and test) or intervention* or evaluat* or effect or impact or (time and series) or (time and points) or (repeated and measure*))

OpenGrey

1	discipline:(05T - Health services, health administration, community care services) AND ("mental health") AND ("human resources")	0
2	discipline:(05T - Health services, health administration, community care services) AND ("mental health") of which latvia: 7	975 (MIC: 7)
3	discipline:(05T - Health services, health administration, community care services) AND ("mental health") and doctor	1
4	discipline:(05T - Health services, health administration, community care services) AND ("mental health") and nurse	9
5	discipline:(05T - Health services, health administration, community care services) AND ("mental health") and infirmiere	0
6	discipline:(05T - Health services, health administration, community care services) AND ("mental health") and social work	23
7	discipline:(05T - Health services, health administration, community care services) AND ("mental health") OR "psych" of which Latvia: 36	1004 (MIC: 36)
8	"mental" or "psych" **AND** "non-specialist" or "nonspecialist" or "paramedic" or "paraprofessional" or "communit" or "non-professional" or "nonprofessional" or "carer" or "caregiver" or "teacher" or "school" or "task-shift" or "taskshift"	0
9	"mental" or "psych" Of which Latvia: 50; Russian: 14; Czech: 12; Portugal: 5	2124 (MIC: 81)
10	discipline:(05T - Health services, health administration, community care services) AND ("mental") OR "psych" And ("paramedic"") (same number of hits came up substituting 'paramedic for :non-specialist" or "nonspecialist" or "paramedic" or "paraprofessional" or "non-professional" or "nonprofessional" *Of above search: categorised by language: excluded english and german and French. Checked Latvian (as only MIC listed) origin: "lv" and discipline:(05T - Health services, health administration, community care services) AND ("mental") OR "psych" And ("paramedic"")*	1345 (MIC: 7)
11	("mental") OR "psych" And ("carer") From above: Latvian 21, Russian 14, Czech 12, Portugal 5	2098 (MIC: 52)

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12	"mental" and "doctor" (or nurse)	0 from MIC
13	"mental" and "school" Latvian: 2; Czech: 2	41
14	"mental" and "teacher" Latvian: 1; Czech: 1	2

Total screened from MIC (Middle Income Countries): 259

***meta* Register of Controlled Trials (*mRCT*)**

Search 1: mental and health worker - 12 records

Search 2: psychiatr* and health worker - 6 records

Search 3: paramedic and mental - 1 record

Search 4: paramedic and psychiatr* - 1 record

Search 5: paraprofessional and mental - 13 records

Search 6: paraprofessional and psychiatr* - 8 records

Search 7: non-specialist and mental - 2 records

Search 8: non-specialist and psychiatr* - 0 records

Search 9: lay and worker and mental - 1 record

Search 10: lay and worker and psychiatr* - 0 records

Search 11: community and worker and mental - 25 records

Search 12: community and worker and psychiatr* - 13 records

Search 13: carer and mental - 27 records

Search 14: carer and psychiatr* - 26 records

Search 15: caregiver and mental - 0 records

Search 16: caregiver and psychiatr* - 0 records

Search 17: teacher and mental - 78 records

Search 18: teacher and psychiatr* - 61 records

International Clinical Trials Registry Platform, (ICTRP)

Search 1: **119 records**

mental or psych (in condition field) **AND** non-specialist or nonspecialist or paramedic or paraprofessional or communit or non-professional or nonprofessional or carer or caregiver or teacher or school or task-shift or taskshift (in intervention field)

Search 2: **10 records**

mental or psych (in condition field) **AND** lay and worker (in intervention field)

Search 3: **0 records**

mental or psych (in condition field) **AND** human and recourses (in intervention field)

Search 4: **1 record**

mental or psych (in condition field) **AND** task and shift (in intervention field)

Search 5: **0 records**

non-specialist and mental (in title field)

Search 6: **0 records**

non-specialist and psych (in title field)

Search 7: **0 records**

nonspecialist and mental (in title field)

Search 8: **0 records**

nonspecialist and psych (in title field)

Search 9: **1 record**

paramedic and mental (in title field)

Search 10: **0 records**

paramedic and psych (in title field)

Search 11: **0 records**

paraprofessional and mental (in title field)

Search 12: **0 records**

paraprofessional and psych (in title field)

Search 13: **1 record**

community and worker and mental (in title field)

Search 14: **0 records**

community and worker and psych (in title field)

Search 15: **1 record**

lay and worker and mental (in title field)

Search 16: **1 record**

lay and worker and psych (in title field)

Search 17: **0 records**

non-professional and mental (in title field)

Search 18: **0 records**

non-professional and psych (in title field)

Search 19: **0 records**

nonprofessional and mental (in title field)

Search 20: **0 records**

nonprofessional and psych (in title field)

Search 21: **2 records**

carer and mental (in title field)

Search 22: **16 records**

carer and psych (in title field)

Search 23: **6 records**

caregiver and mental (in title field)

Search 24: **24 records**

caregiver and psych (in title field)

Search 25: **3 records**

teacher and mental (in title field)

Search 26: **1 record**

teacher and psych (in title field)

Search 27: **18 records**

school and mental (in title field)

Search 28: **16 records**

school and psych (in title field)

Search 29: **0 records**

task-shift and mental (in title field)

Search 30: **0 records**

task-shift and psych (in title field)

Search 31: **0 records**

taskshift and mental (in title field)

Search 32: **0 records**

taskshift and psych (in title field)

Search 33: **0 records**

task and shift and mental (in title field)

Search 34: **0 records**

task and shift and psych (in title field)

Search 35: **0 records**

human and resources and mental (in title field)

Search 36: **0 records**

human and resources and psych (in title field)

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Recruitment status: ALL.

Appendix 2. Adapted CHEC criteria list

		yes	no	Not applicable	Details
1	Are competing alternatives clearly described?				
2	Is a well defined economic question posed in an answerable form?				
3	Is the economic study design appropriate to the stated objective?				
4	Was there a comparison between 2 more groups receiving different interventions?				
5	Is the chosen time horizon appropriate to include relevant costs and consequences?				
6	Is the perspective/viewpoint** of the analysis explicitly stated? If yes, give details				
7	Is the actual perspective chosen appropriate?				
8	Are all important and relevant costs for each alternative identified?				
9	Are costs measured? If yes, give details of costs measured.				
10	Are all costs measured appropriately in physical units?				
11	Are costs valued appropriately?				

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12	Are all important and relevant outcomes for each alternative identified?			
13	Were outcomes measured? If yes, give details of outcomes measured			
14	Are all outcomes measured appropriately?			
15	Are outcomes valued appropriately?			
16	Is an incremental analysis of costs and outcomes of alternatives performed?			
17	Are all future costs and outcomes discounted appropriately? *(where appropriate)			
18	Were sensitivity analyses undertaken? If yes, give details of forms of sensitivity analyses.			
19	Are all important variables, whose values are uncertain, appropriately subjected to sensitivity analysis?			
20	Do the conclusions follow from the data reported?			
21	Does the study discuss the generalizability of the results to other settings and patient/ client groups?			
22	Does the article indicate that there is no po-			

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	tential conflict of interest of study researcher(s) and funder(s)?			
23	Are ethical and distributional issues discussed appropriately?			

Appendix 3. Other economic studies of relevance but not included

Thirteen economic studies did not meet our inclusion criteria, as they did not relate to one of the included studies. Their findings are presented and compared with those that are included in this review to enhance the usefulness and applicability of the Cochrane review for healthcare decision making. The economic questions addressed in excluded studies mainly fall into three broad categories in terms of cost analysis of specific disease conditions, carer and family burden, and comparison of improved or integrated mental health care with primary care with usual or no care.

The studies that looked at healthcare costs cannot be compared with those of included studies as they were from different settings, conditions and outcomes.

Health services costs: Chisholm 2000 dealt with integration of mental health services into primary health care in India and Pakistan and found that a significant category of healthcare costs were consultations with GPs. In Luengo-Fernandez 2011, primary care was costed in European middle-income countries as constituting 36% (Portugal) and 9% (Greece) of total healthcare costs. There is no costing specific to NSHWs. One review showed that collaborative care costs are no greater than usual care (Woltmann 2012). A community outreach intervention in rural India for untreated schizophrenia study found that the costs of informal care sector visits and family care giving costs considerably reduced during the follow-up period from USD10 to about USD2 (Murthy 2005). This study gives detailed costs of outreach clinic set up, unit costs per person accessing services and outcome data at intervention baseline and follow-up to 18 months. It shows that costs of services increase over time (the increase in costs is of the specialist outreach services, not of PHC services) and that overall costs remain stable (around USD34). This study also emphasises the need for early diagnosis and availability of services close to the affected populations helps in increased uptake of services and reduces associated costs. The most promising study on service changes and costs is from South Africa, where Petersen 2012 estimated that the costs of a primary healthcare staffing package (one post for a mental health counsellor or equivalent and 7.2 community mental health worker posts) would be offset by a reduction in the number of other specialist and non-specialist health personnel required to close service gaps at primary care level. The cost of these personnel amounts to GBP28,457 per 100,000 population.

Costs of specific interventions: Suh 2006 in their study on economic costs of dementia in Korea found that costs of care for dementia patients needing full-time care in community (USD44,121) were about 10 times higher than those who did not need long-term care (USD3986) and found that costs of informal care were very high, but it is unclear what the costs relating to NSHWs were. Another study dealt with societal costs of dementia (mainly informal costs) in both developed and LMICs, but does not explicitly state the costs of a NSHW-delivered service (Wimo 2007). The costs of providing epilepsy care through primary care in Zambia is estimated at under USD25 a day (Birbeck 2012).

Informal care costs: The high level of burden among family carers was also highlighted in other studies (Chisholm 2000; Murthy 2005; Papastavrou 2010; van Steenbergen-Weijenburg 2010; Woltmann 2012), and that was significantly related to the severity and frequency of the patients symptoms, gender and educational level of the carer.

Resource requirement analysis and resource use: Some studies described the status of resource use; Chisholm 2000 study showed low level of service utilisation in the government centres. Others attempt to calculate resource requirements. Scaling up specific interventions like the child and adolescent mental health services in their country context was done by modelling (Lund 2009), for different levels of coverage in South Africa. The model suggests most costs should be spent at primary care level with a range of NSHWs (occupational therapists, social workers, general nurses) and specialists (psychiatric nurses). However, this forecasted ideal situation is currently unrealistic due to budgetary constraints. Siskind 2010 estimated cost-effectiveness of usual care compared with improved primary care for depression in Chile using computer-based Markov cohort model. They found the incremental cost-effectiveness ratio (ICER) of usual care CLP113 per quality adjusted life year (QALY) gained versus no treatment, whereas stepped care had an ICER of CLP468 per

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QALY versus usual care. A sensitivity analysis was also performed and the results were sensitive to assumptions made about recurrent episodes coverage, cost of treatment and insensitive to changes in health state utility of depression and rate of recurrence.

We found one cost-effectiveness study on mental health intervention package in Nigeria (Gureje 2007), which estimated cost per DALYs averted for schizophrenia, depression, epilepsy and alcohol use. The most cost effective intervention for schizophrenia was a 70% coverage of antipsychotic drugs with either psychosocial treatment or case management with cost per DALY USD642 and USD680 respectively. Cost per DALY averted for depression was lowest for older antidepressant drug with psychotherapy at USD767. Similarly, for epilepsy older antiepileptic drugs in primary care implemented at 80% coverage offered the best cost per DALY at USD100 per DALY averted. Random road-side breath testing for alcohol had a cost per DALY averted at USD85 (Gureje 2007). A systematic review which included two cost-effectiveness studies in LMIC of costs of collaborative showed these to be cost-effective (van Steenbergen-Weijenburg 2010).

Appendix 4. Description of studies not included in meta-analyses

1. Non-specialist health workers versus usual care (life-skills training) in improving drug abuse outcomes (RCT)

Sutcliffe2009RCT Thailand peer-led education programme versus a best practice intervention (life skills building approach) probably improves index patients' recovery of depressive symptoms at 12 months (MD -2.20, 95% CI -4.03 to -0.37), though this did not apply to reducing the prevalence of depression. However, this benefit did not filter to their network group (not involved in the intervention) (MD 0.00, 95% CI -1.55 to 1.55). There was no significant effect on methamphetamine use (RR 1.01, 95% 0.91 to 1.13) at six months or at one year post intervention.

2. Non-specialist health workers versus usual care for treating schizophrenia (controlled before-and-after study)

A medical assistant-delivered psychoeducation programme for carers of people with schizophrenia in Malaysia reported slightly fewer cases of readmission rates (3/54 versus 5/55) and a better defaulter rate (6/54 versus 14/65) in the intervention versus the control group (Paranthaman2010CBAMalaysi). It may have little or no impact on carer burden, on activities of daily living, or on other outcomes (such as financial expenditure, reduction in worry, impact on daily routines and supervision).

3. Non-specialist health workers versus specialist care in treating epilepsy (equivalence trial RCT)

In China, Li's study shows that there is equivalence between NSHW (trained village doctors) and specialists (psychiatrists) in reducing how many of their patients had an 80% or more reduction in epileptic seizures after three-month treatment with phenobarbital (60% versus 55%) (Li 1989 RCT China). This also applied to patients with a 20% to 79% seizure rate reduction (30% versus 35%) or below 20% seizure rate reduction (5% versus 15%).

However, there seems to be improvements in reported side effects in the NSHW versus specialist group, such as somnolence (2/20 versus 10/20) and drowsiness (6/20 versus 17/20). There was no difference in other reported side effects: dizziness, ataxia, nausea and vomiting, and return visits.

4. Other professionals with health roles versus usual care in delivering a psychosocial/activities intervention for parents of children with intellectual disabilities (RCT)

The Vietnamese RCT introduced a teacher-led Portage curriculum for parents of preschool children with intellectual disabilities versus wait-list control (Shin 2009 RCT Vietnam). The results are difficult to interpret, as often baseline data were different in both groups. This intervention may slightly improve behavioural changes (MD 1.10, 95% CI -7.82 to 10.02), motor skills (MD -1.40, 95% CI -12.93 to 10.13) and social skills (MD 0.80, 95% CI -11.51 to 13.11) at six months (with similar scores at 12 months).

WHAT'S NEW

Last assessed as up-to-date: 2 October 2012.

Date	Event	Description
30 October 2013	Amended	addressed all copy editors' issues

Non-specialist health worker interventions for the care of mental, neurological and substance-abuse disorders in low- and middle-income countries (Review)

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Appendix 7 Supplementary tables for chapter 6

Supplementary table 1: Characteristics of collaborative care programmes

Programme	State	Location	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
Collaborative care with PHC + care manager												
Banyan-CMHP	Tamil Nadu	Rural (R)	all	CMHS (NGO)	PHC+ communi ty	Intensive contact for LHWs (weekly or fortnightly contact with specialist and daily contact with coordinator). Minimal collaboration of PHC doctor with specialists (currently trying to improve).	Matche d care determ ined by psychia trist	CHWs (LHWs): awareness, detection, follow-up, psychosocial support/ coping strategies/ counselling (home). Intensive apprenticeship and periodic training with psychiatrist+ coordinator. Social worker (SW): joint visits with CHW, psychosocial support, community rehabilitation, benefits advice (+ general roles). Generalist doctor: medical role only.	Banyan psychiatrist: diagnosis, treatment. Supervise care manager Psychologist: therapies. (outreach clinics in PHC).	Coordinator (Postgraduat e): joint/separat e home visits with CHWs. Liaise between patients, CHWs and specialists (CHWs liaise with patients).		Periodic training and ongoing support supervision by psychiatrist - regular meetings.

Programme	State	Loc-ation	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
Chellamu thu Trust- CMHP/ Sivakasi	Tamil Nadu	R	all	CMHS (NGO)	PHC+ communi ty+ self-care	Close collaboration between specialists and LHWs (both NGO-linked). Minimal collaboration with PHC (used as a platform for delivery).	Matche d care determ ined by psychia trist.	LHWs: identification, referral, follow up, home-based care, contribute to income-generating activities, awareness raising, surveys (home visits). Other health workers: screen children for disabilities. PHC staff: identify and refer (also have general roles). Initiation of Self health groups (SHGs).	Specialist team (psychiatrist, psychologist, PSW): diagnosis, treatment, follow up (outreach clinics in PHC, +early identification camps for child disorders). Psychiatrists trained PHWs.	Community care workers (community volunteers) (LHWs): care roles and Liaise between patients, PHC and specialists.	Project coordinator : administration of project and supervises social workers.	LHW supervision by social workers (SW) (part of the outreach team). Some shared home care and SW activities. Trained by psychiatrists.
CHAD (departm ent of communi ty health, CMC Vellore)- CMHP	Tamil Nadu	R	all-mainl y depr essio n detec ted	Genera l hospita l (NGO)	PHC + communi ty	Close collaboration between specialists and LHWs (NGO-linked, and government ANMs). Minimal collaboration with PHC.	Matche d care determ ined by psychia trist.	Health aides (LHWs): generalist LHWs (focus ANC/PNC) with mental health roles: identification, referral, some psychosocial support; volunteers (LHWs): follow-up,	2 psychiatr- ists: diagnosis, treatment, follow-up, rehabilitation (outreach clinics). Used to train LHWs.	Health aides (LHW): identificatio n, referral and psychosocial support. Liaise between PHC,	Project coordinator : administration of project and supervises social workers.	LHW supervision by social worker (most medical social workers with MH roles) -used to be every month, now once a year.

Programme	State	Location	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
								some are lay counsellors (main MH focus); PHC doctor: identification, referral, records/data collection; ANM: identification/ referral.	Psychiatric social workers (PSW) also provide counselling	patients, social workers and specialist team.		Follow up and supervision on community visits. Other roles: counselling, awareness raising and monitoring
Collaborative care with PHC + care coordination												
Karuna Trust - Gumballi (early programme) (in-depth case study)	Karnataka	R	all	Specialist hospital (government-NIMHANS) and community (NGO)	PHC+ community	Close collaboration between PHC doctor, NGO and psychiatrists (government hospital). Intensive bedside-training model of consultation-liaison. (the programme has since moved to simply training PHC doctors with minimal ongoing support from specialists).	Matched care determined by psychiatrist (stepped care in later programme - see educated and training).	PHC doctor: refer patient to camp, sit in with psychiatrist, follow-up after treatment initiation. Community-based LHWs (multipurpose workers): minimal training in mental health to identify and refer.	Psychiatrists: fortnightly clinics in PHC. Supervised PHC doctor. (planned specialist withdrawal)		PHC coordinator:(gr aduate) manages all aspects of PHC. PHC doctor: liaises between patients and specialists.	Significant experiential teaching, supervision and support from psychiatrists.

Programme	State	Location	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
MICP (Malappuram Initiative in Community Psychiatry) - an add-on to the DMHP initiative	Kerala	R	all	General hospital (NGO)	PHC + community	Ad hoc and minimal collaboration between psychiatrist (NGO/hospital) and PHWs (government LHWs).	Matched care determined by psychiatrist.	ANM, ASHA, pariraksha nurses (panchayat-level homecare nurse): identify, refer, follow-up including check medication adherence, facilitate rehabilitation activities, (also general roles). (Home visits). Panchayat volunteers, health inspectors: identify and refer to the pariraksha nurse who then sends them to PHC. PHC doctor: identify, refer and follow up medical dosage changes (PHC-based); mainly exclude organic cause (during camps)	Psychiatrist: diagnosis, treatment, follow-up (outreach camps). Also supervises all community-level staff. Psychologist: available to be referred to (even for children).		Only by psychiatrist (supervises all community staff and does outreach clinics).	None

Program me	State	Lo-cati on	Ment al disor ders (MD)	Speciali st platfor m	PHW platform	Level of PHC/community and specialist collaboration	Steppe d/matc hed care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
Collaborative care with community care (not PHC) + care manager												
Ashadee p-outreach program me	Assa m	R	all (hom eless wom en) (start ed as just SMDs)	CMHS (NGO)	Commun ity	Moderate collaboration between specialists (in NGO) and LHWs (in CBOs - community based organisations) during outreach clinics.	Steppe d care (usually see LHWs first before having access to psychia trist).	LHWs from CBOs: awareness, psychosocial support. Some do counselling (home visits). CBO social worker: identify and refer homeless people (outreach work), awareness raising. LHWs/SWs also have general health or development roles. NGO generalist doctor: part of camps: before psychiatrists were employed, they used to diagnose, treat, follow-up at outreach camps. Now just physical treatment+care in halfway home. Training initially by Ashadeep, then taken over by CBO.	Psychiatric team employed through NGO (psychiatrist, psychologist) : diagnosis, treatment (CBO-based clinics). Psychologist also supervises social worker. Specialists and leaders: clinical and organisation problem solving/cons ultation clinics for CBOs (monthly Ashadeep-based clinics).	CBO-level manager (experience d LHW) and Ashadeep coordinator (initially only): Liaise between LHWs, patients, specialists and organisation s regarding activities, needs and clinical information. Supervise LHWs.		Supervised by social worker who is supervised by psychologist.

Programme	State	Location	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
ANT-outreach programme (Ashadeep-linked CBO)	Assam	R	all	CMHS (NGO) and general hospital psychiatrist	Community (CBO)	Minimal collaboration of CBO with government specialists (only visit for camps). Greater collaboration and support from MH NGO (Ashadeep)	Matched care by psychiatrist	LHWs: identify, refer, awareness, psychosocial support, some administer medicines (home visits). Trained by care manager and directors. Generalist doctor: organisation leader, provides general medical and some mental health care including counselling (PHC-like clinic)	Visiting external government psychiatrist (monthly camps): diagnosis and treatment. May access consultation clinics at Ashadeep (monthly).	Experienced LHW (senior LHWs): clinical roles as for PHWs. Liaises between patients, LHWs, ANT and Ashadeep directors if necessary. Also trains LHWs, awareness raising.		Supervised by programme director (a general physician).

Programme	State	Loc-ation	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
Ashagram	Madhya Pradesh	R	all	Tertiary - private psychiatrist	Community + self help	Moderate collaboration between private psychiatrists and NGO coordinators/LHWs.	Matched care by psychiatrist	<u>Key worker (LHW):</u> identify, community follow-up, adherence, surveys, awareness raising. Bring patients to clinic to doctor or psychiatrist outreach clinic; <u>community self help groups</u>: general support; <u>BAMS doctor:</u> follows up and monitors patients after psychiatrist management initiation. Relies on key workers to send him patients. Also attends some psychiatrist-led consultations in clinics.	<u>Visiting external private psychiatrist:</u> outreach clinics (used to have a PSW)	<u>Experienced LHW</u> (called 'mental health key workers'): Liaise between LHWs, BAMS doctor, head of organisation and psychiatrists. Clinical care as under PHW roles. LHW training and supervision (used to be done by psychiatrist and supervision by PSW).		By <u>coordinator</u> - (experienced key worker) - regular support. Coordinate programme.

Programme	State	Loc-ation	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
GASS_CBR workers	Karnataka	R	all	Private specialist hospital psychiatrist and CMHS (NGO - Basic Needs UK)	Community (NGO - GASS) (+ PHC community ANMs)	Minimal collaboration with specialist. Good collaboration between NGOs and PHC staff.	Matched care by psychiatrist	Community-based rehabilitation (CBR) workers: identification, referral, follow-up, some counselling, psychoeducation, awareness, support, bring patients to camp (also disability roles). Government ANMs (LHW): identification, referral. (home visits). ANMs trained by BasicNeeds-UK and GASS, supervised by MH coordinator.	Visiting external private psychiatrist: diagnosis/treatment camps.	Community based rehabilitation (CBR) worker: clinical roles as under 'PHW'. Liaise between community and GASS team (but no links with specialists).		CBR workers used to be trained by psychiatrists when they were more involved. Supervised by MH coordinator, mental retardation specialists, physiotherapists. BasicNeeds-UK provide technical support. MH coordinator supervised by GASS head.
TTK (NGO)-rural camps with local	Tamil Nadu	R	Alcohol abuse	Specialist hospital (NGO)	Community (CBO)	Regular collaboration between specialist NGO and CBO with aim to make CBO independent.	Matched care - triage by social worker	CBO animators (LHW): identify, psychosocial support, bring people to camp, follow-up, raising	Specialist team from NGO (psychologists, PSW) outreach	CBO animator (usually a graduate with no health/MH		Trained and supervised by PSW and psychologists (NGO).

Programme	State	Loc-ation	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
organisation (CBO) partnership (outreach clinic with PHW support)								awareness. <u>Clinic volunteers (LHW)</u>: support to team only (Home/community care). <u>PHC doctor</u>: organic disorder exclusion only during camps.	clinics every 2 months. No psychiatrist: assessment, detoxification and follow-up. Also train and supervise animators. (planned specialist withdrawal)	background) : Roles as under 'PHW'. Liaise between CBO, PHC doc and TTK.		
Chellamuthu Trust - Sathya Sai treatment camps	Tamil Nadu	R	all	CMHS (NGO)	Community (religious organisation)	Minimal collaboration: no organised support structure between specialists and LHWs but communication during camps	Matched care (decided by psychiatrist)	<u>Sathya Sai volunteers (LHWs)</u> identify and refer, also follow up including medical adherence and side effects, bring patients to camps; <u>PHC doctors</u>: exclude organic causes, may refer to camp too	<u>psychiatrist, psychologist, social workers</u>: monthly outreach clinics. ad hoc supervision of volunteers.	<u>Sathya Sai volunteers</u> (religious volunteers): liaise between patient, volunteers and specialist. organise camp and mobilise/get patients there. Mobilise/rai		No organised supervision but ad hoc support during outreach clinics. Two days training by <u>specialist team</u> initially.

Program me	State	Lo c-ati on	Ment al disor ders (MD)	Speciali st platfor m	PHW platform	Level of PHC/community and specialist collaboration	Steppe d/matc hed care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
										se funds for these camps. Also do identificatio n, and community follow-up for side effects etc.		
Collaborative care with community care (not PHC) +care coordination												
Banyan-Family Planning Associati on partners hip	Tamil Nadu	Ur ba n (U)	all (wo men healt h)	CMHS (NGO)	Commun ity care (gynaeco logy NGO)	Intensive contact and co-consulting between gynaecologist and psychiatrist, with a view to maintaining a consultation-liaison approach	Steppe d care: seen by gynaec ologist first, referre d to psychia trist clinic if needed .	Gynaecologist: opportunistically diagnoses and treats MDs, and follows up (though still lacks confidence too). Still relies on psychiatrist to confirm diagnoses. Aim to gradually hand over to gynaecologist with referrals when problematic	Psychiatrist: ongoing training of gynaecologis t and does weekly outreach clinics. (planned specialist withdrawal)		By gynaecologist. Liaise between patients and psychiatrist.	Intensive ongoing training and weekly support by a Banyan psychiatrist.

Program me	State	Loc-ation	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
Ashwini	Tamil Nadu	R	all	Before: specialist hospital individual psychiatrist); now: private psychiatrists.	Community (general health hospital NGO)	Moderate collaboration at the beginning with NIMHANS psychiatrist (regular training, clinics, support) with care coordination by gynaecologist. Now no collaboration (no involvement of psychiatrist apart from referring to them)	Matched care by gynaecologist (PHW)	LHWs (volunteers): do identification, awareness, referral, psychoeducation to family and patients; LHWs (health animators): do the same plus informal counselling, follow-up, help set up self-help groups; gynaecologist: gets patients referred to her from other hospital docs. Does all the diagnosis/treatment. Also trained LHWs.	External psychiatrists: very minimal involvement. Gynaecologist contacts psychiatrist friends only by phone if difficulties. (early programme: visiting psychiatrist for training of gynaecologist, doctors and nurses)		Gynaecologist: does all the MH work, referred from health animators, volunteers and .hospital doctors	Used to have regular support from NIMHANS psychiatrist. Now only refers when needed or speak to psychiatrist friend.

Program me	State	Locati on	Ment al disor ders (MD)	Speciali st platfor m	PHW platform	Level of PHC/community and specialist collaboration	Steppe d/matc hed care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
SACRED - outreach MH program me	Andh ra Prade sh	R	all	Genera l hospita l (govern ment district psychia trist) + CMHS (Basic Needs India (BNI)- NGO)	Commun ity (disabilit y NGO - SACRED) + self help (several CBOs)	Minimal collaboration with specialists, but moderate collaboration between mental health NGO (who helps monitor programme), disability NGO (runs the programme) and CBOs (implement self-care and identification).	Matche d care by psychia trist	Development workers (SACRED LHWs): identify and refer, they do follow up and medication adherence. Also lobby government and lead self help groups. Trained by BNI and NIMHANS. Caregiver forum at village level (CBOs): self-help support and voice for rights of patients and carers. These are grouped in a larger federation which represents these caregiver groups. Supervised by CBR workers/ coordinators.	External district psychiatrist: available for referrals.		Several coordinators who are not psychiatrically trained and no care role: SACRED CBR coordinators (administrative coordination of LHWs), SACRED training coordinators (monitor+coor dinate training to other CBOs+own development workers); BNI mental health coordinators (monitor programme)	Most training by BNI coordinators/ heads. Supervision hierarchy (see under care coordination roles).

Programme	State	Loc-ation	Mental disorders (MD)	Specialist platform	PHW platform	Level of PHC/community and specialist collaboration	Stepped/matched care	PHWs: background and roles	Specialists: background and roles	Care manager: background + roles	Other care coordinator: background + roles	Training + supervision of care manager/ coordinator
NBJK/RINPAS-outreach programme (outreach clinic with PHW support	**Jharkhand**	R	all	specialist hospital (RINPAS) (government) +CMHS (NGO - Basic Needs)	community (disability NGO - NBJK) +self-care (CBOs)	moderate collaboration between NGOs and CBOs. Minimal collaboration with specialists	matched care by psychiatrist.	NBJK NGO volunteers (LHWs) - (recovered patients or community members). Identification, referral, follow-up, awareness, psychosocial support (Home care). Clinic volunteers: supportive auxiliary role; CBO partnership volunteers: livelihood activities, care + psychoeducation for families and awareness raising	External government psychiatrists (RINPAS): receive referrals, do monthly outreach clinics. No supervision/ ongoing support to any LHWs.		NBJK (NGO) Mental health coordinator (non-healthcare graduate): oversees programme, is link between LHWs and specialists. Also trains and supervises LHWs.	Supervised by NGO (NBJK) programme manager, who is in turn supervised by MH NGO (Basic Needs) coordinator

Supplementary table 2: Characteristics of education and training programmes

Programme	State	Loc atio n	MD	Specialist/ support platform	PHW platform	Form of collabora tion	Level of specialist/ non-spec-ialist colla-boration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
Government of India (GOI) DMHP - Chamarajna gar - PHC doctor training	Karna taka	R	all	Specialist +general hospital (governme nt).	PHC	Educatio n and training (E&T) - PHC	One-time training only	PHC doctor: plan for 3 days x2/year for 5 years (total 30 days planned) but most only trained 1 to 3 batches (ie 3 to 9 days). class based training, with video and some clinical training (patients brought in). content diagnosis, treatment, and educate family	General+ specialist hospital psychiatrists train PHC doctors and do clinical work. DMHP psychiatrist post vacant so no support.	By department of health and family welfare joint director (MH).	Director of the department of health and family welfare.
GOI DMHP-Karwar - PHC doctor and ANM (auxiliary nurse midwife) training	Karna taka	R	all	Specialist +general hospital (governme nt).	PHC	E&T - PHC	In practice, only one way training (as vacant post for DMHP psychiatrist)	As above for PHC doctor. ANM training: 1 day to identify, refer, basic support.	As above for PHC doctor. ANM training by DMHP team (psychologist, psychiatric nurse and PSW).	As above for doctors, by district DMHP team for ANMs.	As above for doctors, programme officer supervises DMHP team.
GOI DMHP-Shimoga - PHC doctor and ANM training	Karna taka	R	all	Specialist +general hospital (governme nt).	PHC	E&T - PHC	as above	as above	as above	as above	as above

Programme	State	Location	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-specialist collaboration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
GOI DMHP-Gulbarga - PHC doctor and ANM training (in-depth case study)	Karnataka	R	all	Specialist +general hospital (government).	PHC	E&T - PHC	as above	as above	as above	as above	as above
RINPAS - Community mental health programme (CMHP) - PHC doctor training (for DMHP)	Jharkhand	R	all	Specialist hospital (government).	PHC	E&T - PHC	One-time training only	<u>PHC doctor</u>: 15 days training to diagnose, treat +/- refer	Psychiatrists: training, clinical work	Nodal officer (psychiatrist)	Director of the department of health and family welfare
Karuna Trust - PHC doctor/ ANM training (for DMHP) (in-depth case study)	Karnataka	R	all	Specialist/ general hospitals (government) +community (NGO - Karuna Trust)	PHC	E&T - PHC - Public private partnership	No long term collaboration with specialists but regular contact between doctors and NGO.	<u>PHC doctors</u>: trained 1-5 times 3 days to diagnose, treat +/- refer; ANMs (community nurses): trained 1-2 days to identify, refer to <u>PHC doctor</u> and basic community support.	Visiting NIMHANS and general hospital psychiatrists: train PHC doctors and ANMs +clinical work	NGO mental health coordinator: (usually a general health professional) supervises PHC doctors and coordinates training/monitoring of programme	NGO director

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Programme	State	Loc atio n	MD	Specialist/ support platform	PHW platform	Form of collabora tion	Level of specialist/ non-spec- ialist colla- boration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
GASS-PHC doctor training (closed)	Karna taka	R	all	Communit y (disability NGO-GASS); specialist hospital (individual psychiatris t from NIMHANS)	PHC	E&T - PHC	One-time training only	PHC doctor: diagnose, treat +/- refer (1-3 days training)	visiting NIMHANS psychiatrist: trained local PHC doctors - now stopped	GASS coordinator	Head of GASS
SCARF- PHC doctor external training (closed)	Tamil Nadu	R	all	CMHS (NGO)	PHC	E&T - PHC	One-time training only	PHC doctor: diagnose, some treat, but most follow-up treatment +/- refer (3 days training)	Psychiatrist: training, clinical work	Psychiatrist	None
CHAD - PHC doctor training (closed)	Tamil Nadu	R	all	General hospital (NGO)	PHC	E&T - PHC	One-time training only	PHC doctor: diagnose, treat +/- refer (3 days training)	Psychiatrist: training, clinical work	Psychiatrist	none
IIAHS - PHC doctor external training (for DMHP) (closed)	Delhi	R	all	General hospital (NGO-academic institution)	PHC	E&T - PHC	One -time training only	PHC doctor: diagnose, treat +/- refer (15 days training)	Psychiatrist: training, clinical work	Psychiatrist	none

Programme	State	Location	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-specialist colla-boration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
Basic Needs (NGO) /Samarthya (NGO) /Samuha (CBO)- certificate training for CBR workers	Karnataka	R	all	CMHS (Basic Needs NGO) +community (Samarthya - disability NGO)	Community (CBO)	E&T - accredited course	One –time training only	CBR workers: expected to have social worker type responsibilities in the community for disability and mental healthcare	Psychiatrists, PSWs: training, clinical work.	Training coordinator	NGO managers
Saarthak - NGO health worker external training/capacity building	Delhi	U	all	CMHS (NGO)	Community (other CBO/NGOs)	E&T - accredited course	One -time training only	External LHWs in NGOs: trained in identification and psychosocial interventions relating to the Tsunami and anti-trafficking; also sensitization of development sectors to increase focus on mental health.	Psychiatrists and psychologists: training, clinical work	Psychiatric team	None
VOLCOM-MH programme: own+ other NGO health worker training+ awareness	Mizoram	R/U	all, substance abuse, HIV	Community (NGO)	Community (other CBO/NGOs)	E&T - accredited courses	One -time training only	External LHWs in NGOs (including Saarthak): trained in identification and psychosocial interventions relating to the HIV, MH, drug abuse.	Psychologist: training, clinical work	Psychologist	None

Programme	State	Location	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-spec- ialist colla- boration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
Chellamuthu Trust - caregiver support groups	Tamil Nadu	R/U	all	CMHS (NGO)	Self-care +community (support groups)	E&T - caregivers and awareness raising	One -time training only	<u>Caregivers</u> receive 1-3 days training to identify relapse, raise awareness, home coping strategies, networking and forming support group	Psychiatrist: training, clinical work	Psychiatrist	None
Antara - caregiver training	West Bengal	U	all	CMHS (NGO)	Self-care +community (caregivers)	E&T- caregivers	One -time training only	<u>Caregivers</u> receive 1 day training to identify relapse, medication adherence and coping strategies.	Social workers: training, clinical work	Social workers	Psychiatrists
Ashadeep - caregiver manual	Assam	R	all (homeless)	CMHS (NGO)	Self-care +community (caregivers)	E&T - caregivers	One -time training only	<u>Caregivers</u> given a self-help manual to identify relapse, medication adherence and coping strategies.	n/a	No training	n/a

Supplementary table 3: Characteristics of replacement and referral programmes

Programme	State	Urban/rural	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-specialist collaboration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
Richmond Fellowship Society/Siddlaghatta - (closed)	Karnataka	R	all	CMHS (NGO)	PHC	Replacement&Referral (R&R) - PHC training	One -time training only	PHC doctor, ANM, Anganwadi: a few days training to identify and refer cases to RFS outreach clinics	Psychiatrist: training, clinical work	Psychiatrist	None
Ashok Pai Hospital - PHC doctor external training (closed)	Karnataka	U	all	Specialist hospital (private)	PHC	R&R - PHC training	One -time training only	PHC doctor: Identify and refer (1-3 days training)	Psychiatrist: training, clinical work	Psychiatrist	None
GASS - Health assistants, anganwadi, ANM, self help groups,teacher training	Karnataka	R	all	Community (GASS-disability NGO) + CMHS (Basic Needs UK - NGO)	PHC +community	R&R - PHC training	One -time training. regular interaction with community staff for MH and disability	ANMs: 5 days training (ANMs) and Anganwadis,SHG members: 2 days training in identification and referral and sensitisation (street plays).	Basic Needs and GASS coordinators/ leaders (PSW/MSW backgrounds respectively) training, management, leadership	Basic Needs and GASS coordinators and leaders	None

Programme	State	Urban/ rural	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-specialist collaboration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
Chellamuthu Trust - DMHP PHC doctor training + VHNs, Anganwadis	Tamil Nadu	R	all	CMHS (NGO)	PHC + community	R&R - PHC training	One-time training only	PHC doctor (15 days training) and other PHC/community staff (3 days training) identify and refer to psychiatrist at outreach camps.	Psychiatric team (psychiatrist, psychologist, PSW) do regular outreach camps. Train PHC doctors and other PHC staff	Psychiatric team	Head of NGO
TTK Ranganathan - external training (medical+ nursing students)	Tamil Nadu	U	substance abuse	Specialist hospital (NGO)	PHC/general care	R&R - PHC training	One-time training only	PHC doctor: identify, preliminarly diagnosis and refer cases of substance abuse	Psychiatrist and PSW: training, clinical work	PSW and psychiatrist	None
SCARF - telemedicine (closed)	Tamil Nadu	R	SMDs	CMHS (NGO)	PHC	R&R - PHC training	One-time training, with no supervision but contact to organise teleconference sessions	PHC doctor trained 1-2 days to identify and refer to psychiatrist and organise telemedicine sessions.	Psychiatrists: telemedicine consultations. Train PHC doctor.	Psychiatrist	None
Banyan - PHC doctor external training (for DMHP)	Tamil Nadu	R	all	CMHS (NGO)	PHC	R&R - PHC training	One-time training only	PHC doctors trained to identify and refer (1-3 days training)	Banyan psychiatrist helped train PHC doctors	Banyan-BALM training coordinator	BALM director

Programme	State	Urban/rural	MD	Specialist/support platform	PHW platform	Form of collaboration	Level of specialist/non-specialist collaboration	Roles and training of PHWs/community	Roles of specialists	Training coordination and delivery	Training/supervision for coordinator
AIIMS - Kashmir PHC doctor training (closed)	Kashmir/Delhi	R	all	General hospital (academic government)	PHC	R&R - PHC training	One -time training only	PHC doctor: detect, refer and follow-up patients (up to one week training)	Psychiatrist: training, diagnosis and treatment	Experiential learning within psychiatrist-led outreach clinic (humanitarian relief dispatch)	None
Basic Needs UK/ NBJK-ANM/Asha training	Jharkhand	R	all	CMHS (NGO)	PHC+ community	R&R - PHC training	One -time training but regular contact re disability/ mental health work	ANM/ASHA in programme locality: 1 day training: identify, refer, follow-up, awareness raising	Basic Needs coordinator (psychology/PSW): training, management, leadership	Assistant mental health coordinator organises training; Basic needs coordinator delivers it	NBJK and BN-UK directors
Banyan BALM - external NGO training/ capacity building	Tamil Nadu	R	all	CMHS (NGO)	Community (other CBO/NGOs)	R&R - community training	External organisation one-time training only	HWs from other NGOs: sensitised to MH and to identify and refer (1 day training)	Psychologists, psychiatrists and PSWs: training, clinical work	Training coordinator (BALM) and delivery by specialists	Director of BALM
Bapu Trust - external NGO training	Maharashtra	U	all	CMHS (NGO)	Community	R&R - community training	External organisation one-time training only	HWs from other NGOs: 1 day training: identify, refer	Psychologist: training, clinical work	Psychologist	NGO director

Programme	State	Urban/ rural	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-spec-ialist colla-boration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
Institute of Psychological Health/ Maitra - NGO and corporate external training	Maharashtra	U	all	CMHS (NGO)	Community	R&R - community training	External organisation one-time training only	HWs from other NGOs/corporate sector: trained (1 day) to identify, refer and support patients/families	Psychologist: training, clinical work	Psychologist	NGO director
ANT - external training to NGOs	Assam	R	all	Community (NGO)	Community	R&R - community training	External organisation one-time training only	HWs from other CBOs and NGOs: trained to include mental health into their development or health initiatives	None	Coordinator (MSW)	NGO head (general physician)
TTK Ranganathan - external training	Tamil Nadu	R/U	substance abuse	Specialist hospital (NGO)	Community	R&R - community training	External organisation one-time training only	Police, clergy, community workers: identify and refer (1 day training)	Psychologist and PSWs: training, clinical work	Specialists	Head of NGO
SNEHA - external training	Tamil Nadu	U	all, main-ly sui-cide preve-ntion	CMHS (NGO)	Community	R&R - community training	External organisation one-time training only	Police, other community workers: sensitise to MH and to identify and refer (1 day training)	Psychiatrist/ SNEHA director: training, clinical work	Psychiatrist/ SNEHA director and experienced volunteers/clinical coordinators	None

Programme	State	Urban/rural	MD	Specialist/support platform	PHW platform	Form of collaboration	Level of specialist/non-specialist collaboration	Roles and training of PHWs/community	Roles of specialists	Training coordination and delivery	Training/supervision for coordinator
Mukhtangan Mitra - community external training	Maharashtra	R/U	substance abuse	Specialist hospital (NGO)	Community	R&R - community training	External organisation one-time training only	Police, rehab/de-addiction centres, prison officers, traffic officers: 1 day training on identification and referral for HIV, stress management, alcohol/drug abuse	Psychiatrist, psychologist, PSW: training, clinical work	Specialists	NGO director
Banyan/panchayat academy training	Tamil Nadu	R	all	CMHS (NGO)	Community (CBO)	R&R - community training	Partnership of organisations, shared decision making about programme direction	Panchayat leaders identify and refer to Banyan. Trained by coordinator and Banyan specialists (1 day)	Banyan leader (PSW): receives referrals, trained Panchayat Academy head and panchayat leaders. Maintains contact with coordinator.	Panchayat Academy head (coordinator): coordinates programme and ensures adequate people referred to Banyan. monitors the programme.	Ad-hoc training, established collaborative rapport between Panchayat Academy head and Banyan
SNR Hospital Kolar/ Murgamalla dargah camps	Karnataka	R	Severe mental disorders (SMDs)	General hospital (government)	Community (religious institution)	R&R - community training	Minimal collaboration	Assistant and religious leaders: ad hoc training to identify and refer to psychiatrist during camps	Psychiatrist: outreach camps fortnightly. He also surveys the dargah to check on adequate care (no chaining) for mentally ill.	Assistant: organise psychiatric camps and bring patients to them; Supervisor: administrative coordination	Informal training, no supervision.

Programme	State	Urban/rural	MD	Specialist/ support platform	PHW platform	Form of collaboration	Level of specialist/ non-specialist collaboration	Roles and training of PHWs/ community	Roles of specialists	Training coordination and delivery	Training/ supervision for coordinator
SACRED - advocacy/awareness campaigns	Andhra Pradesh	R	all	Community (SACRED - disability NGO)	Community	R&R - campaigns	Intermittent campaigns	LHWs and local federations and self-help groups (training from BNI and NIMHANS) help deliver campaigns to general population (also do social-worker-like duties).	Psychiatrists train federation members	SACRED training coordinator organises these campaigns and delivers them with PHWs.	SACRED managers
Saarthak - volunteer-led campaigns	Delhi	U	all	CMHS (NGO)	Community	R&R - campaigns	Intermittent campaigns	200 community volunteers (1 day training) support specialist team for information/education campaigns to general population and advocacy (as well as for rehabilitation).	Psychiatrist, psychologists: train and network with volunteers	NGO specialists	Psychiatrists
Ashadeep - distribution poster/leaflets	Assam	R	all (homeless)	CMHS (NGO)	Community	R&R - campaigns	Ongoing campaign	HWs from linked CBOs/NGOs: regularly disseminate pamphlets and posters for general population.	None	Community resource centre coordinator (training centre).	Ashadeep co-director

Programme	State	Urban/rural	MD	Specialist/support platform	PHW platform	Form of collaboration	Level of specialist/non-specialist collaboration	Roles and training of PHWs/community	Roles of specialists	Training coordination and delivery	Training/supervision for coordinator
Ashok Pai Hospital - awareness raising+films	Karnataka	U	all	Specialist hospital (private)	Community	R&R - campaigns	Intermittent campaigns	General population: exposed to MH awareness.	Psychiatrist: talks, interviews and making films to raise awareness about MH	Specialist-led	None
Richmond Fellowship Society - campaigns/ NGO training	Karnataka	R	all	CMHS (NGO)	Community	R&R - campaigns	Intermittent campaigns	General population: exposed to MH awareness	Psychiatrist: training, awareness raising events, lead campaigns.	Specialist coordinator: organises and conducts some awareness-raising events	None
VOLCOM - college campaigns	Mizoram	R/U	all, substance abuse, HIV	Community (NGO)	Community	R&R - campaigns	Intermittent campaigns	Colleges students/young professionals: exposed to MH awareness campaign to help with self or other identification and referral.	Clinical psychologist/ leader lead campaigns.	Leader (clinical psychologist)	None

Supplementary table 4: Characteristics of community outreach programmes

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coor-dinator
Community outreach models in specialist programmes with care manager or case coordination												
Banyan-Urban Mental Health Programme (outreach clinic with PHW support)	Tamil Nadu	U	all	CMHS (NGO)	CMHS (clinic)	Regular organised supervisory meetings between psychiatrist, social workers and volunteers	Matched care determined by PHW-delivered triage	Volunteers (LHWs) and social workers: Joint outreach clinics with psychiatrist. Support specialist by doing triage, history taking and also providing support/advice. Refer to psychiatrist only if necessary. Patient contact at clinic only (not home-based)	Psychiatrist: diagnosis, treatment, supervise volunteers (Outreach clinics)	Social workers: Coordinate activities (clinical roles under 'PHW roles')		Supervised by psychiatrist
MHAT (outreach clinic with PHW support)	Kerala	R	Chronic mental disorders (schizophrenia,	CMHS (NGO)	community	Regular organised supervisory meetings between psychiatrists, psychologists and	Matched care determined by psychiatrist	Care volunteers (LHW): existing palliative care volunteer with added MH respons-ibility; weekly home visits; assigned one patient for life,	Specialist team (psychiatrist, psychologist, PSW): diagnosis, treatment, follow-up (outreach	Care volunteers: (LHW with certificate). Clinical roles as under 'PHW'. Liaise between community, other LHWs and specialists	coordinator of clinic volunteers.	6 month mental health training+diploma. Intensive supervision for psychologi

Program me	State	Loc atio n	MDs	Specialis t platform	PHW platfor m	Level of PHW/comm unity and specialist interaction	Steppe d/matc hed or single interve ntion	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervisio n of care manager/ care coor-dinator
			bipol ar, sever e perso nality disor der)			volunteers.		psychosocial education and family support; clinic volunteers: screening; home care management volunteers: help psychologist +/- psychiatrist (home visits or nursing home) with palliative and psychiatric needs.	clinics). Psychologists also do home visits.			sts and psychiatris t (weekly phone call).
SCARF-COPSI (PHWs as lay counsello rs)	Tamil Nadu	R	Schiz ophre nia	CMHS (NGO)	commu nity	Regular organised supervisory meetings between psychiatrists , care managers and LHWs.	One interve ntion (stigma) with potenti al for referral if worsen ing sympto ms	Community level workers (LHWs): complementary roles to specialists (Home visits): identification/referral psychoeduca-tion, stigma intervention, general support, raising awareness. Supervised by coordinators (weekly doctors (fortnightly), and by supervisors (3 monthly)	Psychiatric team (PSW, psychiatrist, psychologist): diagnosis, treatment, follow-up, (weekly outreach clinics in different loca-tions).Also trial monitor-ing, advocacy + networking		Coordinator (PSW+psychol ogist back-ground)Super vise PHWs, liaise between community, LHWs+speciali sts. Coordinate programme, network with agencies. No clinical roles.	Supervised by psychiatris t.

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coor-dinator
Bapu Trust-Seher programme (PHWs as lay counsellors)	Maharashtra	U	all	CMHS (NGO)	Community	Regular contact and meetings for support and exchange of patient information	Matched care by specialist team	LHW <u>counsellors</u> ie field workers and peer supporters (subtype of fieldworker who provide intensive 24/7 support for those in need): identification, referral if necessary, psychoeducation, support, bring patients to camp, also counselling, corner meetings. <u>Generalist doctor:</u> employed just for outreach clinics to rule out organic disorders.	<u>Specialist team</u> does outreach clinics including psychotherapies (psychologist, PSW). <u>Psychiatrist</u> does field worker training.	LHW counsellor called 'fieldworker' - recovered patients: Liaise between patients and specialist. Care roles as under 'phw roles'		Supervised by <u>psychologists and leader/coordinator</u>. Also trained by psychiatrist, psychologist PSWs and coordinators

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coor-dinator
Mukhtang Mitra-outreach rural (PHWs as lay counsellors)	Maharashtra	R	substance abuse	Specialist hospital (NGO)	Community	Regular organised supervisory meetings between specialists, coordinators and volunteers	Matched care determined by psychiatrist	Volunteers (LHWs): (1 month training or more; some have CBT/REBT training) support specialist care by providing counselling, psychosocial support (outreach clinics); also receive calls in call centre (see below); Caregivers: trained by volunteers.	Psychiatrist and psychologist: diagnosis, treatment, supervise volunteers (Outreach clinics).	Coordinator (clinic-based mental health paraprofessional). Coordinates and supervises volunteers and counsellors. Also has treatment/care roles within NGO clinical services.		Training and supervision by specialists (of all PHWs).

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coordinator
Saarthak PACT (PHWs as lay counsellors)	Delhi	R	Severe or enduring mental disorders	CMHS (NGO)	Community	Regular organised supervisory meetings between psychiatrists, psychologists and facilitators.	Stepped care - psychosocial support (primary facilitator; counselling(secondary facilitator ,referral to psychiatrist	Primary facilitator (graduates or recovered users)): psychosocial support, befriending, activities; secondary facilitator (with 1 year Saarthak diploma): group leaders, counselling and supervise/peer support with primary facilitators. (Home visits)	Psychiatric team (PSW, psychiatrist, psychologist): diagnosis, treatment including therapies. (outreach clinics)	Secondary facilitators: (diploma graduates). lead team, liaise between primary facilitators, community and specialists.	Psychologists coordinate the programme	1 year diploma course. Supervision by therapists and psychiatrists.

Program me	State	Loc atio n	MDs	Specialis t platform	PHW platfor m	Level of PHW/comm unity and specialist interaction	Steppe d/matc hed or single interve ntion	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervisio n of care manager/ care coor- dinator
VOLCOM - outreach program me (PHWs as lay counsello rs)	Mizor am	R	all, subst ance abuse , HIV	CMHS (NGO)	Comm unity	Regular organised supervisory meetings between psychologist s and outreach workers.	Steppe d care - first home- based suppor t (LHWs) , then psychol ogist, then refer to psychia trist.	Peer educators (PE's)(recovered users- LHWs): identification, referral, follow-up, some counselling, psychosocial support, awareness raising (3 days training in house). Outreach workers (LHWs) : supervise PE's and do livelihood/ benefits work with clients. All PHWs involved in HIV and substance use care too. (Home visits).	Clinical psychologists trained by programme coordinator/le ader and perform community- based clinics at VOLCOM centre. No psychiatrists (can refer to government psychiatrist).	Outreach workers: (graduates/SWs or experienced users/previous peer educators (PE's). clinical roles as under 'PHWs'. Liaise between PE's and psychologists/ head of VOLCOM. Supervise PE's including joint visits every week (as do psychologists).		Trained for 5 days. Significant initial in- house and ongoing training for ORWs and PE's. Supervised by psychologi sts

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coordinator
SNEHA-helpline	Tamil Nadu	R/U	all	CMHS (NGO)	CMHS	Regular meetings between psychiatrist and coordinators and coordinators with volunteers.	One intervention only (befriending)	<u>Volunteers (LHWs)</u>. 40 days training + ongoing training. provide emotional first aid, and keep records of discussions. (Call centre) Also do fundraising.	<u>Psychiatrist</u>: supervision, training, external training, overall programme coordination.	<u>Experienced volunteers</u> (non-health lay background (LHW)). Train volunteers, Coordinate and supervise volunteer call receivers. Also clinical roles as under PHW roles.		Both by <u>psychiatrist</u> leader.
Maitra-helpline	Maharashtra	R/U	all	CMHS (NGO)	CMHS	Regular meetings between coordinator, care managers and volunteers	One intervention only (befriending)	<u>Volunteers</u> (LHWs). 3-5 days training and ongoing training every 2-3 months. provide emotional first aid. (Call centre).	<u>Psychologist and PSW</u>. supervise and train volunteers.	<u>Psychologist and PSWs</u>: coordinate, supervise and train volunteers and some also involved in receiving calls. (also have other clinical roles with the NGO (Maitra).		Supervised by <u>programme coordinator/ counsellor</u> (non-health background initially).

Program me	State	Loca tion	MDs	Specialis t platform	PHW platfor m	Level of PHW/comm unity and specialist interaction	Steppe d/matc hed or single interve ntion	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervisio n of care manager/ care coor- dinator
Mukthan g Mitra- helpline	Maha rashtr a	R/U	subst ance abuse	Specialist hospital (NGO)	CMHS	Moderate communicati on between specialists and coordinators , best contact between coordinators and volunteers	One interve ntion only (suppor t and crisis interve ntion)	Volunteers (LHWs): 1 month training, some have additional REBT or CBT training. provide support, advice and minimal counselling. (Call centre)	Psychiatrist, psychologist: supervise and train coordinators	Coordinator (mental health paraprofessiona l): supervises/mon itors volunteers calls. Trains volunteers. Also has treatment/care roles within NGO clinical services		Psychiatris t and coordinato r
Uduvam Ulangal- rescue operatio n (for shelter)	Tamil Nadu	R	all	General hospital (individu al psychiatr ist)	commu nity	Specialist team communicati on good	one interve ntion (rescue operati on)	LHWs (lay counsellor/social worker): part of outreach team. Supportive role to the specialist for psychosocial support	Psychiatrist: visit hot spots in community with LHWs. Also diagnosis and treatment	Coordinator (graduate/PHW) : main role administrative coordinating CHAD and government hospital activities. Minor roles in PHW support. Also does patient family reintegration		Psychiatris t

Program me	State	Loc atio n	MDs	Specialist platform	PHW platform	Level of PHW/comm unity and specialist interaction	Steppe d/matc hed or single interve ntion	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervisio n of care manager/ care coor-dinator
Mission Ashra-rescue operatio n (for care unit)	Oriss a	R	all (hom eless)	Specialist hospital (NGO)	PHWs from specialis t hospita l (nurses and general social worker s)	Minimal interaction between psychiatrist and PHWs	One interve ntion (rescue operati on)	Pharmacist, nurse, social worker: part of outreach team. Supportive role but also do counselling and help with children, refer to the care unit/rehab and do resilience training for community/familie s	Psychiatrist, psychologist: team (+PHW social worker) visit hot spots in community. Psychiatrist: diagnosis and treatment		Psychiatrist: very little training and support for PHWs	None
Vocational rehabilitation (not a first level access but community based service)												
Samuha (CBO)/ Samarth ya (NGO)/ Basic Needs India (CMHS) - vocation al rehabilit ation	Karna taka	R	SMDs	CMHS (NGO) + communi ty (disabilit y NGO)	Comm unity (CBO)+ self-care	Minimal contact with specialists (only available for referral). Regular organised contact between coordinators and PHWs	Single interve ntion (hortic ulture or tailor training)	Recovered patients: horticultural, tailoring trainers (community centre)	No specialists involved in this service apart from referring to local psychiatrists		Several Samuha and Samarthya coordinators including a horticultural coordinator (experienced CBR worker) who supervise and train PHWs	Supervisio n and training by Basic Needs coordinato rs and Samarthya managers

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coordinator
Banyan - day care centre (rehabilitation)	Tamil Nadu	U	SMDs	CMHS (NGO)	Self-care	Regular weekly interaction between psychiatrist and coordinator	Single intervention (computer or crafts training)	<u>Recovered patients</u>: IT and art/crafts trainers. Also follow-up patients with regards to their medication effect (in a centre)	<u>Psychiatrist</u>: weekly outreach clinics.		<u>Coordinator</u> (non-health graduate background) coordinates activities and supervises vocational trainers	Hierarchy of training and supervision: <u>psychiatrist, coordinator, vocational trainers</u>
Chellamuthu Trust - vocational rehabilitation unit	Tamil Nadu	U	SMDs	CMHS (NGO)	Self-care	Contact of psychiatrist with PHWs at outreach clinics	Single intervention (vocational training)	Recovered patients: tailoring and arts/crafts trainers (in a centre)	<u>Psychiatrist</u>: outreach clinics.		<u>Psychiatrist</u>: oordination and supervision.	None
Saarthak - vocational rehabilitation (closed)	Delhi	U	SMDs	CMHS (NGO)	Self-care	Contact of psychiatrist with PHWs at outreach clinics	Single intervention (vocational training)	<u>Recovered patients</u>: tailoring and arts/crafts trainers (in a centre)	<u>Psychiatrist</u>: outreach clinics		<u>Psychiatrist</u>: oordination and supervision.	None

Programme	State	Location	MDs	Specialist platform	PHW platform	Level of PHW/community and specialist interaction	Stepped/matched or single intervention	PHWs: background and roles	Specialists: background and roles	Care manager: background and roles	Care coordination	Training + supervision of care manager/ care coor-dinator
Banyan-Adaikalam reintegration programme (rehabilitation)	Tamil Nadu	R/U	SMDs	CMHS (NGO specialist unit)	Community + self-care	Visiting team have substantial contact and patient information sharing	Single intervention (reintegration into families)	Reintegration volunteers (non-health workers) in community: reintegration of family member. Family support (home visit). Supervised and trained by Adaikalam outreach team	Psychiatrists, clinical psychologists and psychiatric social workers Adaikalam (institution) outreach team: help with the reintegration team activities and support before/ after		Psychiatrist: oordination and supervision.	None