Effectiveness of SEHER, a school-based intervention to promote health in adolescents in Bihar, India: A clustered randomised trial

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"Ethos is a school's soul and a critical factor in determining whether a school promotes health effectively"

- Health Education and Health Promotion: A report by HM Inspectors of Schools, 1994

SEHER

DECLARATION

I, Sachin Shinde, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

I have read and understood the School's definition of plagiarism and cheating given in the Research Degrees Handbook. I declare that this thesis is my own work, and that I have acknowledged all results and quotations from the published or unpublished work of other people.

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Sachin Shinde
January 10, 2018

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ABSTRACT

Background: With rapid extensions to education in many emerging market economies, secondary schools have the potential to be an important platform for health promotion and prevention. A 'health promoting school' approach has become an increasingly popular framework internationally with which to address the health needs of school communities. A growing evidence base indicates that, if applied successfully, a health promoting school framework can lead to improvements in both health and educational outcomes.

Methods: A cluster randomized controlled trial was conducted to assess the effectiveness and cost-effectiveness of a whole-school health promotion intervention (*Mitra*, meaning a friend) in Bihar, India. Two intervention delivery models using a lay school counsellor (the SEHER *Mitra* (SM) arm) or a teacher (Teacher as SM (TSM) arm), were compared against the standard Adolescent Health Education Program, in 74 government-run secondary schools in Bihar, India. All grade IX students were assessed at the start and end of the academic year (i.e. June 2015-March 2016; 8 months apart). The primary outcome was school climate, (the perceived ethos or atmosphere of the school) measured with the Beyond Blue School Climate Questionnaire (BBSCQ). Secondary outcomes included self-reported bullying, violence, depressive symptoms, attitudes towards gender equity, and knowledge of reproductive and sexual health.

A qualitative study was nested in the trial to evaluate the reasons why the difference in the delivery agents may have yielded different results for the two arms when compared with the control. For this study, data were collected through one on one interviews and focus group discussions with key stakeholders. Qualitative data were analysed thematically using Framework Analysis.

Findings: The baseline survey was conducted in July 2015, and included 13,035 participants (SM: 4524; TSM: 4046; control: 4465; 52.5% boys). The endpoint survey included 14,414 participants (SM: 5316; TSM: 4475; control: 4623; 52.9% boys). School climate scores were similar by arm at baseline, but schools receiving the SM-delivered intervention had significantly larger gains in school climate scores at endpoint (mean BBSCQ=24.13) compared with those receiving the TSM-delivered intervention (mean BBSCQ= 17.16; adjusted mean difference (aMD)=7.91, 95%CI:6.34, 9.47; effect size (ES)=1.98 95%CI:1.93, 2.03) or the control intervention (mean BBSCQ=17.75; aMD=7.44, 95%CI:5.88, 8.99; ES=1.86 95%CI:1.81,1.91). School climate scores were similar in the TSM and control arms at the study endpoint (aMD=-0.47, 95%CI:-2.03, 1.08; ES=-0.12 95%CI:-0.17,-0.07). Schools with the SM-delivered intervention showed significant improvements in all secondary outcomes compared with both the

TSM and control arms.

From the qualitative sub-study, a number of fundamental implementation factors were identified as not being sufficiently well developed to facilitate the effective implementation of the SEHER in the TSM arm relative to SM arm. These included: a lack of a shared understanding of the SEHER amongst all key stakeholders; reluctance of principals to be the leader of the programme implementation in schools; poorly developed forms of collaboration within school; and the lack of a properly functioning School Health Promotion Committee; and overburdened TSMs with academic and non-academic responsibilities.

Conclusions: The multicomponent whole-school health promotion intervention had major beneficial effects on school climate and related outcomes when it was delivered by lay school counsellors, but no consistent effects when delivered by teachers compared with the standard Government program.

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ABBREVIATIONS

AEP	Adolescence Education Programme
AFHC	Adolescent Friendly Health Clinic
AHPSA	Australian Health Promoting School Association
AIDS	Acquired Immunodeficiency Syndrome
aMD	Adjusted Mean Difference
ANCOVA	Analysis of Covariance
BBSCQ	Beyond Blue School Climate Questionnaire
C3	Centre for Catalysing Change
CI	Confidence Interval
CRT	Cluster Randomised Trial
CSHP	Comprehensive School Health Program
DALY	Disability Adjusted Life Years
DEO	District Education Officer
DoE	Department of Education
DOI	Diffusion of Innovation
DSMB	Data Safety and Management Board
EMEs	Emerging Market Economies
ENHPS	European Network for Health Promoting Schools
ES	Effect Size
FGD	Focus Group Discussion
GEMS	Gender Equitable Men Survey
GOI	Government of India
GSHS	Global School-based Health Survey
HBM	Health Belief Model
HIV	Human Immunodeficiency Virus
HPS	Health Promoting School
HSC	Healthy Schools Coordinator
ICC	Intra Cluster Correlation
IUHPE	International Union of Health Promotion and Education
LMIC	Lower- and Middle-Income Countries
LSHTM	London School of Hygiene & Tropical Medicine
MHRD	Ministry of Human Resource Development

MRC	Medical Research Council
NCD	Non-Communicable Diseases
OR	Odds Ratio
PHQ-9	Patient Health Questionnaire-9
RCT	Randomised Control Trial
RE-AIM	Reach, Effectiveness, Adoption, Implementation, and Maintenance
RKSK	Rashtriya Kishor Swasthya Karyakram
RSH	Reproductive and Sexual Health
SCERT	State Council for Educational Research and Training
SD	Standard Deviation
SDGs	Sustainable Development Goals
SEHER	Strengthening Evidence base on scHool-based intErventions for pRomoting adolescent health
SHAPE	School HeAlth Promotion and Empowerment
SHPC	School Health Promotion Committee
SOP	Standard Operating Procedures
SM	SEHER *Mitra*
STI	Sexually Transmitted Infection
TSC	Trial Steering Committee
TSM	Teacher-as SEHER *Mitra*
UK	United Kingdom
UN	United Nations
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
USA	United States of America
WHO	World Health Organization

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Chapter 1: INTRODUCTION

Adolescence, the transition period between childhood and adulthood, is marked by intense physical, psychological and social changes. In 2009, there were an estimated 1.2 billion adolescents in the world, forming around 18% of the global population. The majority of the world's adolescents – 88% – live in developing countries. The World Health Organization (WHO) report on the global status of adolescent well-being highlights a number of risks to adolescent health and well-being (WHO, 2017). For example, more than 3000 adolescents die every day, totalling 1.2 million deaths a year from largely preventable causes; more than two-thirds of these deaths occurred in low- and middle-income countries in Africa and South-East Asia in 2015. Road traffic injuries were the leading cause of adolescent death among 10- to 19- years old boys while the leading cause of death for younger adolescent girls aged 10-14 years are lower respiratory infections and pregnancy complications are the top cause of death among 15-19-year-old girls. The provision of effective education and healthcare, appropriate social policy, and mechanisms for family and community support are essential for adolescents to make a transition to a healthy, happy and productive adult life.

Addressing the health of children in schools is not a new practice. Throughout the twentieth century and even earlier, many western countries provided health education and health services to young people in schools. The founders of the World Health Organization (WHO) defined health as ''*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*,'' further recognizing that ''*the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being*'' (WHO, 1948). The WHO's Charter on Health Promotion stated that, "*health is created by caring for oneself and others, by being able to make decisions and have control over one's life and circumstances, and by ensuring that the society one lives in creates conditions that allow the attainment of health by all its members*'' (WHO, 1986).

Schools and educational agencies at all levels – national, state, and local –are settings where young people learn, play, and love, where adults work, and where families gather and participate in support of educational and community activities. Indeed, the concept of a '*health promoting school* (HPS)' developed out of *school environment as a setting* approach and has become an increasingly popular framework internationally within which to address the health needs of school communities (e.g. Weare, 2000; Stewart-Brown, 2006). Over the last two decades, many experiments to address specific health issues through schools have taken place in western

countries. This research has shown that school-based health interventions can improve health and educational outcomes. Most importantly, research has shown the effectiveness of a whole-school approach that combines strategies across components to make a powerful difference.

1.1 Rationale for research

There are more than 243 million young people between the ages 10-19 in India, comprising nearly 20% of the country's population (GOI, 2011). Promoting the health of young people has occupied an increasingly prominent place in India's national health and development priorities. The National Youth Policy-2014 visualizes active participation of youth, including adolescents, at all levels of social enterprise and recommends youth empowerment through education, nutrition, leadership development and equal opportunity (GOI, 2003). The National Health Policy-2002 has recognized the necessity of implementing school health programmes (GOI, 2002). The National Population Policy-2000 (GOI, 2000) and the National Policy for the Empowerment of Women-2001 (GOI, 2001) recognize adolescents as an underserved and vulnerable population group with special reproductive and sexual health (RSH) needs. Thus, there is a growing interest in promoting young people's health in India, and schools have been identified as a key location by the National Health Policy of Government of India (GOI, 2002).

Over the past few years, public and private organizations have been working towards integrating adolescent RSH interventions in schools in India, adopting various approaches to address these barriers. At the heart of these interventions is the implementation of the life-skills curriculum which adopts a broader approach (i.e. extending beyond a narrow focus on RSH) to reducing risk behaviours and building resilience in youth. Post 2005, in the wake of the controversy around sex education (UNFPA & GOI, 2010); the school based sexual health program was restructured as the Adolescence Education Programme (AEP; GOI, 2006) that focused on enhancing life skills among adolescents to enable them to respond to real life situations effectively. Positioning AEP in the wider context of an educational approach to develop life skills to empower young people proved to be a useful strategy with a clear focus on age appropriate and culturally sensitive information. Furthermore, the National Curriculum Framework (GOI, 2005) that guides the school curriculum across the country recognized the AEP as an important area in school education. The AEP recognizes adolescents as a positive resource and focuses on transformational potential of education in a rights framework. The training/resource materials address the themes of making healthy transitions to adulthood (being comfortable with changes during adolescence), understanding and challenging stereotypes and discrimination (including abuse and violation)

related to gender and sexuality, prevention of HIV/AIDS and substance abuse. Box 1.1 describes the themes and sub-themes covered through AEP.

Box 1.1: Themes covered through Adolescence Education Programme

Theme 1: Growing up healthy
- Establishing and maintaining relationships
- Understanding adolescence

Theme 2. Gender and sexuality
- Understanding and challenging stereotypes
- Discrimination and abuse

Theme 3. Prevention of HIV
- Prevalence, transmission and prevention
- Diagnosis and service

Theme 4. Prevention of substance misuse
- Understanding causes and consequences of substance misuse
- Protection from substance misuse

Currently, the AEP has been rolled out in many states in the country (GOI, 2006), although its implementation is uneven and there have been considerable challenges in sustaining this programme's activities (UNICEF-India, 2006). A key challenge has been to deliver the intervention with fidelity and sustainability as the AEP nodal teachers (a teacher responsible for facilitating and delivering AEP at the school level) face a number of challenges in performing this role. Furthermore, there is recognition for the need of individual counselling for vulnerable adolescents, in addition to a universal life skills based programme. Two delivery models have emerged in recent years to address these challenges. In one model, teachers are trained and supported to become counsellors (teacher-counsellors); an example of such a model has been implemented by the Centre for Catalyzing Change (C3) in Bihar. A second model is the use of an additional human resource in the form of a counsellor in schools, exemplified by Sangath's school-counsellor delivered HPS programme. These two models recognize the need of providing counselling services, in addition to the AEP implementation. While there is evidence testifying to the acceptability, feasibility and potential benefits of both delivery models (Rajaraman, Shinde, & Patel, 2015) and acknowledgment of both delivery models, there is no definitive evidence on the effectiveness and, importantly, cost-effectiveness of these approaches compared with the usual AEP approach.

The lack of India-specific evidence on effectiveness and cost-effectiveness of school-based health promotion interventions poses challenges to any future engagement with policy makers at the state and national level. The mixed evidence from other countries and the lack of evidence from India highlights the need to conduct formal evaluation of the effectiveness of India-specific school-based interventions. The overall aim of this thesis is to address this knowledge gap and provide evidence on school-based health promotion intervention through formal evaluation. The cluster randomised trial (CRT) is the focus of this thesis, and constitutes the last phase of the three-phased SEHER project (Section 1.2). The trial results provide rigorous evidence on the effectiveness of a school-based multicomponent intervention on the school climate and a range of adolescent health outcomes (e.g. bullying, depression, violence, attitude towards gender equity and knowledge of RSH) when delivered by two different delivery agents (lay counsellor and teacher, respectively) compared with the Government-run AEP.

1.2 Objectives of the SEHER project

SEHER—**S**trengthening **E**vidence base on sc**H**ool-based int**E**rventions for p**R**omoting adolescent health—sought to develop and evaluate a comprehensive, whole-school, and multicomponent health promotion intervention delivered by two different delivery agents viz. a lay counsellor called as SEHER *Mitra* (*Mitra* meaning friend; SM) or a teacher (called as Teacher-as SEHER *Mitra*; TSM) in government-run secondary (Grade IX & X; age 14-15 years) and combined secondary and higher secondary schools (Grade IX-XII; age 14-17 years) in Nalanda district of Bihar, India. The duration of the project was four years (July 2013-June 2017).

SEHER was implemented by Sangath, an Indian non-government organization with a long-standing record of working with adolescents (www.sangath.in), in partnership with the London School of Hygiene & Tropical Medicine (LSHTM), UK and the Department of Education, Bihar. All research procedures were approved by the institutional review boards of Sangath, the LSHTM and the Health Ministry Screening Committee of the Indian Council for Medical Research. The project was jointly funded by the John D. and Catherine T. MacArthur Foundation, USA and the United Nations Population Fund's, India Office.

The SEHER project aimed to achieve the objectives of the SEHER project through three phases:
Phase 1: Formative phase (July 2013-March 2014): This phase was aimed at refining the components of a school-based multicomponent health promotion intervention - School HeAlth Promotion and Empowerment intervention (SHAPE) to suit the local context of Bihar. The SHAPE

intervention was tested for acceptability and feasibility in secondary schools in Goa, India (Rajaraman et al., 2012). The formative phase involved two stages:

i) Reviewing national and global literature on school-based health promotion interventions; and

ii) Formative research to adapt the intervention to the local context of Bihar.

Phase 2: Pilot testing (April 2014-March 2015): During this stage, 75 eligible schools were randomly allocated to one of the intervention arms (SM or TSM) or control (TARANG-AEP) and the pilot testing was conducted in the randomly allocated 25 schools each to SM and TSM arms. Further details of randomisation are given on page 80. We conducted the pilot in the same schools as the main trial for two reasons: 1) the secondary schools only included grade IX onwards (our primary target group for the evaluation of the effectiveness) and thus, the cohort of students to be included in the main trial would not have been exposed to the intervention during the pilot; and 2) piloting the intervention in the schools participating in the trial enabled us to embed the intervention and conduct refinements to optimize its feasibility and acceptability in each school.

Phase 3: Main trial (April 2015-June 2017): The SEHER intervention's effectiveness and cost-effectiveness was evaluated through a three-arm CRT comparing clusters (schools) in two intervention arms: (i) Teacher-as SEHER *Mitra* (TSM) in addition to the government-run Adolescence Education Programme (AEP); and ii) SEHER *Mitra* (SM) in addition to AEP, versus the control arm (AEP only), with follow-up over 8 months.

After completing the data collection for the SEHER trial in March 2016, the Trial Steering Committee (TSC) and both the funders agreed to extend the evaluation of the SEHER intervention by one more year to answer additional research questions related to *incremental effect*s and *dose response*. These research questions are described in detail in the discussion section (Section 8.6).

1.3 Outline of work to be presented and role of author

The thesis will report selected Phase 1 and 2 study findings but will focus primarily on the results of Phase 3. The PhD includes the evaluation of the SEHER intervention's effectiveness against the government-run TARANG-AEP and the qualitative sub-study, which was nested in the main trial. The cost-effectiveness evaluation is not included in the PhD.

Chapter 2 will present a literature review on school-based health promotion, especially on the HPS framework and argue that school-based health promotion intervention strategies may influence school climate (a proximal outcome) and health and health-related outcomes (distal outcomes) among adolescents. Chapter 3 will describe the key findings of Phase 1 and 2 and their implication for the intervention tested in Phase 3. Chapter 4 will describe the methods used for the SEHER trial in detail, including the study setting, the study objectives, design and data collection methods, and analysis approach. Chapter 5 will discuss the baseline and the key effectiveness results of the trial in improving the school climate and impact on participant knowledge, attitude and behavioural outcomes at follow up. Chapter 6 will describe the methods used for a qualitative sub-study nested in the SEHER trial, including study objectives, design, data collection methods, and description of qualitative analysis approach. Chapter 7 will describe the findings of the qualitative sub-study. Finally, Chapter 8, will discuss and interpret results and discuss the implications of these findings in terms of broader programme and service delivery relevance as well as identify future research issues.

I was responsible for preparing the original concept note to obtain initial donor support for the study and to obtain approval to proceed to the full proposal development stage. Following donor approval, I worked under the guidance of Prof. Vikram Patel, Principal Investigator of the SEHER project and my co-supervisor for this PhD, to define the study questions and review the literature, which identified the need for a rigorous study design to evaluate effectiveness. I led the writing of the full study proposal, and solicited and incorporated inputs from Prof. Vikram Patel and Prachi Khandeparkar, a colleague at Sangath, Goa.

As a Research Director for the SEHER study, my roles included: leading all aspects of the formative research and pilot study; developing the standard operating procedures (SOPs) for the SEHER intervention components; and leading the drafting of the trial protocol, including all trial related SOPs and data collection instruments with regular inputs from the TSC. I was responsible for the recruitment and training of the project teams in Bihar including Intervention Coordinators and Research Coordinators. I oversaw the day to day implementation of the trial, regularly reviewed the quality of the data, and provided status update reports to the TSC, Data Safety and managing Board (DSMB) and to the both funding agencies through face to face meetings, telephonic meetings, and routine periodic reporting systems. I was responsible for obtaining buy-in and inputs from the State Council for Educational Research and Training (SCERT), Government of Bihar and District Education Office (DEO), Nalanda, Bihar in order to keep them

updated on study progress. I worked with the study team to lead the development of the training materials and adaptation of job aides and participated in all training sessions for the intervention staff. Intervention monitoring visits were carried out by the Intervention Coordinators with regular feedback and supervision from the Program Director and the author. Along with the Research Coordinators, I led the survey data collection including field quality checks, data entry and management.

With guidance from Prof. Helen Weiss, primary supervisor for this PhD, I developed the plan of analysis protocol and led the data analysis. Prof. David Ross supervised my work as the main supervisor between September 2014 and March 2015. Prof. Vikram Patel was my main supervisor between April 2015 and September 2016. Prof. Helen Weiss took over as the main supervisor from October 2016.

Chapter 2. SCHOOL-BASED HEALTH PROMOTION: EXISTING EVIDENCE

This chapter provides a brief overview of the importance of adolescent health promotion and explains the link between education and health. I show that schools provide a promising platform for health promotion in adolescents, and provide a brief overview of the health promotion theories and the HPS framework to health promotion followed by the evidence of effectiveness and process evaluation of health promoting schools. Finally, I hypothesize that school-based health promotion intervention strategies may influence social climate (a proximal outcome) and health and health-related outcomes (distal outcomes) among adolescents.

2.1 Introduction

Traditionally, the medical model of disease prevention and treatment has been the prevailing approach to health and is still widely used today within the medical sciences (Shah & Mountain, 2007). However, there has been a rising recognition of the importance of broader health-related issues, such as social determinants of health and healthy living choices, and this has led to a shift towards more health-promoting models of health (Oliver & Peersman, 2001).

The health promotion model, in contrast to the disease focused model, aims to empower people and communities to acquire control of, and improve, their own health and well-being (WHO, 1986). The health promotion model recommends focusing specifically on building skills in coping with all facets of life. In this manner, an emphasis on structures (or settings) rather than individuals, has been suggested as the most effective means of comprehensively addressing population health (Oliver & Peersman, 2001). According to Dooris (2009), *"the ecological perspective acknowledges the significance of mapping the interconnectedness and synergy between different components, and recognizes that settings are both complex systems (unpredictable) and open systems (interacting with the other settings and the wider environment)" (*p30*).*

Most notably, the WHO has endorsed this "settings-based" or ecological model of human behaviour as a means of addressing the health needs of people in their social contexts and developing appropriate and effective health promotion policies (WHO, 1986, 2005). The WHO Ottawa Charter for Health Promotion (1986), in particular, endorsed this approach, thereby reflecting a shift away from the medical model of disease to health promotion. This endorsement in turn has led to policy makers on the ground, focusing more on settings-based health promotion

initiatives. The settings approach to health promotion is also founded on concepts of empowerment and competence enhancement and aims to support individuals or communities in becoming more involved in and responsible for their own health (Naidoo & Wills, 2009). Thus, the settings approach strives to improve specific aspects of the environment and improve its capacity to support the health needs of those who interact within it (Poland et al., 2009). This approach also enables a more multidisciplinary approach to public health as it aims to take a holistic view of health and well-being. Thus, this model is concerned with all aspects of health, including policy design, environment modifications, collaboration with families, groups, and communities to individual health, all with a view of developing a more health-promoting environment. In the context of this study, the school forms a more discrete setting and the debate can mainly focus on how extensive beyond the physical school this setting should reach.

2.2 Importance of adolescent health promotion

At 1.2 billion, young people aged 10-19 years comprise more than a fourth of the world's population, of whom nearly 88% live in low- and middle-income countries (WHO, 2009). Adolescence is characterized by dramatic physical and psychological changes and modifications in social perceptions and expectations (Viner, 2005). It is associated with the emergence of health risk behaviours, many of which have important consequences for physical and mental health, and emotional well-being.

Viner (2005) summaries several key reasons for a focus on health promotion in youth:

- During adolescence, young people begin to consider/explore "adult" health behaviours, including smoking, drinking alcohol, drug misuse, violence, and sexual intimacy.
- Adolescent health behaviours have a direct effect on the immediate as well as long term health outcomes and quality of life—e.g. Engaging in risky sexual behaviour which might result in sexually transmitted infections (STIs) or teenage pregnancy. Many health-related behaviours that usually start in adolescence (tobacco and alcohol use, eating unhealthy, and physical inactivity) contribute to the epidemic of non-communicable diseases in adults. For example, in people older than 60 years, high blood pressure and elevated cholesterol and glucose account for 29% of disability-adjusted life-years (DALYs); tobacco use accounts for 10%; physical inactivity for 7%; and being overweight or obese for 7% (Sawyer et al., 2012).
- Health risk behaviours cluster in adolescence—e.g. Those who smoke are also more likely

to drink alcohol and take drugs, engage in risky sexual behaviours, and engage in violent behaviour.

- Young people, especially in the earlier years of adolescence, generally understand only linear “concrete” relations between cause and effect (Toumbourou et al., 2000). For example, messages that smoking causes lung cancer can be rejected as irrelevant, as they know that their friends who smoke do not have lung cancer. Hence, the dynamic and continued development in every aspect of a young person’s life during adolescence underlines the distinct needs of youth in terms of delivery of health promotion messages.

Modifying behaviours in adolescents has profound implications for population health as the financial burdens of preventable health problems in adolescence include the long-term costs of chronic diseases that are a result of behaviours begun during adolescence (World Youth Report, 2003).

Research over many years has shown a reciprocal relationship between health and education (Patton et al., 2016; Whitman & Adlinger, 2009). Improvements in education and features of the school as a learning environment is associated with improvements in health, and improvements in health status contribute to improvements in learning and academic outcomes. Educated and literate people are likely to be healthier. Conversely, limited access to education has been linked to reduced health and well-being (Patton et al., 2016; Nutbeam & Kichbusch, 2000) and poor quality or negative features of the school as a learning environment can negatively affect student and staff health and well-being (Awartani et al., 2008).

Schools provides promising platforms for health promotion and prevention in adolescents for several reasons: They present an opportunity to target the majority of adolescents; they are the major setting in which formal education takes place, and form a central role in adolescents’ social lives. Education standards in emerging market economies (EMEs) are improving significantly following economic growth and strong public investment (Caballero, 2015). Adult literacy rates have been rising in all EMEs, averaging 93.3% of the population aged $\geq$15 years in 2015. In the same year, 50.7% of EMEs’ population aged $\geq$15 years had a secondary education (up from 49.6% in 2010). Schooling for those aged $\geq$15 years rose by 14% in 2000-10 in all EMEs, with the largest increase in South Asia (23%) followed by South Africa (20%).

2.3 Health promotion theories

A number of different conceptual models of health promotion strategies have been proposed based on underlying values or assumptions that describe and categorise health promotion practices.

2.3.1 Behavioural change theories

A number of behavioural change theories exist to explain why people do and do not adopt certain health behaviours. The Health Belief Model was one of the earliest and most influential models in health promotion (Rosenstock, 1966). It was inspired by a study of reasons people expressed for seeking or declining X-ray examinations for tuberculosis. The initial framework of the model included four constructs: a) person's subjective assessment of their risk of getting the condition, b) the perceived severity of the condition, c) perceived barriers (both those that interfere with and facilitate adoption of a behaviour such as side effects, time and inconvenience), and d) perceived costs of adhering to the proposed intervention. The model has been modified and extended to include illness behaviours, preventive health, and health screening. However, the major critique of the Health Belief Model has been based on the fact that not all health behaviour is based on rational or conscious decision or choice. The model also focuses on negative factors and ignores positive motivations that prompt healthy behaviours.

The Theory of Reasoned Action (Fishbein and Ajzen, 1975), has an underlying assumption that people routinely consider the consequences of their behaviours before engaging in these behaviours. The constructs of this theory are: behavioural intention, attitude, and subjective norms. A behavioural intention is a function of the person's attitude about the behaviour and subjective norms. One of the critiques of the Theory of Reasoned Action is that not all behaviours are under an individual's control, including spontaneous actions, habitual behaviours, and cravings. Ajzen (1985) extended the theory and developed the Theory of Planned Behaviour by adding a perceived behavioural control predictor. According to Theory of Planned Behaviour, three factors influence intent: 1) the person's attitude toward the behaviour, 2) the person's evaluation of how important significant others, such as a partner considers the behaviour to be, and 3) the degree of perceived behavioural control. The Theory of Planned Behaviour has been critiqued for focusing on cognitive elements and ignoring the role of emotion in behavioural change (Sniehotta, 2009).

The Social Cognitive Theory (also known as Social Learning Theory) provides a model which

identifies the importance of the wider context within which an individual behaves (Bandura, 1989). According to Social Learning Theory, an individual learns from models in their environment and that what they learn is dependent on their emotional and cognitive interpretation of the situation. However, this theory, whilst useful, still does not account clearly for the processes which occur between the wider environments and the individual that are particularly relevant to the concept of a health promoting school.

Other important behavioural theories include: Self-determination Theory (Chatzisarantis & Hagger, 2009), Trans-theoretical model or Stages of Change Model (Prochaska & Velicer, 1997), and the Precaution Adoption Process Model (Glanz & Rimer, 2005). Arguably, these models fail to adequately consider the influence of environmental factors on behaviour change. This is particularly important when considering the complexities inherent in many health promotion initiatives as well as the broad setting within which they function. More specifically, given the broad dimensions of school as a setting, explanations of the relationship between the environment and behaviour are important to understanding how to effectively achieve health improvements in school community members' lives. In this context, it is important to identify an alternative model that provides a useful framework that explicitly explores how complex multi-level health promoting settings initiatives might best address a child's health and well-being (Bartholomew et al., 2001).

2.3.2 Ecological theories and models

Ecological theories and models present health as an interaction between the person and their ecosystem or the social web, which consists of their family, community, culture, and the physical environment.

Antonovsky (1996) proposed the Salutogenic Theory as a conceptual basis for health promotion, addressing concerns that previous models were focused excessively on health education rather than the broader perspective of health promotion. Salutogenesis means the origins of health and was described as *"the process of enabling individuals, groups, organizations, and societies to emphasize abilities, resources, capacities, competencies, strengths and forces in order to create a sense of coherence and thus receive life as comprehensible, manageable, and meaningful"* (Lindstrom & Eriksson, 2009, p.19). This theory combines cognitive, behavioural and motivational constructs.

One of the earlier ecological models was the Social Ecological Model (SEM), which was derived

from Systems Theory. This model consists of person- and environment-focused interventions designed to promote health and focuses on how the environment and people influence one another. According to SEM, human behaviour is shaped by recurring patterns of activities that take place in structured environments (e.g., educational, religious and healthcare environments).

Several versions of the SEM have been developed. The most commonly used theory is Bio-ecological Theory of Human Development (Bronfenbrenner, 1998). This theory details how an individual's environment comprises multiple interacting systems which influence and impact upon each other to shape all aspects of a person's development including their health. This ecological and holistic perspective recognises health as a state which arises based on the interactive roles of the environment and the individual. This environment ranges from the immediate social setting such as family and friends to the broader societal level, such as the governmental structures and policies which frame the individual's environment (Kok et al., 2004). An advantage of this model (Bronfenbrenner and Morris, 2006), lies in the extent to which it goes beyond the person-environment relations to emphasise five dynamic systems (microsystem, mesosystem, exosystem, macrosystem and chronosystem) that encompass the immediate and wider environmental contexts which interact with each other as an individual develops (Bronfenbrenner & Morris, 1998, 2006; Tudge et al., 2009).

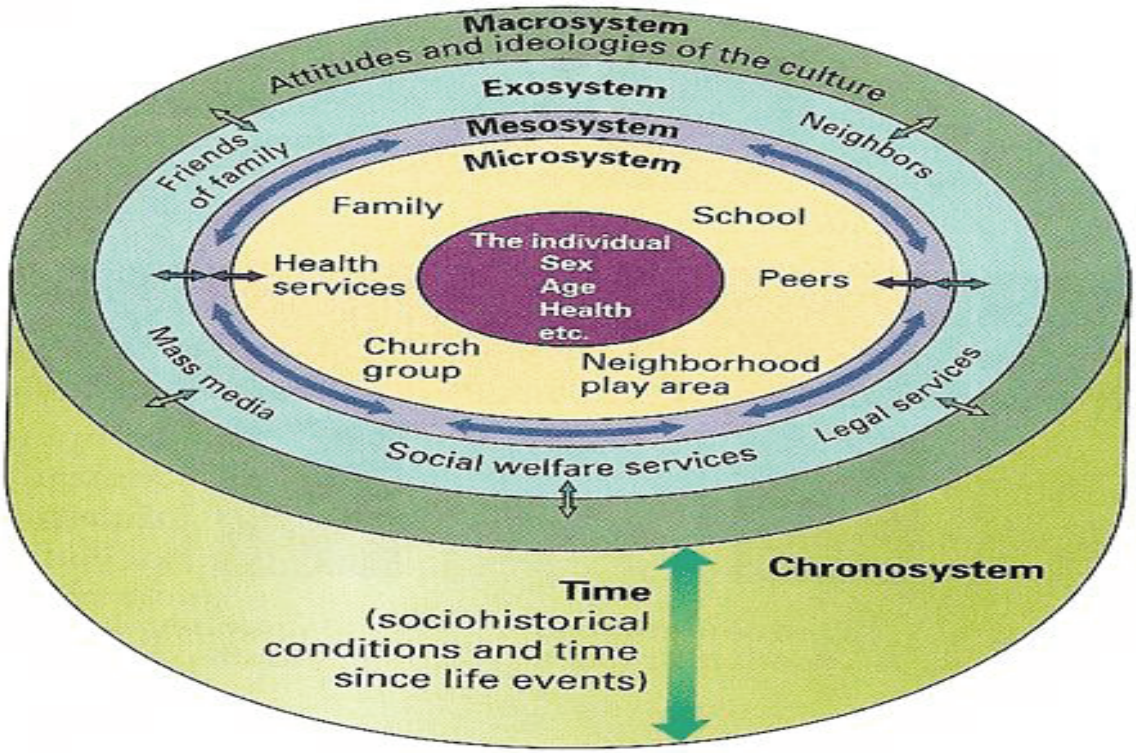


Figure 2.1 Bronfenbrenner's Bioecological model of human development (extracted from Santrock, 2007)

In the SEM model, the importance of the systems within which the individual exists and interacts is perceived as crucial to human health development. Although this model does not clearly address the issue of system blockage and its impact on the system, in terms of a health promotion intervention, this kind of ecological model is useful as it not only focuses on personal factors but addresses the health needs of communities within a setting/system (Whitelaw et al., 2001).

Building on Bronfrenbrenner's model, Lohrmann (2010) developed an ecological model of 'Coordinated School Health Programmes'. Lohrmann's conceptualisation, which incorporates all components of Bronfrenbrenner's model, presents a clear structure outlining how a health promoting school aims to influence the adolescent's environment (see Figure 2.2), as well as identify the many influential factors in an adolescent's school environment. The model also indicates how different stakeholders can influence the extent to which a school can effectively address the health and well-being of its pupils (Lohrmann, 2010).

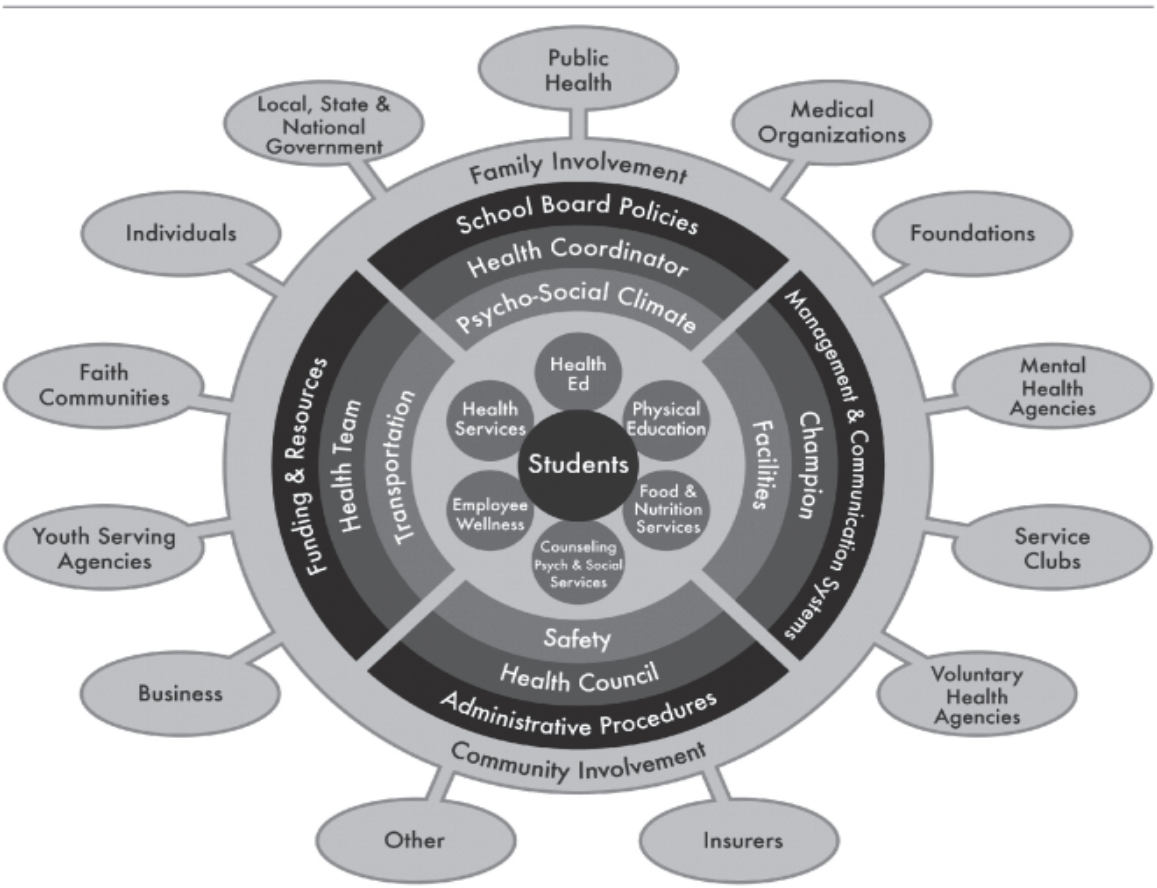


Figure 2.2: Coordinated School Health Programme ecological model (extracted from Lohrmann, 2010)

The Theory of Human Functioning and School Organisation (Markham and Aveyard, 2003) proposes how specific aspects of the school environment might influence student health behaviours and outcomes. This theory highlights the importance of engaging with institutional processes in schools to influence student health behaviours. Figure 2.3 below shows that healthier school environments are those which promote student commitment to the school's instructional and regulatory orders. The instructional order is the way in which a school enables students to learn, formally and informally. The regulatory order is the way in which a school encourages norms of behaviour and belonging. If students do not become committed to the instructional order they are said to have become '*estranged*', and where they are uncommitted to the regulatory order they are deemed to have become '*detached*'. If committed to neither they are said to be '*alienated*'.

The theory asserts that commitment to school can protect students' health. Commitment in particular to the instructional order enables students to develop '*practical reasoning*' and

commitment to the regulatory order in particular enables development of '*affiliation*'. Practical reasoning is said to involve an ability to understand and manage one's own feelings, and weigh options when deciding how to behave. Affiliation is related to a person's values and her/his capacity for developing mutually beneficial relationships. Practical reasoning and affiliation provide students with the cognitive and social supports required to develop autonomy and thus make decisions which will promote that individual's interests and thereby flourish, which would include avoiding health-harming behaviours.

The theory further suggests that whether schools can instil commitment, particularly for socioeconomically disadvantaged students, and thereby promote health, will depend on their modes of '*classification*' (how rigidly various 'boundaries', listed below, are set) and '*framing'* (whether teaching and decision-making are student-centred). The theory suggests that commitment is achieved by schools implementing policies and practices which erode various boundaries and improve linkages within the school between:

- staff – so authority is distributed rather than concentrated among senior staff;
- staff and students – so relationships are collaborative rather than authoritarian;
- between students – so positive relationships are encouraged and students are treated equitably;
- different areas of students' life – so teachers focus on students' overall wellbeing and development rather than merely academic progress, and support is provided across the whole school rather than merely in the classroom; and
- the school and its local community – so the cultures of each are mutually supportive and students and staff fully benefit from local resources.

While the Theory of Human Functioning and School Organisation has enabled deeper and more critical consideration about how institutional processes might shape behaviours, its current theorisation about how the school environment might shape health behaviours may require further development. For example, a recognition that alongside the 'official' school instructional and regulatory orders, there may exist analogous, informal student instructional and regulatory orders which may bridge between the school and neighbourhood context. Students might not only react to schools' official instructional and regulatory orders, but might also promote their own parallel versions of these informed by broader local norms. In schools where most students commit to the official school orders, the student instructional and regulatory orders may largely mirror and support the formal school orders. However, in schools where large numbers of students are not committed to the school's official orders and might instead be drawn to the norms of gangs and

other neighbourhood groups, the student instructional and regulatory orders may function in opposition. Such alternative instructional and regulatory orders might provide instruction and normative support for risk taking behaviours such as smoking, drinking and drug use (Fletcher and Bonell, 2013). This possibility provides a theoretical framework within which to understand the rational and social basis of student decisions to engage in health risk behaviours. Such elaboration should enable the Theory of Human Functioning and School Organisation to better inform future observational and intervention research.

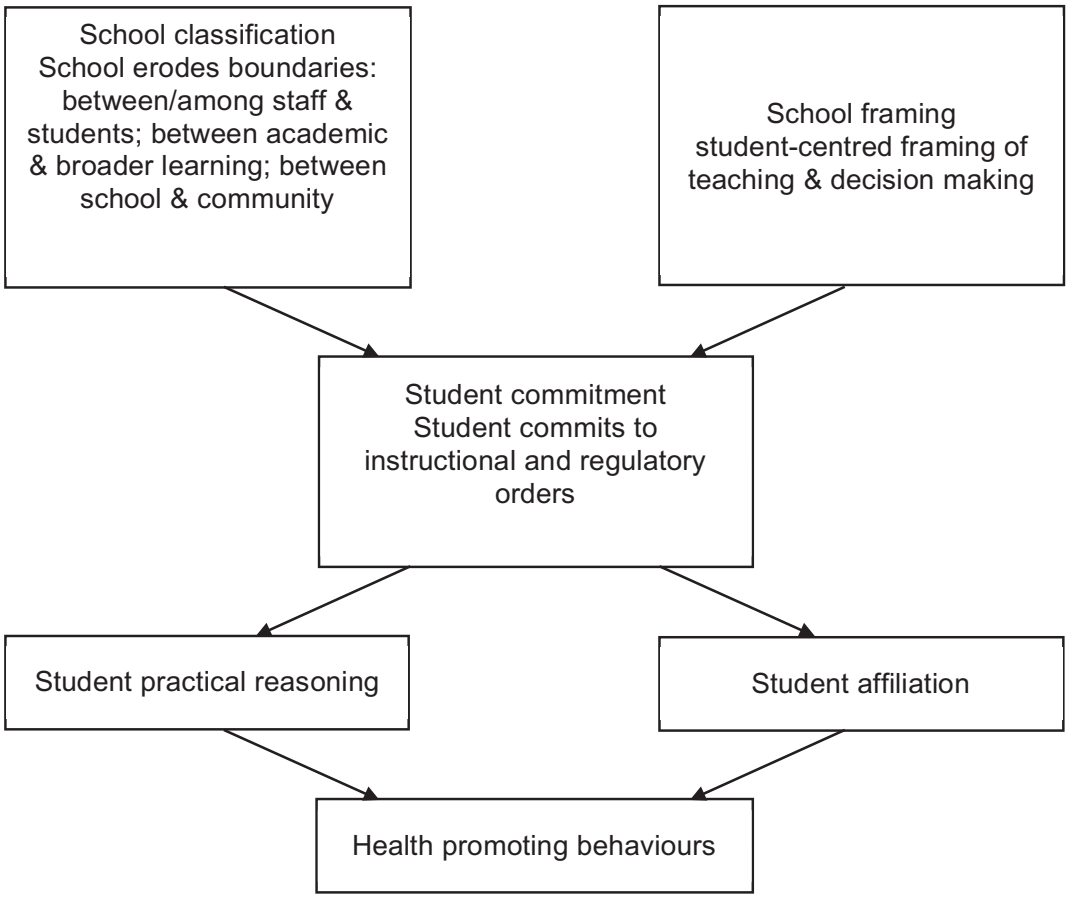


Figure 2.3: The theory of human functioning and school organisation (Bonell et al., 2016)

2.3.3 Communication theories

Communication theories are relevant when discussing school health promotion because the Ottawa Declaration (WHO, 1986) stressed the need for re-orientation of health care services. Theories that focus on provider-client communication, provider-provider communication, and the adoption of new technological advances contribute to the re-orientation of health services. For

example, the Diffusion of Innovations theory is relevant to health promotion because it describes how a behavioural change is adopted and sustained. Relevant stages of change according to the Diffusion of Innovations theory include: knowledge (understanding), persuasion (developing a favourable attitude), action, implementation and confirmation (reinforcement based on positive outcomes). In this context, an innovation or health promotion intervention must also be easy to use, easily understood and communicated, able to be adopted with minimal investment of time, able to be undertaken with minimal risk, and able to be used with only a moderate level of commitment (Glanz et al., 2002).

2.3.4 Other health promotion theories

Other important health promotion theories and models include evaluation models (e.g. Reach, Effectiveness, Adoption, Implementation, and Maintenance; RE-AIM framework, and the PRECEDE-PROCEED model; Glanz, Rimer, & Lewis, 2002) and nursing models and theories (e.g. Nightingale's environmental theory, Leninger's transcultural care theory, and Goal attainment theory of nursing; (Glanz, Rimer, & Lewis, 2002). Both the RE-AIM framework and PRECEDE-PROCEED model are useful in evaluating health promotion programs and examine the influence of environmental conditions on human behaviour, however, these models do not provide a sufficient explanation of the levels of environmental influence on health and/or health behaviour (Glanz, Rimer, & Lewis, 2002). The nursing models and theories that focus on health promotion have some applicability to health promotion, however, they have been critiqued for focusing on person-level issues rather than group or community level concerns (Glanz, Rimer, & Lewis, 2002).

2.4 The school as a health promotion setting

A life-course approach to health promotion (i.e., which begins at a young age) may be most effective in improving the long-term health and well-being of individuals, especially amongst the most vulnerable (Lee, 2009). A more holistic view of children's health that incorporates the family, school and community, as outlined in Bronfrenbrenner's model, has broadly been accepted (Raingruber, 2014). Homes, schools and communities have been identified as social settings that are central to the promotion of adolescent's health and well-being (Moon, et al., 1999; Stewart et al., 2004; Tones & Tilford, 1994). However, the individualistic and private nature of the home environment can lead to challenges in incorporating a settings approach to health promotion. Not surprisingly perhaps, the school has become a primary setting for engaging in health promotion practices with adolescents. For many years, it has been suggested that schools may influence

children's development (from 5-14 years) as much, if not more than, the family (Stewart et al., 2004).

The Australian Health Promoting School Association (AHPSA, 2001) argues that the school environment is one of the best environments to support adolescents because school setting provides a unique opportunity to promote health across demographic, cultural, religious and social boundaries**.** Numerous studies have highlighted that the broad reach of schools means that the school environment provides a unique opportunity to address the adolescent's health needs (St Leger & Nutbeam, 1999; Stewart-Brown, *et al.,* 2006; Hornby & Atkinson, 2003; Stewart *et al*, 2004; Wells, et al., 2009; Sormunen et al., 2012;). In line with both Bronfrenbrenner's and Lohrmann's models, Deschesnes et al. (2003) emphasise that as the school is often the centre of a school-based health promotion programme, the school setting should go beyond the physical environment of the school buildings to include the local community and any environment which is part of the young people's life. In this way, a school-based initiative provides an opportunity to address all aspects of an adolescent's life. Clearly, incorporating a more holistic approach to health promotion in the wider school setting is more far reaching than a health education model as it involves the examination of all aspects of the entire school environment (i.e. both physical and social environments, curriculum, policies, as well as health services and community links) (Stewart et al., 2004; St Leger et al., 2010).

2.5 Health Promoting Schools: Current conceptualisation

A Health Promoting School may be broadly characterised as "*a school that is constantly strengthening its capacity as a healthy setting for living, learning and working"* (WHO, 1998; p11). The health promoting school concept developed out of policy work by the WHO in the 1950s and 60s (e.g. WHO, 1966). This framework was further developed through the Declaration of Alma Ata (WHO, 1978) where national governments were encouraged by the WHO to address health through policy and action plans which sought to promote multidisciplinary collaboration. The Ottawa Charter (WHO, 1986) further identified health behaviour change as being much broader than individual health behaviours; changes in health behaviour at a systems level are emphasised. In the school, for example, improvements to the core school setting, such as health-related policies as well as the school's social and physical environment and ethos, are key. In this way, the health of the entire school community is addressed in a more sustainable manner instead of using a targeted individual level approach. This conceptualisation of school level health promotion was further enhanced and developed through the WHO school health initiative in 1994

(St. Leger, 1999). This initiative drove the development of the framework for *health promoting schools* as it is currently conceptualised by the WHO.

WHO defined a HPS, illustrated in Figure 2.4, as one that:

- Fosters health and learning with all the measures at its disposal
- Engages health and education officials, teachers, teachers' unions, students, parents, health providers, and community leaders in efforts to make the school a healthy place
- Strives to provide (1) a healthy environment, (2) school health education, and (3) school health services, along with (4) school/community projects and outreach, (5) health promotion programs for staff, (6) nutrition and food safety programs, (7) opportunities for physical education and recreation, and (8) programs for counselling, social support, and mental health promotion
- Implements policies and practices that respect an individual's well-being and dignity, provides multiple opportunities for success, and acknowledges good efforts and intentions as well as personal achievements
- Strives to improve the health of school personnel, families, and community members as well as pupils; and works with community leaders to help them understand how the community contributes to, or undermines, health and education (adapted from WHO, 1998).

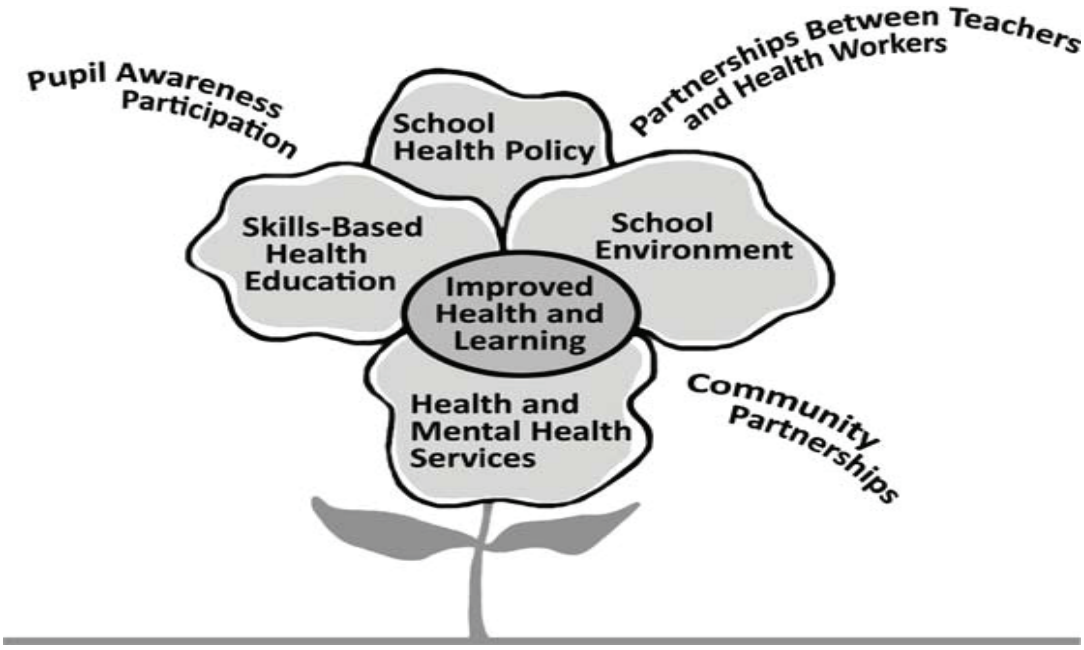


Figure 2.4 Components of a Health-Promoting School (extracted from Whitman & Adlinger, 2009)

A WHO HPS ethos may be achieved in a number of ways (Box 2.1).

Box 2.1: Important factors in establishing a Health Promoting School ethos (International Union for Health Promotion and Education; IUHPE, 2009)

- Using available resources to develop health and learning
- Establishing and developing links with members of the school and local communities as well as with multidisciplinary services to expand school relationships and address the school's needs.
- Working towards a more health promoting and inclusive physical and social school environment with increased health-promoting opportunities for its entire community
- Adopting and implementing health promoting policies
- Delivering age-appropriate health education and life skills training
- Supporting improvements in health service accessibility

The process of becoming a Health Promoting School is dynamic and ongoing whereby the school assesses, plans and implements ideas which are in line with the principles of the HPS, as outlined below (Figure 2.5). According to the International Union of Health Promotion and Education guidelines, all health promoting school work should be achieved by following five core principles: democracy; partnership and equity; ownership and action by the school community; endorsing health capacity building; and using sustainable means (IUHPE, 2009). The school community (i.e. school staff, families and students) itself decides, on the basis of a self-audit, which priority areas are relevant for its school and this in turn provide a focus for the work of the health promoting school. In this way, the details of the health promoting school programme of work can be tailored to the individual school, thereby ensuring a more empowering experience for all stakeholders. Whilst the nature of this work may change and evolve over time in line with the needs of the school, the overarching aim remains one of improving the overall health of the entire school community.

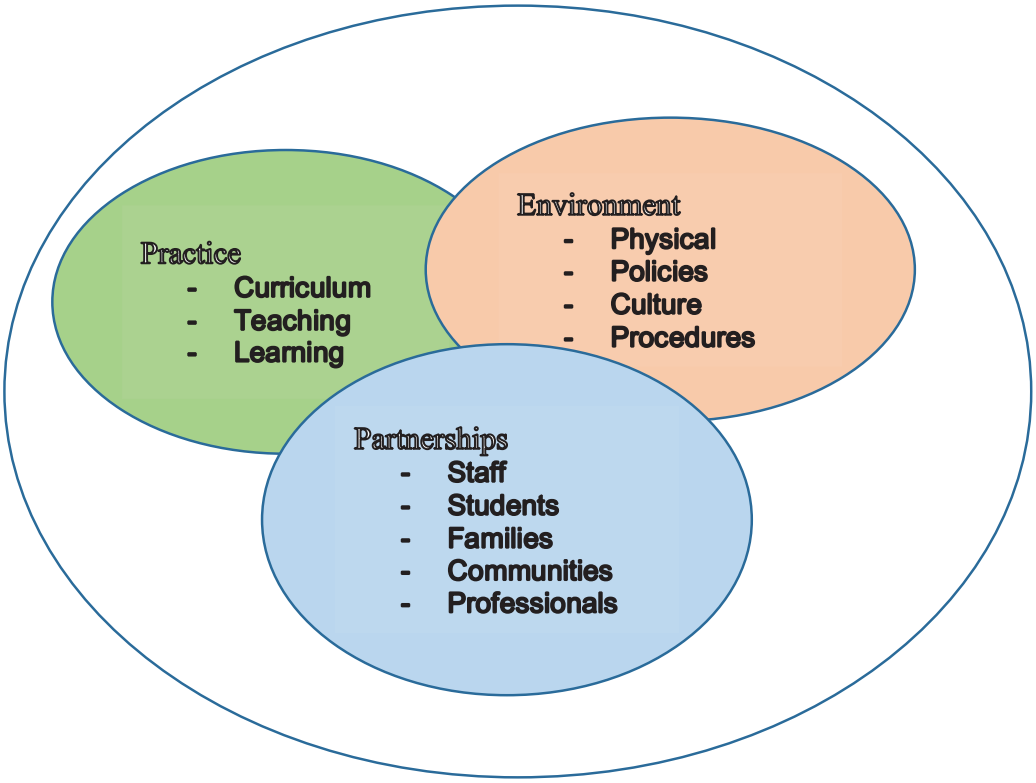


Figure 2.5: A model of a Health Promoting School (extracted from Australian Centre for Health Promotion, 2012)

2.6 Health Promoting Schools: The international context

Individual countries have developed their own interpretation of the WHO's policy documents and adapted the HPS concept to their own needs and resources. For example, in Canada and the USA, the HPS is known as the 'Comprehensive School Health Program (CSHP)' model. Both CSHP models are closely aligned with each other and have been increasingly endorsed by policy makers since the 1980s (Allensworth, 1995; McCall, 2003; Walcott et al., 2008). The key components of CSHP include: addressing all aspects of children's health using school-based planning; supporting and involving families and the entire school community; collaboration with communities and external disciplines; and ensuring all aspects of CSHP work is to be directed in its approach through a bottom-up democratic process (Allensworth, 1995). The US Centre for Disease Control and the Canadian Government Department of Public Health subsequently endorsed this model, leading to its development across the country (McCall, 2003).

In Europe, the Schools for Health Europe Network (previously known as European Network for

Health Promoting Schools, ENHPS), has been the main driver of policy change. Established in 1991, the ENHPS identified a framework from which to develop health promoting schools. Six key areas were highlighted, including: school physical environment; social environment; community involvement; policies; health skills; and access to services (WHO, 1993). At present, 43 countries, including the Republic of Ireland and the UK, are members of the network (Bujis, 2009) however, the implementation of HPSs has been variable between countries and very few have incorporated an HPS approach nationwide (Whitman & Aldinger, 2009).

In Australia, the HPS strategy was developed more recently in the mid-1990s with the aim of addressing the health needs of the entire school community (Rowling, 1996). In 1997, the AHPSA was set up to guide the process of planning and implementation using almost identical objectives to those of the IUHPE criteria (IUHPE, 2009) indicated above.

2.7 Evidence on effectiveness of Health Promoting Schools

A number of traditional literature reviews and systematic reviews published in the last two decades examine the effectiveness of Health Promoting Schools (Lister-Sharp et al., 1999; Mukoma & Fisher, 2004; Stewart-Brown, 2006; Langford et al., 2014; Shackleton et al., 2016).

A systematic review of 22 reviews was undertaken as part of the Lancet Commission on Adolescent Health and Wellbeing (http://thelancetyouth.com), which examined the effects of school-based interventions, such as Healthy School Policies, improving how schools respond to bullying, and parent outreach, on young people's substance use, violence, and sexual health (Shackleton, 2016). Most of the studies were conducted in the USA, 8 in Australia, 4 in UK, 2 each in Canada, the Netherlands, Finland, and one each in Germany, Italy, Japan, and Denmark. The review included 16 studies from lower-middle income countries (4 from India; 2 each from China, Mexico, and Brazil; 1 each from Pakistan, Nigeria, Ethiopia, Portugal, Malawi, and South Africa). This synthesis of the reviews suggested that multicomponent school-based interventions, for example, including school policy changes, parent involvement, and work with local communities, are effective for promoting sexual health and preventing bullying and smoking however, there is less evidence that such intervention can reduce alcohol and drug use. The review also suggested that economic incentives to keep girls in school can reduce teenage pregnancies; school clinics can promote smoking cessation. For example, a CRT in Australia evaluated the Gatehouse intervention, emphasizing the importance of establishing secure emotional and social connections for adjusted personal and social development. The intervention

was delivered over three years and had three key components i.e. school liaison team, whole school strategy consisting of five sequential stages and Gatehouse curriculum material for students. The overall objective of the intervention was to improve adolescents' sense of connectedness to their social and learning environment, through which, the rates of substance use can be reduced (Patton et. al, 2003). This CRT found that participants with low school connectedness at school in Year 8 (13-14 years old) but good social connectedness were at elevated risk of anxiety/depressive symptoms (odds ratio [OR]: 1.3; 95% confidence interval [CI]: 1.0, 1.8), reported regular smoking (OR: 2.0; 95% CI: 1.4, 2.9), drinking (OR: 1.7; 95% CI: 1.3, 2.2), and using marijuana (OR: 2.0; 95% CI: 1.6, 2.5) in later years (in Year 10; 16 years old) (Bond et al., 2007). This intervention was replicated in Canada, and found a significant impact on girls, reducing reported risk behaviours, including low school engagement, drinking, unprotected sex and poor health (Hawe et al., 2015).

Mixed health outcome findings were noted in a cross-national Cochrane review of 67 cluster randomised control trial (CRT) studies on the effectiveness of HPS initiatives (Langford et al., 2014). Fifty-nine of the 67 included studies were in high-income countries (27 in USA, 10 in Australia, 4 in Finland, 3 in UK, 2 each in Canada, Belgium, the Netherlands, and Norway, 1 each in Switzerland, France, Germany, Spain, Denmark, and New Zealand, 1 multi-country study in Europe), 5 were conducted in upper-middle income countries (3 in China and 2 in Mexico) and two in lower-middle income countries (India and Egypt). Whilst improvements in Body Mass Index, increased physical activity, nutrition and experiences of bullying were observed in a few studies, there was limited evidence to indicate the effectiveness of HPS in terms of substance use, mental health and bullying behaviour. Half of the trials included focused on measures of physical activities, but only three studies reported on emotional health outcomes (Bond et al., 2004; Fekkes, et al., 2006; Sawyer et al., 2010). The exclusive focus on health outcomes without consideration of the processes experienced during the implementation stages of each study limits the conclusions drawn from this review.

A systematic review of reviews (Stewart- Brown, 2006) examined the evidence for both school-based health promotion initiatives and 'health promoting school' initiatives. The author has indicated that many of the other reviews included shorter-term, class-based programmes aimed primarily at improving knowledge and skills. Stewart-Brown (2006) concluded that these types of initiatives led to less effective outcomes than programmes which were multi-dimensional, and which addressed more than one domain of the school environment (i.e. curriculum, school

environment and community). The author also suggested that all aspects of a child's life should be considered in HPS initiatives in order to effectively impact psychological health. She also called for a greater emphasis on process evaluations in future HPS evaluation studies as well as further investigation of what constitutes the different components of an effective health promoting school.

Mukoma and Flisher (2004) completed a literature review which identified 9 HPS initiatives across the world. This review focused explicitly on initiatives which adhered to the WHO HPS ethos and only included programmes which: (a) were not based around a single topic from the outset; (b) encouraged schools to identify priorities; and (c) where the activities of the initiative were based on at least one of the components of a health promoting school (i.e. health education curriculum; involvement of the wider community; school ethos and environment). The included interventions varied considerably with regard to the aspects of health which they addressed and the extent to which all of the components of a health promoting school were established.

Overall, the changes in health outcomes in intervention schools were mixed when compared to control schools and few significant differences were identified. The authors concluded that it was difficult to assess whether there had been any direct improvements on children's health as a result of the HPS initiative. The review reported some interesting findings regarding the broader structures of an HPS, such as improvements to the school ethos and environment as well as an improved awareness of health promotion. Two of the studies also identified an increase in health promotion-related activities with one study indicating that participating schools increased the availability of resources (i.e. time, personnel and funding) allocated to health promoting activities as a result of health promoting school implementation. There was also some evidence to indicate that these initiatives had a positive impact on health-related policy development in the schools concerned. For instance, one study reported positive developments, although another indicated that little change had occurred. Whilst the studies included in the review had to meet certain criteria (e.g. health promotion practices are addressed through the ethos and/or environment of the school, the curriculum and family and/or community; information on programme implementation and content is provided; study incorporated a comparison group and/or pre-post design; study reported on health-related outcomes), in many cases the evaluations did not report comprehensively on all elements of programme implementation. Thus, many of the studies focused on child health behaviours rather than broader school changes (i.e. policy, environment, interactions with the wider community) and few details concerning how the programmes were implemented on the ground were presented (Mukoma & Flisher 2004).

Lister-Sharp and colleagues (1999) reviewed 12 studies of HPS initiatives and found that all the HPS initiatives in their review led to improvements in health-related knowledge. General improvements were also observed in terms of staff development, HPS activities, as well as the social and physical environment of the school. Whilst these findings suggest some positive improvements in health, the variability of change does not provide a clear indication of the effectiveness of the health promoting school approach. The authors further acknowledge that due to the complexity of HPS approaches, each initiative was unique in its design and implementation. Consequently, it is difficult to attribute specific components of the HPS to improvements in health. The review also reported that no intervention implemented all components of the HPS approach, whilst limited sample size and a lack of explicitly stated theory in 7 of the 12 studies further precluded any definitive conclusions.

When evaluating HPS initiatives and how these programmes impact schools (both at an individual and organisational level), it is important to identify why and how any changes (or lack thereof) have occurred. A small pool of studies which examined the process of planning and implementation of HPS initiatives have provided interesting and useful findings, especially concerning the main challenges and facilitators of HPS practice. Box 2.2 summarizes key findings of these studies.

A clear structure of management and roles along with the structured involvement of the wider community in all stages of design, planning and implementation may be key to the sustainability of HPS-related school improvements (Inchley et al., 2006). More specifically, the setting up of school-based HPS steering groups/committees provides a useful framework for schools in planning and designing the health promoting policies, procedures and activities (Lee et al., 2005; Senior, 2012). These committees aim to engage with various stakeholders and work towards developing all components of a health promoting school ethos. Perhaps unsurprisingly, this kind of shared responsibility amongst school staff and indeed amongst all stakeholders (e.g. the creation of health committees) has been identified as crucial to the success of this type of initiative (Senior, 2012). At the same time, these kinds of groups/committees can be difficult and time-consuming to develop, especially when time and resources are limited. It is also often the case that one or two champions are required to drive the initiative forward (Weare & Nind, 2011). For this reason, the appointment of a health promotion coordinator to support schools in taking responsibility for the planning and implementation of health promoting school work has been recommended (Cushman, 2008). Indeed, one evaluation of a Healthy Schools Coordinator (HSC)

-led school health programme in the US suggested that the provision of a health coordinator as an additional staff member (coordinating less than three schools) was linked to an improved health education curriculum as well as greater improvements in the development, implementation, and sustainability of health-related policies (Turunen et al., 2006). Likewise, the appointment of a senior member of staff as a school-based coordinator of a health promoting school initiative was important in gaining enthusiasm and support of the school community for the work (Inchley et al., 2006). This suggests that the role of the HSC may still be effective in leading and supporting the implementation of a health promoting school ethos even if it is assumed by an existing member of the school community. Whilst external guidance is clearly important, school ownership and 'buy-in' from all staff is also essential for a successful and sustainable initiative and, again, this appears to be inextricably linked to the development of an effective health promoting school ethos/culture (Turunen et al., 2006). Evidence also suggests that a bottom-up approach involving all members of the school community is essential, for instance, teachers' enthusiasm for health promotion initiatives was associated with positive pupil feedback on the initiatives (Leurs et al., 2007). This suggests the wider influence on school-level buy-in in terms of the acceptance of health promoting school practices by the school community.

Box 2.2: Key facilitators of HPS practice

- Necessity of a clear structure of management and roles to implement the school-level activities
- Need of involving wider community in all stages of design, planning and implementation is key to sustainability of HPS-related school improvements
- Setting up of school-based steering committees provide a useful framework for planning and designing health policies and activities
- Shared responsibility of HPS implementation among school staff is crucial for success of HPS initiative
- Recommendation of an appointment of Health Promotion Coordinator for planning and facilitating HPS activities
- School ownership and 'buy-in' from all staff is essential for successful and sustainable initiatives

In sum, the evidence indicates that both education and health outcomes are improved if the school uses the HPS approach in addressing health related issues in an educational context. Whilst improvements in health outcomes are mixed, it is found that whole-school and multicomponent

approaches are more effective in achieving health and educational outcomes than classroom only or single intervention approaches. The factors affecting learning are mostly influenced by socio-emotional factors, for example, pupil-teacher interactions, school culture, classroom climate, peer group relationships and so on. However, most of the studies contributing to this evidence are from higher income countries, mainly the United States of America, Europe and the United Kingdom. This raises the questions of feasibility and sustainability of the HPS framework-based health promotion interventions in low- and middle-income countries.

Alternatively, the FRESH framework, an inter-sectoral partnership to Focus Resources on Effective School Health, provides the context for effective health related school policies. This framework is developed by UNESCO, UNICEF, WHO, and the World Bank and was launched at the Dakar Education Forum, 2000, which incorporates the experience and expertise of these and other agencies and organizations (UNESCO, 2000). Although aimed at improving learning opportunities for children and youths by first improving their health, FRESH is more than simply the provision of school health services. FRESH is a combination of activities in four core areas:

- School health policies
- Water, sanitation and the environment
- Skills based health education
- School-based health and nutrition services

School policies, promoting good health and a non-discriminatory, safe and secure physical and psychosocial environment, are most effective when supported by other reinforcing strategies such as provision of safe water and sanitation, skills based health education, provision of health and other services, effective referral to external health service providers and links with the community. The FRESH framework provides this context by positioning health related school policies among its four core components, that should be made available together for all schools. These core components of the FRESH framework require school-community partnerships as the supporting strategies for the success of school health and nutrition programs. These include effective partnerships between the health and education sectors, teachers and health workers, schools and community groups and between the pupils and those responsible for implementing school health programs.

2.8 School-based health promotion interventions for adolescents in India

In India, there has been a recent shift towards health prevention and promotion interventions for adolescents, exemplified by the National Adolescent Health Programme launched in 2014 (UNFPA, 2014), and rollout of school-based Adolescence Education Programme (AEP) by the Ministry of Human Resource Development (MHRD), Government of India in 2005 (GOI, 2005). At the heart of these interventions is the implementation of the life-skills curriculum which focuses on RSH but also addresses reducing a range of risk behaviours and strengthening protective factors associated with other health outcomes. The AEP is being implemented in States and Union Territories through State Council of Educational Research and Training /State Boards with the support of State AIDS Control Society. The AEP is also being supported by UNFPA, and implemented by national agencies, including Kendriya Vidyalaya Sangathan, Central Board of Secondary Education, Navodaya Vidyalaya Samiti, National Institute of Open Schooling and Council of Boards of Secondary Education.

Sangath, a non-governmental non-profit organization in Goa, India and implementing agency of the trial for this thesis, undertook a review of the implementation of four such interventions in India (Rajaraman, Shinde & Patel, 2015). This review described and compared the acceptability of the interventions; feasibility of its implementation; and evidence of its impact by using case study methodology. Drawing on information from professional networks and the academic and gray literature, 20 organisations were identified supporting adolescent school health promotion interventions. The eligibility criteria for an intervention to be selected as a case study were: the inclusion of a health promotion component; targeting of low-income students; potential to be scaled up; operation of the intervention during proposed evaluation period; and willingness to facilitate an evaluation.

The selected interventions are summarised in Table 2.1. They were characterized by different types of human resource delivery models, different levels of engagement with the school community, and variation in scale—ranging from a pilot intervention covering 10 schools to a state-wide programme covering over 2000 schools. The case studies provide limited (i.e. without any comparison arm to estimate quantitative effects) evidence of the impact of such interventions in influencing students' knowledge, attitudes and behaviours.

Of the four case studies, Sangath's School Health Promotion and Empowerment (SHAPE) intervention demonstrated that a lay school counsellor could be an effective delivery agent for a multicomponent school-based health promotion intervention in Goa, which is better resourced

than most Indian states. In India, school-based health promotion interventions have generally been delivered by teachers, healthcare providers, or peers who are already part of the school, as these are perceived as the least resource-intensive options. However, these interventions can compete with teaching duties and other commitments, and the sustainability of peer-delivered education interventions can be limited as the population of student peer-educators is not stable.

Table 2.1: Summary of interventions selected for case studies

	UDAAN	Drishti	SHAPE	Prayatna
Setting	Jharkhand	Kota, Jhalawar & Baran districts in Rajasthan	Goa	Bihar, Madhya Pradesh, Maharashtra, Orissa & Rajasthan
Target population	Grade IX and XI students in government school (age 14-16 years)	Grade VII and VIII students in government schools (age 12-13 years)	Grade V to XII students in government-aided schools (age 10-17 years)	Grade VI to XII students in government residential schools (age 11-17 years)
Implementing partners	Jharkhand State AIDS Control Society, Jharkhand Department of Human Resource Development, CEDPA-India	Rajasthan Department of Education, Ritinjali	Archdiocese of Goa, Sangath	Novodayaya Vidyalaya Samiti, UNFPA, and Sangath
Content	Classroom-based intervention focusing on RSH and substance use Extracurricular club to facilitate students' group activities	Education in life skills, covering emotional, physical and social health, gender and sexuality Involving and generating awareness in the community	School Health Promotion Advisory Board, healthy school policies, annual visual assessment and nutritional screening camps, anonymous letter box for students to voice concerns and ask questions Classroom-based training in life skills	Youth-friendly individual and group counselling services

	UDAAN	Drishti	SHAPE	Prayatna
			Individual counselling for students	
Delivered by	School teacher	School teacher	Lay school health counsellor	School staff nurse
Coverage	2161	1313	14 schools	154 schools

2.9 School climate as a determinant of health

As Tones and Green (2004:270) have noted, "*a key feature of the settings approach is that it involves ensuring that the ethos of the setting and all the activities are mutually supportive and combine synergistically to improve the health and well-being of those who live or work or receive care there. It involves integrating health promotion into all aspects of the setting and including within its remit all those who come into contact with that setting*."

Many features of the school environment– instruction, ethos, and availability of services – affect health status and learning. For example, when students feel that they are part of the school, say they are treated fairly by teachers, and feel close to people at school, they are healthier, less likely to engage in risk behaviours, and more likely to succeed (Sawyer et al., 2012). The creation of 'a school climate in which good relationships, respect and consideration for other flourish' and the promotion of opportunities which 'actively develop pupils' knowledge and skills, enabling them to exercise responsibility for their own and others' health' are inherent in the values of the HPS framework (Clift & Jensen, 2005).

A compelling body of educational and behavioural research suggests that as a proximal or intermediate determinant, school climate (e.g. connectedness of adolescents to school) is associated with academic performance (Sawyer et al., 2012) and improved health-related behaviours (e.g., mental and emotional wellbeing, violence, bullying and, RSH outcomes) (Bonell et al., 2013).

The National School Climate Council, USA defines school climate as "*norms, values, and expectations that support people feeling socially, emotionally and physically safe*" (Thapa & Cohen, 2013: p.4). School climate is a product of the interpersonal relationships among students, teachers, support staff, and administrators. Although there is no universally agreed upon set of core domains or features, the National School Climate Center identifies five elements of school climate: (1) *safety* (e.g., rules and norms, physical security, social-emotional security); (2)

teaching and learning (e.g., support for learning, social and civic learning); (3) *interpersonal relationships* (e.g., respect for diversity, social support from adults, social support from peers); (4) *institutional environment* (e.g., school connectedness, engagement, physical surroundings); and (5) *staff relationships* (e.g., leadership, professional relationships). A positive school climate is recognized as an important target for school reform and improving behavioral, academic, and mental health outcomes for students (Thapa & Cohen, 2013). Specifically, schools with positive climates tend to have less student discipline problems and aggressive and violent behavior, and fewer high school suspensions. Research has also shown associations between school climate and lower levels of alcohol and drug use, bullying, and harassment.

There is little in the literature that reports on the contribution of the HPS approach to the promotion of school connectedness and/or school climate. During the literature review no articles were found that specifically investigated the influence of the health promoting school approach on school connectedness and/or school climate as an outcome in its own right. However, there are a number of studies and reports on the use and contribution of the HPS approach to increasing school connectedness, or social relationships within the school, as a means to promote mental health and emotional well-being and to lower rates of smoking among young people (Patton et al., 2002; Clift & Jensen, 2005; Stewart-Brown, 2006). Hence, the health promotion processes and structures that have been shown to promote connectedness can also be applied to the school setting and its climate. These processes and structures, combined with current evidence of strategies consistent with the values and principles of the HPS framework, provide a strong theoretical framework for using the HPS approach to build school climate.

The whole-school and multicomponent health promotion intervention has the potential to increase school climate through two major mechanisms:

1. Processes that are characterized by inclusiveness, involving all the members that make up a school community; active participation of the school community members, and democratic platforms for interactions among school community members.
2. Structures such as school policies, the physical environment, teaching and learning approaches, and the extent to which these reflect the values of participation, democracy and inclusiveness and/or promote processes based on these values.

These processes and structures, located both in the general school environment collectively have the potential to promote school climate and therefore promote health and health-related outcomes

among adolescents. It must be understood that both the effects of school climate and the conditions that give rise to them are deeply interconnected, growing out of the shared experience of a dynamic ecological system (Bronfenbrenner, 1979; Ma et al., 2009). Therefore, understanding the interactions of these processes in the contexts of interventions will enable schools to successfully adapt interventions that have been shown to promote positive adolescent health and academic outcomes.

Chapter 3: DEVELOPMENT AND PILOT TESTING OF SEHER INTEVENTION

This chapter summarises Phase 1 and 2 of the SEHER project. The research in Phase 1 aimed to develop an HPS intervention to be delivered by a lay counsellor or teacher. In Phase 2, the intervention developed with a conceptual framework and guidelines was tested for acceptability of its content and feasibility of delivery by two agents through a mixed methods pilot study in Bihar, India.

3.1 Background

Based on the global and local literature review, we decided to compare delivery of the SEHER intervention by a new, low-cost, human resource (such as a lay counsellor) and an existing human resource (such as a teacher). The literature reviews helped in identifying the intervention manuals from low-middle income countries, which could be potentially adapted to design guidelines of intervention components.

The intervention developed in Phase 1 was pilot tested in Phase 2 through a mixed methods study. The main aim of the pilot study was to test the acceptability of intervention content by the school community, and feasibility of delivering the intervention by two delivery agents i.e., lay counsellor (SEHER *Mitra*; SM) and teacher as SEHER *Mitra*. The secondary aim of the pilot study was to test the outcome measures and the assessment method.

3.2 Phase 1: Intervention development

3.2.1 Goal

The goal of this stage was to build on the evidence gathered from the review to develop a conceptual framework, identifying the intermediate and long-term outcomes, and the specific components of the interventions.

Two methods were used to achieve the goal of this phase:

a) Intervention development workshops with various stakeholders, and
b) Content analysis of intervention manuals of adolescent health promotion.

3.2.2 Methods

3.2.2.1 Intervention Development workshops

Eight intervention development workshops - three each with secondary school students and teachers and one each with experts and project staff were conducted between December 2013 and February 2014. The intervention development workshops with the students and teachers were conducted in 3 purposefully selected schools from Nalanda, district. Three types of secondary schools were selected, i.e. co-educational, boys-only and girls-only schools. The details about the setting are given in the Chapter 4. In each school, grade IX students were invited to participate in the intervention development workshop through a classroom announcement. All the teachers in each selected school were invited to participate in the workshop. Participants for the workshop with national and local experts were identified by the project team members from their professional contacts and residing in Bihar or nearby states.

The intervention development workshops with all the stakeholders comprised of group activities to organize and schedule the SEHER intervention activities into a coherent framework. The participants were divided into smaller groups of randomly selected members. The School HeAlth Promotion and Empowerment (SHAPE) programme, developed and piloted by Sangath in Goa (Rajaraman et al., 2012) was chosen as the framework of the intervention as it closely matched the SEHER programme context (India), and provided evidence on effective interventions (multicomponent with whole-school, group level and individual strategies). In SHAPE, the whole-school level activities included school mapping and needs assessment; health screening camps; an anonymous letter box for students to voice their questions and concerns (speak-out box); a School Health Promotion and Advisory Board (comprising of headmaster, school counsellor, teachers, school management staff, and student and parent representatives) to oversee the design and implementation of the intervention in each school; and development and implementation of the school health policies. The group-level activities included classroom-based life skills training while the individual level activities included individual counselling and referral services for students. Table 3.1 provides the detailed description of the SHAPE intervention.

Table 3.1: SHAPE intervention delivered by lay school health counsellors (extracted from Rajaraman et al., 2012)

UNIVERSAL (SCHOOL-WIDE) LEVEL	
School Mapping & Needs Assessment	Mapping to assess the infrastructure, health environment and health resources available. A structured questionnaire was administered to school management, teachers, students and parents to identify health and wellbeing priorities. This information was used to tailor the intervention for each school's needs.
Speak-out Box	A letter box mounted on a wall in an easily accessible area in which school members could make anonymous submissions on any health, social or other school related concern. The SHC reviewed submissions on a weekly basis and followed these up as appropriate.
Health Camps	Visual Screening and BMI Assessments. SHCs were trained to take weight and height measurements and to conduct visual screening to identify possible refractory errors and colour blindness. Body Mass Index was estimated, and students identified with possible nutrition or visual problems were given appropriate advice/referral.
CLASS LEVEL	
Life Skills Education	The Life Skills classroom programme was developed using international and national resources. The programme was delivered over one period (35–40 minutes) per class per week. The sessions were designed to be interactive and activity based. They covered physiological and sexual and reproductive health; psycho-social issues/mental health; and, effective learning techniques.
INDIVIDUAL LEVEL	
Individual Counselling	Face-to-face counselling for students who were self-referred or referred by a teacher or principal. In the first year, a clinical psychologist conducted the counselling sessions in the presence of the SHC. In the second year, the SHC provided counselling to the students, with ongoing supervision and support from the NGO staff.

*In addition to the activities detailed in the table, the SHC coordinated a number of workshops for the different stakeholder groups. These included nutrition, parenting, teaching methods, and development of healthy school policies. The workshops were delivered by the NGO and partners.

Each group was asked to add or remove intervention components after providing a reason for doing so. They had to make their decisions based on the evidence presented to them and their own contextually relevant experiences. Each group presented their intervention framework, and then the author of the thesis guided a discussion comparing the emerging frameworks with all participants.

Finally, focus group discussions (FGD) were conducted at each workshop. Views regarding desired characteristics and competencies of lay counsellors and teachers, training and supervision requirements, and likely barriers in delivering the intervention and ways to address them were elicited (Appendix 1). The FGDs were conducted in Hindi, a local language and audio taped. A research team member took notes during this exercise and assisted the moderator in conducting the focus groups. A total of eight FGDs, lasting for 60-90 minutes, were conducted.

Image 3.1: Participants at the Intervention Development Workshop

3.2.2.2 Content analysis of intervention manuals for adolescent health promotion

We reviewed the content of 10 adolescent health intervention manuals from low-middle income countries identified through the global and national literature review. The manuals for content analysis were selected based on following criteria:

- Suitability of delivery by a lay counsellor and teacher
- Description of the intervention structure and activities
- Appropriateness of the intervention activities for use by lay counsellors and teachers in the relevant cultural context,
- Extent to which barriers to delivery and solutions to them were addressed.

The list of manuals selected for the content analysis is provided in the box 3.1 below.

Box 3.1: Programme manuals selected for content analysis

1. School HeAlth Promotion and Empowerment Programme (Rajaraman, et al., 2012)
2. Tuko Pamoja: Adolescent reproductive health and life skills curriculum (PATH, 2006)
3. Yuva Mitr: A facilitator's guide for the peer leader training programme (Sangath, 2009)
4. Life skills manual (Peace Corp, 2001)
5. Manual on tobacco control in schools (WHO, 2006)
6. Youth-friendly services: a manual for service providers (Engender Health, 2006)
7. Life planning skills: A curriculum for young people in Africa, Tanzania Version. (PATH, 2004)
8. An adolescent provider toolkit. (Adolescent Health Working Group, 2007)
9. Health promotion using life skills approach (NIMHANS-India, 2005)
10. Yuva school adolescence education programme (Government of NCT of Delhi, 2005)

3.2.2.3 Analysis

Data collated through these two activities was triangulated to develop a conceptual framework for the SEHER intervention and implementation strategy for each component. Thematic analysis was carried out to identify patterns of arranging SEHER intervention components, and to analyse the data from the FGDs and content analysis of intervention manuals (Braun & Clarke, 2006). Strategies that were added and removed by the workshop groups and the rationale for those decisions were compared for similarities and differences between the various groups.

The research themes from the question guide provided the overarching *a priori* deductive framework for analysis. A preliminary coding framework was prepared for broad themes that guided the FGDs, for example, socio-demographic characteristics of lay counsellor and teacher, competencies, etc. Subsequently, data from two FGDs were coded to refine the codebook. All FGD data were then coded with the revised codebook. Codes were then compared with each other for similarity in meaning. Similar codes were collapsed into inclusive categories and clusters of related codes were organised under other codes, forming hierarchies. Themes were derived by retrieving pieces of data pertaining to codes and by examining their meaning in relation to the research questions. Each theme was assigned a name and a descriptive phrase that best explained their meaning and united its individual codes on consistency. Finally, a list of themes was made and organised according to the research question they answered.

3.2.3 Results

The sample of the intervention development workshop with national and local experts comprised of 8 females and males. Two experts were working with the Department of Education (DoE), six were working with non-profit organisations, three were representatives from funding agencies and one participant was an independent researcher. Forty-two students from three schools (22 boys and 20 girls) participated in three workshops with students. Twenty-four secondary school teachers (18 males and 6 females) participated in three workshops with teachers. The intervention workshop with the SEHER project staff had eight participants i.e. one Project director, three Intervention coordinators, two Intervention consultants and two Research coordinators.

Content of the intervention

The experts suggested that it was important to describe an intervention framework in the context of TARANG-AEP as it is already being implemented by the DoE. The TARANG programme comprises of 16 hours of classroom sessions on the process of growing-up, establishing positive and responsible relationships, gender and sexuality, prevention of HIV/AIDS and other sexually transmitted diseases, and prevention of substance use and is delivered by a trained teacher in each school.

To avoid duplication, the classroom-based life-skills sessions were removed from the intervention, as were the health camps which were already being organized by the Department of Health. The conceptual framework to achieve our ultimate desired health outcomes (Figure 3.1) emphasized that classroom sessions alone were not enough to bring change and highlighted the importance

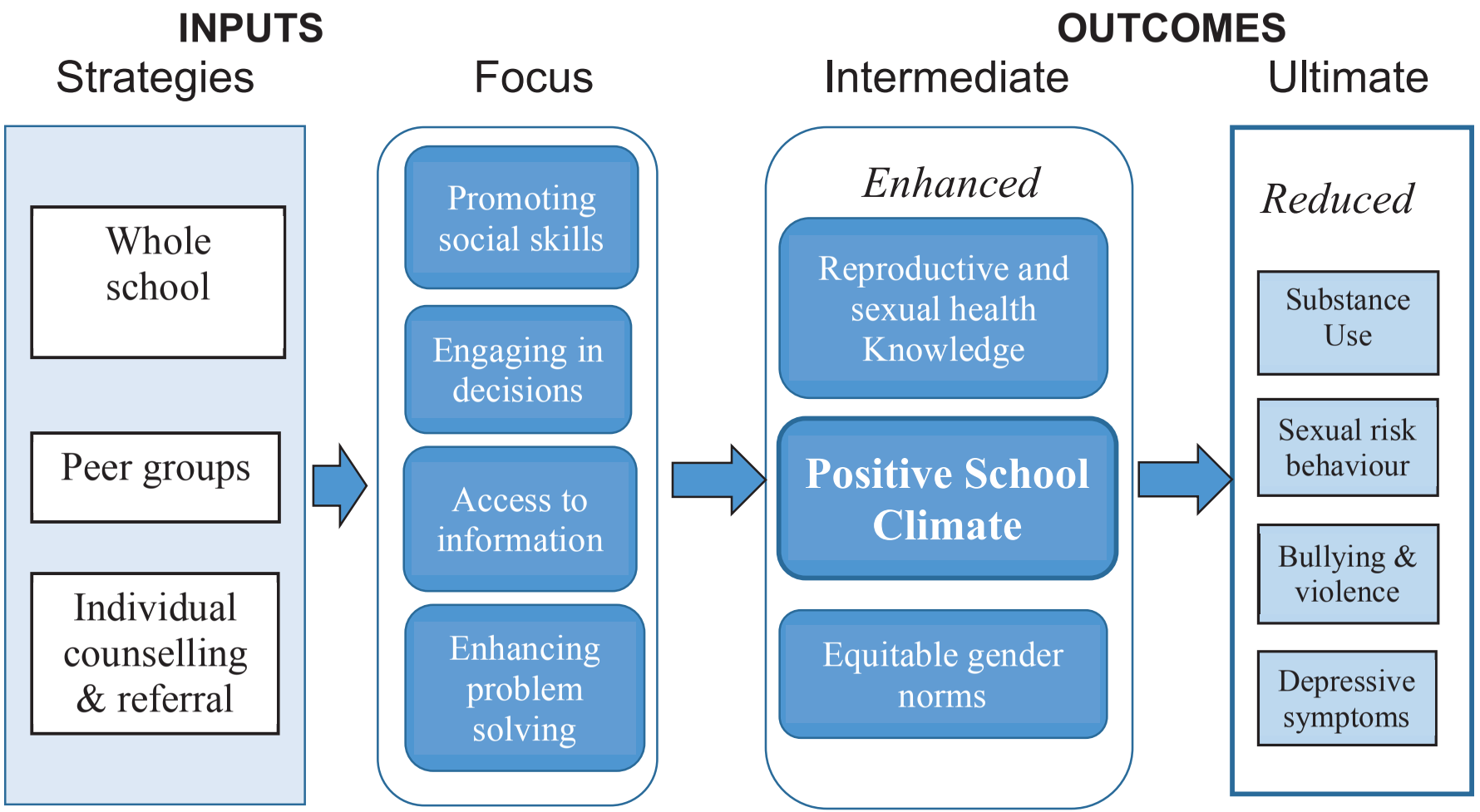
of an '*enabling school climate*' as a key intermediary outcome. Stakeholders identified varied constructs to define school climate, including safety; quality of interpersonal relationships among students, teachers and staff; the degree to which students, teachers, and staff contribute to decision-making at the school; feeling of school connectedness; school infrastructure; discipline and order in the school; quality of instructions; and dedication to student learning and achievement. Based on this theory and the recommendations from the intervention development workshops, modifications were made to the intervention. For example, we added content related to bullying and gender-related violence, rights and responsibilities, and on effective study skills, with each month of the academic year being allocated to a particular topic. As all stakeholders emphasized the engagement of peers and families, peer-groups were added to the intervention to strengthen school belongingness amongst students by providing a platform to discuss shared problems and propose solutions, and an annual workshop for parents (on 'How to handle an adolescent') was designed.

Figure 3.1 shows the resulting conceptual framework for the SEHER intervention, which emphasizes the importance of positive school climate, i.e. supportive relationships among school community members, a sense of belonging to school, a participative school environment, and student commitment to academic values. The SEHER intervention identifies four priority areas for action: promoting social skills among adolescents, engaging the school community, i.e. adolescents, teachers and parents in the school-level decision making processes, providing access to factual knowledge for the school community, and enhancing problem solving skills among adolescents. Drawing from the WHO's Health Promoting Schools framework, these strategies are provided through various components of the intervention, organized at whole-school, group and individual levels respectively.

1. The whole-school level activities included i) school mapping and needs assessment; ii) health awareness generation activities; iii) a wall magazine on health-related topics; iv) extracurricular competitions; v) an anonymous letter box for students to voice their questions and concerns (speak-out box); vi) a School Health Promotion Committee to oversee the design and implementation of the intervention in each school; and vii) the development and implementation of school health policies.
2. The group-level activities included peer groups of grade IX students and workshops for students and teachers.
3. The individual level activities included individual counselling and referral services for students.

The content analysis of intervention manuals helped to identify evidence-based practices to implement the specific components in the conceptual framework, and to draft Standard Operating Protocols (SOPs). The analysis assessed, for each strategy, the adequacy of the description of its implementation, feasibility for delivery by the target human resources, and the extent of adaptations needed for its use in the context. For example, the resource guide for peer leaders of the Yuva Mitr, a community based programme to promote health and well-being of young people evaluated in a randomized controlled trial in Goa (Balaji et al., 2010), provided the basis for developing guidelines of peer-group formation and facilitation. As another example, the role play scenarios described in manuals on topics like bullying, gender and violence, substance use, and mental health were modified into skits to be presented during the weekly awareness generation activities in the assembly. Resource materials in the form of a set of posters on the monthly topics were identified and adapted. The final SOPs and resource materials were reviewed and revised for appropriateness and cultural suitability by an expert committee of the State Council Educational Research and Training, DoE, Government of Bihar and three independent experts in adolescent health promotion in April 2014. Table 3.2 provides the snapshot of the SEHER intervention activities.

Figure 3.1: SEHER conceptual framework



* Improved school climate includes improved relationships among school community; a greater feeling of belongingness to the school; commitment towards positive educational values; and enhanced participation in school activities

Table 3.2: A snapshot of SEHER intervention activities

WHOLE SCHOOL LEVEL ACTIVITIES
Awareness Generation: Awareness about the programme and the health concerns of adolescents is generated through whole-school assembly activities on a weekly basis. These activities include: lectures, panel discussions, debates, skit presentation, newspaper reading, poster presentation and discussion, etc.
Speak-out box: A "speak-out box" is a letter box which provides a platform for students to raise their concerns, feelings, complaints, and suggestions anonymously. The box is opened once a week by the SM/TSM and issues are addressed. In case of issues that are severe or require urgent action the SM/TSM contacts the supervisor or the principal for consultation.
Wall magazine: A monthly wall magazine issue is produced to provide information on topics relevant to adolescents. All the students, teachers, principal can contribute to the wall magazine issue through write ups, poems, pictures, artwork, etc. related to the theme of the month. The following themes are covered: health & hygiene (July), bullying (August), mental health (September), substance use (October), reproductive and sexual health (November), gender and violence (December), effective study skills (January), and rights and responsibilities (February).
Competitions: The SM/TSM organises a range of monthly competitions for the students on topics related to WM. These competitions include: elocution, debate, poster making, sports, quiz, etc. A prize of appreciation is given to the winners during the whole-school assembly.
Health Policies: Two health policies *viz.* zero tolerance to bullying, and anti-substance use policy are implemented in the intervention schools.
School Health Promotion Committee (SHPC): Each school is encouraged to form a School Health Promotion Committee consisting of the staff and teachers, parents (10), and student representatives (4). The principal is the chairperson and the SM/TSM is the secretary of the SHPC. This body is responsible for monitoring the program in the school and meets twice in a year. The agenda for the meetings of SHPC includes reporting and discussion on activities conducted, the feedback from committee members, and planning for the next six months.
GROUP LEVEL INTERVENTION
Peer Group: Approximately 15-20 students from each grade are elected through a pre-defined method to form a peer group. This is an open group with 1-2 students are allowed to join the group every month. A monthly meeting with the peer members is conducted by the SM/TSM to help them understand their role and functions, discuss concerns of the students, prepare for various activities of the SEHER programme. The activities to be undertaken by the peer members: - To identify specific needs and issues and develop strategies to address them; - To help in getting their grade contribute articles/posters for the wall magazine,

- To assist in conducting monthly competitions, and
- To help to bring about positive change in the school.

Workshops: One annual workshop is conducted by the SM/TSM on 'effective study skills' for the students of grade IX, and on 'discipline and referral system' for the teachers.

INDIVIDUAL LEVEL INTERVENTION

Counselling and Referral: Individual problem-solving based counselling is provided by the SM/TSM to those students who may experience emotional, behavioural problems, social difficulties, nutritional problems, learning difficulties and RSH problems. For those students with serious physical health related concerns and severe emotional and behavioural difficulties, referral pathways to specialists are provided.

Delivery of the intervention

The findings from the FGDs are organized under the following themes: selection of teachers, characteristics of the counsellor and teacher, counsellor and teacher competencies required, training and supervision, and potential barriers in delivering school-based interventions and ways to address them.

a) Characteristics of the intervention facilitators (Lay counsellor and teacher)

- Selection of lay counsellors and teachers: Most participants agreed that the selection of the lay counsellors should be done by Sangath (the implementing agency of SEHER project) as it has already delivered the similar programme in Goa. The selection of teachers should be done at the school-level. Principals at each school should nominate one teacher from his/her school as the SEHER intervention facilitator. All the participants agreed that the nominated teacher should be other than the TARANG-AEP nodal teacher. Most participants agreed that not necessarily only science teachers could be nominated as SEHER intervention facilitator. Students suggested that the Principal could take a poll in the school before nominating a teacher.
- Existing soft skills: Most participants agreed that the lay counsellor and teacher should have the following basic characteristics before getting trained: '*willing to work with adolescents', 'non-biased* and *non-judgmental attitude'*, '*flexibility in thinking',* and '*understanding of the adolescent issues'*. All participants felt that the person should have the basic skills of '*listening' and 'communication*'. Overall, there was an agreement that existing soft skills are important to start off with and further skills could be built up through training and supervision.
- Gender: There was considerably less agreement over the gender of the lay counsellor and teacher to be selected as intervention facilitator. A few participants believed that female facilitators would be preferred and accepted by the students, others opposed

this view. Participants who believed that female facilitators would be accepted by the students argued that women are more empathetic. On the other hand, other participants reasoned that the lack of a sufficient number of the female workforce in Bihar made it more feasible and acceptable to have male facilitators. Finally, a few participants felt that both male and female facilitators should be recruited. Thus, there was no consensus within or across groups with regard to the gender of the intervention facilitators.

- Educational qualifications: There was no consensus on the educational qualifications of the lay counsellors either. Some participants felt that delivering a complex intervention in schools would require at least a graduate degree in psychology or social work. These participants also noted that they should have equivalent education to the teachers. On the other hand, other participants felt that education was not an important consideration and persons with grade XII education should also be considered. Ultimately, most participants agreed that as the work profile would include at least some basic documentation, and interaction with teachers on a day to day basis and hence the lay counsellor should at least have completed a graduation in any stream.
- Work experience: With regard to previous work experience, most participants reported that a person who has had some job/voluntary work experience in a health project or community work should be preferred. Generally, some experience of working in the community health sector was thought of as an advantage in the lay counsellors who would be recruited.
- Community background: Some participants felt that the intervention facilitator should be from the same community, as he/she would know the people and the dynamics of that particular community better than a lay counsellor from outside the community. However, other participants disagreed as they foresaw problems with confidentiality and trust, i.e. students may not be willing to share their personal issues or problems with a lay counsellor/teacher who is from the same community and whom they might know socially. There was no consensus on whether the intervention facilitator should or should not be from the community in which they would eventually deliver the intervention.
- A few participants felt that there should not be any criteria for selection of lay counsellors and anyone who is available, suitable and motivated should be recruited. Also, some participants suggested that rather than having a homogeneous group of intervention facilitators selected on the basis of pre-specified criteria, the project should recruit lay counsellors and teachers with diverse characteristics including gender,

education and occupational background.

b) Required competencies

- There was widespread agreement regarding the competencies that the intervention facilitator should acquire to enable him/her to effectively deliver the psychosocial intervention. Some general skills that were commonly reported included knowledge of adolescent issues, knowledge of local rituals and culture, ability to learn, ability to be flexible, ability to think quickly, ability to connect, networking skills, clarity of communication, ability to keep one's beliefs and prejudices out of the counselling practice, and ability to assimilate information and integrate it effectively. Other competencies which were listed by fewer participants included: friendly behaviour with students, record keeping and documentation skills, and organization skills. Some participants reported that the lay counsellor should also have public speaking skills. All the participants agreed that most of the skills required to deliver an intervention can be taught or developed, but passion and commitment for the work with adolescents cannot be taught. Hence, it was felt that it was important to assess the motivation and interest of the person during recruitment, training and ongoing supervision. A few participants, however, argued that most of these competencies can be imparted through extensive and rigorous training and supervision even if they are not pre-existing in the intervention facilitators.
- Competency assessment: Some participants opined that certain competencies could be assessed during the recruitment through techniques like structured interview, problem solving exercises/role play, group discussion, multiple choice questionnaire. These techniques were believed to be useful in assessing skills such as knowledge of adolescent issues, attitude towards gender equity, and problem solving, listening and communication skills.
- Training: There was general agreement in the groups that the intervention facilitators should receive rigorous training in the beginning and booster training sessions at regular intervals. The groups also recommended that the training should be conducted by experts working in the field of school-based adolescent health promotion. Participants suggested that structured training modules should be developed and the content and training period for the lay counsellors and teachers should be the same. Participants suggested the initial training could be about six days and residential in nature and the follow-up training could be given through monthly group meetings. Most of the participants agreed that separate training should be conducted for the lay counsellors and teachers.

- Supervision: All the participants underlined the need of supervision of the intervention facilitators by health professionals. Most of the participants agreed that the lay counsellors would require more support than teachers as the school setting will be new to them and the acceptability of counsellor will be less in the initial days in schools. In addition, participants suggested that supervision should be an on-going process wherein initially, it could be provided more frequently and the frequency could be reduced as the intervention facilitators become more experienced. All the participants agreed that a combination of one to one and group supervision should be provided. Most of the participants agreed that the one to one supervision should comprise of planned and surprise visits. All the participants agreed that the supervisor should have a degree in humanities and work experience of at least five years in developmental sector, preferably with adolescents. The participants also agreed that the same set of supervisors should provide support and supervision to both lay counsellors and teachers.

c) Barriers to delivering intervention

- Common barriers: Some common barriers to delivery were discussed, which included: intervention facilitators would not be competent to handle severe cases, limited or no engagement of principal and teachers, involvement of parents in the intervention activities including the School Health Promotion Committee, and stigma associated with seeking help for emotional and mental health issues. Participants suggested that the intervention facilitators should be trained and would require support in understanding the limitations of being counsellors, and when and how to refer cases to the specialist. Most of the participants also suggested that the intervention facilitator should involve and/or consult the other school staff in planning and implementing the intervention activities. A few participants suggested that a day-long orientation workshop should be conducted for school staff. Most of the participants agreed that the counselling services should be labelled as ‘counselling’ and the intervention facilitator can be called as an advisor or a guide.
- Barriers to intervention delivery in lay counsellor arm: Some barriers pertinent to lay counsellor-led intervention delivery were discussed, which included: low acceptability by the schools, no support to deliver the intervention activities, may not be included in the decision-making process, no voice in the day to day proceedings of the school, and may be perceived as incompetent to perform as a counsellor. All the participants agreed that successful implementation of intervention activities by lay counsellor will be dependent on the support and guidance offered by the principal. Hence, it was suggested that a day-long orientation programme should be conducted for the

principals in intervention schools requesting their support to the lay counsellors.

- Barriers to intervention delivery in teacher arm: Some barriers pertinent to teacher-led intervention delivery were discussed, which included: lack of time to deliver intervention activities, lack of motivation, may not be able to attend monthly group meeting due to various academic and non-academic engagements, and students may not feel comfortable in seeking counselling services from the teachers. It was suggested that the State Council for Educational Research and Training, DoE should direct the teachers to allocate their time for the intervention delivery as well as attend once in a month meeting. Teacher participants felt that they should be given monetary incentives to implement the intervention activities. However, the DoE officials suggested that there is no need to offer any financial incentives to the teachers and they can be recognized through different means, for example certification at the end of the training programme or felicitation during the annual State Education Day to recognize their work as intervention facilitator.

To summarise, at the end of this step of the intervention development process, we had the framework for SEHER intervention, SOPs to guide the intervention delivery, which was informed by both global and contextual evidence and made up of components which were potentially acceptable to the school community, and feasible to be delivered by lay counsellors and teachers in secondary schools in Bihar. The subsequent steps describe how this intervention was pilot tested through mixed methods research and how it was iteratively adapted based on research findings to generate the final version to be tested in a definitive CRT.

3.3 Phase 2: Pilot study

The objectives of the pilot study were:

Objectives I: To refine the intervention to tailor to each school's context and embed it in the respective randomised intervention arm schools in advance of the main trial; and

Objective II: To pilot the outcome measures and the assessment method.

3.3.1 Objective I

To refine the intervention to tailor to each school's context and embed it in the respective randomised intervention arm schools in advance of the main trial

3.3.1.1 Methods

The pilot testing of the intervention was conducted prior to the trial (between April 2014 and March 2015) in the 25 schools randomly allocated to the SM and TSM arms respectively. The

description of the setting is provided in Chapter 4 (Section 4.3). The method of the random allocation is described in Chapter 4 (Section 4.4). We conducted the pilot in the same schools as the main trial for two reasons: 1) the secondary schools only included grade IX onwards (our primary target group for the evaluation of the effectiveness) and thus the cohort of students to be included in the main trial would not have been exposed to the intervention during the pilot; and 2) piloting the intervention in the schools participating in the trial enabled us to embed the intervention and conduct refinements to optimize its feasibility and acceptability in each school. Two methods were applied to achieve Objective I.

a) Process evaluation: We assessed the fidelity of intervention implementation (the coverage of each component, the extent to which stakeholders engaged with it and the quality of its delivery). Coverage indicators were collected through monthly reporting forms and quality indicators were assessed through ratings of specific components, such as the wall magazine and peer group meetings, by respective supervisors and by observations made by the intervention team during field visits.
b) Qualitative evaluation: At the end of the pilot phase period, we conducted a qualitative evaluation in 12 schools (6 SM and 6 TSM schools respectively). The schools were purposively selected based on the high or low performance on SEHER intervention activities. The overall aims of the qualitative evaluation were to gather multiple perspectives about the intervention components and its delivery, and to identify the gaps and improvements needed. In each school, we conducted semi-structured interviews with the principal (n=12), TARANG-AEP nodal teacher (n=12) and one fellow teacher (n=12); and focus group discussions with students (n=24, 12 each with boys and girls). In addition, three rounds of focus group discussions were conducted with the TSMs, SMs, and supervisors during the intervention implementation. The interviews and FGDs covered a range of topics, including the stakeholders' perceptions of the need of the intervention, adequacy of content and material, and how various school personnel and children came to be involved, what support or resources were helpful, and facilitators of and barriers to implementation. The FGD and semi-structured interview guides used for data collection are listed in Appendix 2. Interviews and FGD were conducted in Hindi and recorded. Digital recordings were transcribed and translated before coding using both a priori and emergent codes using NVivo version 10 (QSR International, Burlington, Massachusetts, USA). Data collection and analysis progressed iteratively, identifying and interpreting themes, leading to modifications to the intervention. A thematic analytical approach was used for data analysis, with codes and qualitative results discussed by the team to achieve consensus. The following analytical themes and sub-themes were employed in the synthesis and interpretation of the quantitative and qualitative data:

- Acceptability: acknowledge need for the intervention by the stakeholders; stakeholders' acceptability of the intervention content; and stakeholders' participation in and attitudes towards the intervention activities.
- Feasibility: coverage of the intervention activities against planned, stakeholders' perceptions on the barriers to and facilitators for the establishment of the intervention and delivery of the intervention activities, the systems for the implementation of the intervention in the schools, and supervision of the intervention activities.

3.3.1.2 Results

Twenty-nine SMs (25 in schools and 4 back-up SMs), 25 TSMs, and 8 supervisors were selected and completed their training. Each supervisor supervised both SM and TSM schools, with an average of 6 schools per supervisor. The 50 schools included in the pilot study had a total of 26,526 students, in Grades IX to XII (13,502 students in SM and 13,024 students in TSM schools).

A. Acceptability

The principals, teachers, TSMs and SMs were almost unanimously of the view that the intervention was meeting an important need, considering the fact that students in government schools are socially and economically disadvantaged, and require health and social skills training. Drawing attention to the low status of women in the region, many stakeholders also spoke of the potential of the intervention to raise awareness of reproductive and sexual health issues, gender equity and gender-based violence to change the outlook of youth.

"…what is special about this programme is that the grade IX and X students are getting health education through participatory methods. There is no teaching as such, but the whole-school is engaged in delivering key messages like what is gender-based violence, what are key reproductive and sexual health issues, what is anxiety and stress, how to handle stress and so on." [Principal from SM school]

Of all the stakeholders interviewed, only one principal and three teachers expressed lingering doubts about the desirability of providing information on sex and pregnancy to adolescents. They feared that this might have negative consequences, such as heightening attraction to the opposite sex, which, in turn, could result in a growing number of romantic and/or sexual relationships.

"…one thing I don't like about this programme is that the kind of information given to these children on adolescence…these children are not matured enough to understand these things; they may act on the information, which is not good." [Teacher from TSM school]

The principals, teachers, SMs and TSMs acknowledged that through the meetings with the staff and SHPC members, the schools identified issues of concern and reviewed the practices and priorities of their schools. For many schools, the discussions during these meetings provided the impetus for shared planning and action. For example, in a couple of schools, the SHPC meeting discussed the need for separate toilets for boys and girls and networked with the District Education Office for financial support. As a result, these schools received funds to build toilets.

The school staff also acknowledged that a lot of changes took place in the school due to the programme. For example, teachers mentioned that a regular whole-school assembly was being organized, and the chits submitted by the students in the speak-out box forced the teachers to follow a daily school-schedule. Teachers mentioned that through activities like whole-school assembly sessions, wall magazine development and competitions, the interactions between students and teachers have significantly improved.

"…apart from providing information to the students, SEHER has been useful in bringing positive changes in our school. Earlier, there was no student assembly organized in our school however, since joining, the SEHER-Mitra is facilitating the daily assembly. Students are participating in the various activities during the assembly like news-paper reading, cleanliness drive, skit presentation and so on. Similarly, the daily schedule was not being followed in our school, but a large number of students have demanded a regular schedule of classes in the school through chits, which has pressurized the headmaster and teachers to follow a schedule." [Female teacher from SM school]

Although the SMs and TSMs were generally enthusiastic about the intervention, two each from lower performing schools mentioned that support from fellow teachers was not always forthcoming, either because they did not consider the subject important or did not approve of the content of the intervention. Several teachers complained that not enough information was shared about the intervention.

Students were unanimous across arms in their enjoyment of the intervention activities and equally unequivocal that the activities conducted and topics covered were interesting and informative. Specifically, students praised the activities like debates and panel discussions,

storytelling, role plays conducted during the whole-school assembly; development and display of monthly wall magazine on various topics, and organization of monthly competitions. The students from SM arm also appreciated the provision of speak-out box as they could submit their concerns and complaints. However, students in the TSM arm expressed that they were apprehensive in sharing their complaints through speak-out box because they were not sure about how the TSM would react to their complaints. The boys suggested including activities (e.g. competition and physical activities) which would increase their participation in the intervention. Overall, the students participating in the FGDs described the SEHER intervention as 'very useful' and 'helpful for future career'.

"…students like us living in villages face multiple problems, many students drop-out due to the poor financial status of the family, girls are forced to marry before they complete education or asked to sit at home to finance the education of male child at home, and so on. Many girls do not come to school during 'those' days because there is no separate toilet for girls in the school. Our science teachers do not talk about these topics in the classroom and ask us to read it on our own. Now we can directly go to the TSM or drop a chit in the box and ask our questions, and seek guidance. I myself have sought his advice for my difficulties and it has helped me." [Female FGD participant from TSM school]

B. Feasibility

B.1 Intervention Coverage

The intervention team set detailed targets with respect to the activities in the beginning of the academic year. Coverage of the monthly intervention components was generally high in both arms (Table 3.3) with the exception of awareness generation activities during the school assembly. This was not organised daily in many schools until the SM/TSM were able to persuade the headmaster to start this practice. The acceptability of the intervention during the latter 6 months (September 2014 - February 2015), was reflected by the high number of submissions to the speak-out box and the number of students who have availed counselling services. The coverage of some intervention activities was higher in SM arm schools than TSM arm. For example, the SM schools addressed more whole-school assemblies (75 vs 41%) and staff meetings (96 vs 68%) than TSM schools. Similarly, the SM schools received more chits through the speak-out box and more students accessed counselling services in these schools than the TSM schools (527 vs 321 chits; 203 vs 152 students). These quantitative indicators were consistent with qualitative data which helped in identifying facilitators of and challenges to intervention delivery.

Table 3.3: Coverage of SEHER activities in pilot study (September 2014- February 2015)

	School level target	TSM Arm (n=25)	Coverage	SM Arm (n=25)	Coverage
Awareness Generation					
Number of assemblies addressed	4/ month	246	41%	450	75%
Number of staff meetings	1/month	102	68%	144	96%
Wall magazine					
Number of issues	1/month	135	90%	144	96%
Speak-out box					
Number of chits received	-	321	-	527	-
Number of chits addressed	-	230	-	353	-
Number of chits not addressed	-	91	-	174	-
School Health Promotion Committee					
Number of meetings	1/year	25	100%	25	100%
Workshops					
Number of workshops with students	1/year	25	100%	25	100%
Number of workshops with teachers	1/year	25	100%	25	100%
Individual counselling					
Number of cases	-	152	-	203	-
% of students who accessed counselling	-	1.80	-	2.38	-

B.2 Facilitators to intervention delivery

Students described the participatory nature of the activities, availability of platforms such as the speak-out box and the peer groups to raise their concerns, recognition of contributors to the wall magazine or daily assembly, redressal of students' complaints or problems while maintaining the confidentiality as the facilitators to the engagement with intervention components. Other key factors in the high performing schools were the engagement and support of the headmaster, ownership and participation of other teachers, and on-going training and continuous professional support through supervisory and a-day-long monthly meetings to the SMs and TSMs.

B.3 Barriers to whole-school level activities

Common barriers to the delivery of the whole-school level activities in SM and TSM schools included lack of engagement of teachers in SEHER activities, lack of boys' participation in the intervention activities, negligible participation of parents in school governance and day-to day proceedings, and a fall in students' attendance after mid-December/early-January once the Government incentives for attendance were disbursed. The lack of teacher engagement was addressed through a regular monthly meeting with the school staff to review the previous month's activities and to plan for the upcoming month. In addition, all the teachers, instead of a few representatives, were invited to be a part of the School Health Promotion Committee. This increased the engagement of the headmaster and teachers, and moved the ownership of the intervention to the teacher community. Male student involvement was improved through expanding the scope of the peer-group and wall magazine activities through school-wide monthly competitions (for example, on elocution and drawing), and increasing the number of peer-groups from one for the entire grade to one for each division of the grade (on average, 2-4 classes of grade IX in each school). The challenge of the fall in attendance led to increased focus on completing all core intervention components between June and January. One barrier which the intervention was unable to address was the low participation of parents, reflected in the very low attendance in the annual workshop on 'handling adolescents', despite multiple efforts, including letters, phone-calls, and personal visits; this resulted in dropping the annual workshop with parents from the intervention.

The barriers to the delivery of whole-school activities were different in the SM or TSM schools. One of the TSM schools opted-out after completing the pilot study as the school management committee perceived the reproductive sexual health content of the intervention unacceptable for the secondary students. In three schools, principals and senior teachers felt that the SMs were

not equipped to facilitate such an intervention as they were younger than the teachers in the school, did not have appropriate educational qualifications or experience to work in the school setting, and were perceived as external to the school. This feeling was stronger in those schools where the SMs shared with the headmasters that students complained about the disciplinary practices of some teachers. This challenge was addressed by including an annual workshop for the teachers on 'discipline practices' and through engagement with all teachers in the intervention as described earlier. This resulted in reducing the performance anxiety of the SMs and improving other teachers' participation and support in the intervention activities.

B.4 Barriers to group-level activities

Some of the new programme difficulties were observed in organizing peer group activities at the beginning of the intervention period, such as the responsible member not fulfilling his/her duties, unclear understanding of the programme among the members, hesitance to participation in mixed gender group activities, and irregular attendance at the group meetings. These barriers were addressed through highlighting the importance and role of such groups to the members in the monthly meetings. The participation of group members increased gradually due to enhanced diversity and frequency of the intervention activities.

B.5 Barriers to individual-level activities

In most schools, girls were unwilling to consult male SM/TSMs for counselling services. As it was not feasible to provide SM/TSMs of both genders in each school, female students were encouraged to contact a female AEP teacher to discuss the sensitive issues. Through the awareness generation meetings during the daily assembly, the SM/TSMs assured students about the confidentiality and wherever possible made the provision of a SEHER-activity room for a confidential counselling session. A key barrier observed in TSM schools was TSM's inability to switch swiftly between the role of a teacher and counsellor. In addition, the TSMs often felt overloaded due to other competing assignments such as teaching of regular syllabus, administrative tasks, election duties, answer sheet evaluations, etc. Their motivation was based only on their enthusiasm; they did not get any additional pay or benefits for this work.

In the TSM schools, the monthly 'unplanned' supervisory visit was not serving its purpose as the TSMs were often not available due to their competing teaching responsibilities. Consequently, the monthly unplanned supervisory visit per month was changed to a planned visit to lend more support to the TSMs in completing their targeted activities. The SMs and TSMs mentioned that

the monthly group meetings increased their confidence of implementing SEHER activities, provided a platform to discuss school-level challenges and generate solutions, and served to motivate them. The supervisors mentioned that intense monitoring and supervision of the intervention was one of the factors that helped in quickly identifying bottlenecks in the intervention delivery and addressing these.

In general, the students' perception of the SM was favourable and they perceived the SM as someone who was readily available in the school, was 'friendly' and was more approachable than other teachers, and because s/he could help them in solving their issues while maintaining the confidentiality. The TSMs were also perceived favourably by the students although, some students mentioned that they were not always available and/or approachable due to their other engagements in or out of the school. Some students were not confident that the TSM would respect confidentiality and share their issues with other teachers.

3.3.2 Objective II

To pilot the outcome measures and the assessment method.

3.3.2.1 Methods

The instruments identified for capturing outcomes for the main trial (summarised in Table 3.4) were adapted from English to Hindi to suit the context and developmental characteristics of the target sample. All the instruments were translated from English into Hindi and then back-translated. Two teams, each of two members produced translated and back-translated versions. The translators worked independently and referred to the 'Question Specifications' that described the purpose of each question. In the end, the translators met to discuss their impressions and reconcile discrepancies. After the contextual adaptation, cognitive testing of the questionnaire and evaluation of the most appropriate method for administering the questionnaire in terms of feasibility and acceptability was conducted.

The cognitive testing was conducted in three purposefully selected schools with 60 Grade IX students (30 boys and girls each). The FGDs took place following each testing session to obtain feedback on the questionnaire's language in particular to identify questions which were unclear in meaning or had confusing or difficult language or response options.

Image 3.2: Cognitive testing of the SEHER outcome assessment questionnaire

Following two methods for administering the questionnaire were evaluated.

Method 1: Students completed a self-administered questionnaire in the presence of field investigator. In each classroom, three field investigators; one lead and two assistants, supervised the administration. The lead field investigator explained the purpose and importance of data collection, briefed about the subsections, nature of questions and response options to all the students in the classroom. The students could consult the field investigators for any question they might have.

Method 2: Each session was administered by three field investigators; one lead and two assistants. The lead field investigator explained the purpose and importance of data collection to all the students in the classroom. S/he read each item and asked students to choose their response before moving to the next question.

While collecting the questionnaire, the field investigators checked the completeness; if a participant has left the whole questionnaire or a few sections blank, it was returned to the student to complete. After the cognitive testing, the questionnaire was refined and the consent, data collection and management procedures were pilot-tested in 15 purposefully-selected schools; five from each arm - three medium and one each of small and large student size.

Table 3.4: SEHER Trial outcome assessment measures

Outcome	Instrument	Description	Psychometric properties
		Primary outcome	
School climate	Beyond Blue School Climate Questionnaire (28 items)	Adapted version of self-reported Beyond Blue School Climate Questionnaire (28 items). The subdomains of the scale include: supportive relationships within school, belongingness to the school, participation in school activities, and commitment to the academic values. Total BBSCQ scores range between 0 and 28 with higher score indicating favourable school climate.	Zullig and others (2010) assessed the students' perception of School Climate using the 28-items BBSCQ. The students were asked to rate their level of agreement with respect to each statement about their school using the following responses: "YES!", "yes", "no" or "NO!". The final student sample (*N* = 2,049) was randomly split into exploratory and confirmatory samples and subjected to factor analytic and structural equation modeling techniques. The factor analysis supported the four subscales relating to a) Supportive Teacher Relationships (labelled Teacher Support: 33.91% variance, Eigenvalue=9.49, α =0.89); b) Student Belonging (labelled Belonging: 8.53% variance, Eigenvalue=2.39, α =0.79); c) Student Participation in school activities and decisions (labelled Participative Environment 5.58% variance, Eigenvalue = 1.56, α =0.78) and d) Personal commitment to academic values (4.47% variance, Eigenvalue= 1.25, α =0.64) During the pilot study of the SEHER project, the BBSCQ was administered to 3104 Grade IX students and was found to be highly reliable (α =0.91). The relationship subscale consisted of 10 items (α =0.89); the belonging subscale consisted of 8 items (α =0.83); the commitment subscale consisted of 4 items (α =0.82) and the participation subscale comprised of 6 items (α =0.87).
		Secondary outcomes	
Depressive symptoms	Patient Health Questionnaire-9	9 item self-reported questionnaire; 4 point Likert scale; scores range between 0 and 27	- Hindi translation available - Commonly used in India to measure psychiatric morbidity

Outcome	Instrument	Description	Psychometric properties
		with higher score indicating severe depression; recall period: last 2 weeks	- Ganguly et al. used a sample of 233 Indian adolescents (aged 14-18 years) to determine the psychometric properties of PHQ-9. The authors found =/>5 as an ideal score for screening with sensitivity of 87.1% and specificity of 79.7%. The PHQ-9 had good 1-month test-retest reliability (r=0.875) and internal consistency (Cronbach's α=0.835). - During the pilot study of the SEHER project, the PHQ-9 was administered to 3104 Grade IX students and was found to be highly reliable (α =0.81).
Bully behaviour	Bullying Victimization Questionnaire	4 items; score range: 0 to 12 with higher score indicating experience of severe bullying; recall period: last 30 days	- Used in India as a part of International Youth Development project (Solomon et al., 2013) - Hindi translation available - Gothwal and others (2013) found moderate measurement precision of the victimization questionnaire (assessed by person separation reliability; 0.64) and internal consistency (Cronbach's α=0.81) among 150 Indian children with visual impairment between 8 and 16 years - During the pilot study of the SEHER project, the Bullying behavior questionnaire (4 items) was administered to 3104 Grade IX students and was found to be highly reliable (α =0.83).
Violence (victimization and perpetration)		4 items; 2 items each on perpetration and experience of physical violence; recall period: last 8 months (since the grade IX started)	- Used in India as a part of International Youth Development project (Solomon et al., 2013) - Hindi translation available - During the pilot study of the SEHER project, the 4 items violence questionnaire was administered to 3104 Grade IX students and was found to be

Outcome	Instrument	Description	Psychometric properties
			acceptably reliable (perpetration subscale 2 items (α =0.72; victimization subscale of 2 items α =0.77)
Knowledge and attitude towards RSH	Questionnaire on knowledge and attitude towards reproductive and sexual health (RSH)	8 items; score range: 0 and 8 with higher score indicating better knowledge of and attitude towards RSH	- Based on WHO's illustrative questionnaire for interview/survey with young people, 1998-99 (Cleland et at., 1998-99); - During the pilot study of the SEHER project, the 8 items Knowledge of RSH questionnaire was administered to 3104 Grade IX students and was found to be highly reliable (α =0.88).
Attitude towards gender norms	Gender Equitable Men Survey (GEMS)	10 items; score range: 0 to 10 with higher scores indicating more positive attitude towards gender equity	- Used in cross-culturally as a part of International Men and Gender Equality Survey (IMAGE), 2012 (Barker et al., 2011) - Estimates of internal consistency vary in different country applications. For the Indian adaptation of the GEMS Cronbach's α =0.75 - Hindi translation available - During the pilot study of the SEHER project, the 8 items Knowledge of RSH questionnaire was administered to 3104 Grade IX students and was found to be highly reliable (α =0.82).
		Exploratory outcomes	
- Substance use - Suicide behaviour - Sexual behaviour	Global School-based student Health Survey (GSHS)	-14 items measure use of tobacco (chewing and smoking), alcohol and other substances since the grade IX started, type of substances used in last 30 days, and frequency of use in last 30 days, - 4 items measure sexual behaviour, and experience of forced sex since the grade IX started	- WHO's Illustrative Questionnaire for interview/survey with Young people, 1998-99 (Cleland et al., 1998-99) -

Outcome	Instrument	Description	Psychometric properties
		- One item measures suicide attempt since the grade IX started	

3.3.2.2 Results

Evaluation of the questionnaire administration method

The mean questionnaire administration time was one hour (range: 45 to 90 minutes). As the questionnaires were collected after checking the completeness, the missing values for each question ranged between 1 to 2%. The FGDs revealed that the students favoured the first method of administering the questionnaire as it allowed them to mark their responses with their own pace and to ask queries in private to the field investigators, whenever needed.

Cognitive testing

Through FGDs, the students provided mixed feedback on the questionnaire:

"...it's easy and fun, I enjoyed answering the questions. However, the wording of some of the questions was difficult. Some of the words used in the questions were difficult to understand. The questions should be in simple language. In addition, these are too many questions; I got bored after initial few sections."

The key messages from the cognitive testing were that the questionnaire should be in simple language and should use colloquial words and local expressions. Some of the response options were changed after the cognitive testing. For example; we added an option, 'I Don't Know' to the all knowledge questions and 'I Don't want to answer' to all the behaviour questions. We also simplified the language of the questionnaire. We also changed following items from the Beyond Blue School Climate Questionnaire:

Item 9: I can really be myself at this school. Replaced with: This school accepts me the way I am.

Item 20: I feel I belong at this school. Replaced with: I feel I am one of the members of this school.

Piloting of consent procedure

Consent to participation in the study was sought at three levels i.e. school, parental and student level.

School level: The SEHER project was implemented in collaboration with the DoE, Government of Bihar. The DoE had issued a letter to the principals of eligible schools to attend a meeting with the evaluation team. In this meeting, the principals were introduced to the project, explained about each stakeholder's role in the project and kind of support required from them. In the same meeting, school-level consent for randomisation and study participation was obtained.

Parental level: For all students, parental consent allowing their child to participate in the outcome assessment was obtained through opt-out method (Chartier et al., 2008; Hollomann

& McNamara, 2010; University of Oregon, 2013). This method was deemed to be appropriate as we believed that no greater than minimal risk was presented to the participants. Multiple strategies to obtain parental consent were tried:

a) A common meeting with parents over tea and snacks in the school was called to brief parents about the SEHER interventions and study. An invitation for parents to attend this meeting was sent through the students. Through this meeting, the concerns and questions of the parents were addressed, if any.

b) An information sheet and the SEHER brochure was sent to each child's parent informing them of the study and asking them to specifically inform the school if they did not wish their child to participate in the research procedures.

Student level: All the students participating in the outcome assessment were provided with full information about the research in order to give their informed assent to take part, and that assent was 'freely volunteered'. The assent was obtained by a field investigator in a classroom setting in the presence of a School Management Committee member or a teacher. The field investigator provided a hard copy of the information sheet in Hindi (local language) to each student who was being asked to participate in the outcome assessment. The field investigator read the information sheet and explained it to the students and answered their queries or doubts, if any. All students were asked to fill the assent form (paper-based) and submit it to the field investigator.

In the academic year 2014-15, in total 3630 students (1486 boys and 1618 girls) were enrolled in grade IX in the 15 schools selected for piloting of consent procedure and outcome assessment. Only 40% of parents turned up for the meetings organized in the schools. A possible reason for poor turn-up of parents could be a lack of prior experience of being invited to parents' meetings in the school. The project office received 15% telephone calls of parents of the total enrolled students in the schools inquiring about the project after receiving information sheets through their wards. Of the total students enrolled in 15 schools, 30 parents (9 TSM and 21 SM) sent back their signed opt-out forms.

Pilot testing the outcome assessment questionnaire

Due to drop in the attendance of students in December/January after the distribution of vouchers of various government-led schemes, the pilot testing was conducted on one of the days of final examinations in March 2015 after consulting with the school management.

On the day of outcome assessment, 3122 students (86.0%) were present in 15 schools; 17 students refused to participate in the assessment and 3,104 (99.4% of those present; 85.5% of those enrolled) completed the assessment. Along with the assent procedure, the outcome assessment took, on average, 60 minutes (range: 50 to 75 minutes). The question-wise

missing values ranged between 2% to 17%.

The mean age of the participants was 14.25 years (95% confidence interval; 95%CI: 14.20-14.25). Of the total 3,104 participants, 43.6% were female; 3.9% were married; a little less than half of the sample belonged to scheduled caste (45.2%) and a little more than one third of the sample belonged to other backward class (36.2%).

The mean score on the Beyond Blue School Climate scale was 20.66 (95%CI:20.34, 20.98); it was lower among girls (Mean BBSCQ=20.27, 95%CI:19.85, 20.70) than boys (Mean BBSCQ=21.16, 95%CI:20.68, 21.63). The mean score on the attitude towards gender norms questionnaire was 3.9 (95%CI 3.74, 4.16); and on the knowledge of and attitude towards RSH questionnaire was 2.26 (95%CI 2.16, 2.35). Less than one tenth participants reported depressive symptoms (7.4%); more than one sixth participant (17.2%) reported being bullied in one or other form. Less than one in five participants reported threatening someone of injuring (17.5%) and being threatened by someone of injuring in the past 12 months 18.5%.

Implications for main trial

Based on the conceptual framework, the list of SEHER intervention topics and the feedback received during pilot-testing, the outcome assessment questionnaire was revised.

- Based on the feedback of the students, the response styles to some questions were changed. For example: a new category of response 'I don't know', was added to all the knowledge and attitude questionnaire response options.
- We refined the sample size estimations for the changes in the primary and a secondary outcome measure, viz. school climate and being bullied, for the total as well gender segregated sample (Chapter 4, section 4.8).
- Due to the drop in the attendance post December/January, the follow-up assessment to be conducted during the final examination of grade IX in March 2016.

Chapter 4 describes the methods a cluster randomised trial of the effectiveness of the SEHER intervention when delivered by a lay counsellor (SEHER *Mitra*) or teacher SEHER *Mitra* against government-run TARANG-AEP; in improving School Climate. Secondary outcomes to be tested were depression, frequency of bullying, violence (perpetration and victimization), attitude towards gender equity, and knowledge of RSH.

Chapter 4. SEHER TRIAL METHODS

In this chapter I provide details of the SEHER trial design and analytical methods. These include the hypothesis, objectives of the trial, details on study setting and sample, sample size calculation, data collection method, details on outcome measures used and data analysis technique. I also provide a brief overview of the integral process evaluation and the cost-effectiveness analysis followed by details on the nested qualitative study. The results of the trial are given in Chapter 5, and discussed in Chapter 8.

4.1 Hypotheses

Our hypotheses were that the SEHER intervention strategies, in addition to the best-available intervention implemented by the state government of Bihar with support from United Nations Population Funds (TARANG-AEP), would be superior to the TARANG-AEP alone in improving school climate, and that the intervention delivered by a lay-counsellor (SM) would be more effective in improving school climate than the intervention delivered by a teacher (TSM).

4.1.1 Primary objectives

1. To assess the effectiveness of the SEHER intervention plus TARANG-AEP delivered by the TSM compared to AEP alone in building school climate as measured with Beyond Blue School Climate Questionnaire (BBSCQ) among students present 8 months after the baseline survey.

4.1.2 Secondary objectives

1. To assess the effectiveness of the SEHER intervention plus AEP delivered by the SM compared to SEHER intervention plus AEP delivered by the TSM in building school climate as measured with BBSCQ at 8 months after the baseline survey.

2. To assess the effectiveness of the i) SEHER intervention plus AEP delivered by the TSM compared to AEP alone; ii) SEHER intervention plus AEP delivered by the SM compared to AEP alone, and iii) SEHER intervention plus AEP delivered by the SM compared to SEHER intervention plus AEP delivered by the TSM on school climate among:

a) Participants present at both baseline and endpoint surveys; and

b) Boys and girls separately.

3. To assess the effectiveness of the i) SEHER intervention plus AEP delivered by the TSM compared to AEP alone; ii) SEHER intervention plus AEP delivered by the SM compared to AEP alone, and iii) SEHER intervention plus AEP delivered by the SM compared to SEHER

intervention plus AEP delivered by the TSM on the following outcomes; overall and by gender:

a) Improving attitudes towards gender equity as measured with an adapted version of the Gender Equitable Men Survey;

b) Increasing knowledge and attitudes towards reproductive and sexual health (RSH) as measured with an adapted version of the WHO's Illustrative Questionnaire for Interview with Young People,

c) Reducing depression as measured with Patient Health Questionnaire-9 (PHQ-9)

d) Reducing self-reported experience of bullying behaviour as measured with an adapted version of the Bullying Victimization Questionnaire

e) Reducing self-reported violence (perpetration and victimisation) as measured with an adapted version of the International Youth Development Project, India.

4. To test the effectiveness of the comparisons in Objective #3 on exploratory outcomes listed below. For these behavioural outcomes, the trial only has the power to detect large differences between the intervention and comparison arms (Range: 6-8%) due to the low prevalence of these behaviours at baseline. However, it is important to gather information on these behavioural measures and to measure and report the results by trial arm as most of these behaviours are learnt during adult life.

a) Incidence of self- reported suicide behaviour during last 8 months

b) Incidence of self-reported tobacco use (smoking and chewing) during last 8 months

c) Incidence of self-reported alcohol use during last 8 months

d) Incidence of self-reported other substance use during last 8 months

e) Incidence of self-reported initiation of sex during last 8 months

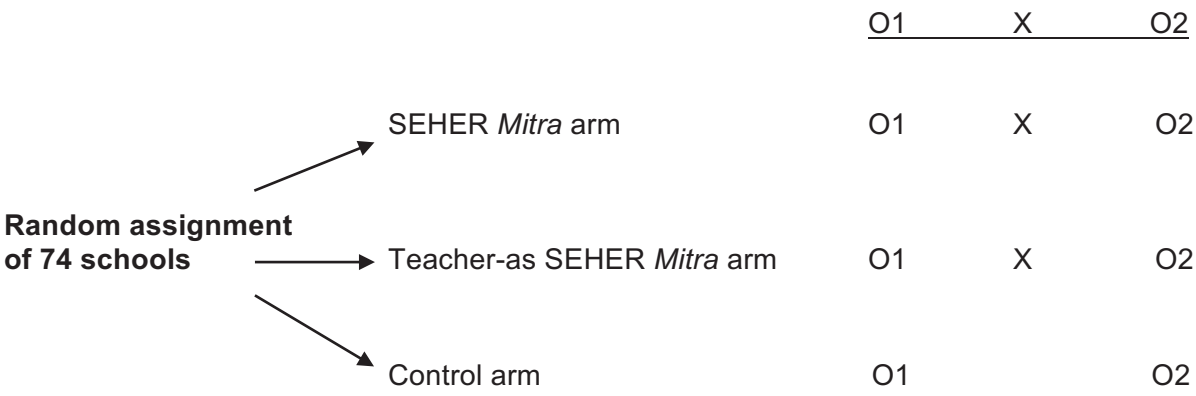
f) Incidence of self-reported forced sexual encounters during last 8 months

4.2 Study design

SEHER is a cluster-randomised controlled trial (CRT) comparing clusters (schools) in: (i) Teacher-as SEHER *Mitra* (TSM) and ii) SEHER *Mitra* (SM) arms versus the control arm (TARANG-AEP) with follow up over 8 months (Figure 4.1). Two cross-sectional surveys were conducted to collect data at baseline and at follow up (8 months after the intervention was put in place). The purpose of the baseline survey was to assess students' pre-intervention socio-demographics characteristics and perception of school climate (primary outcome), and knowledge, attitude and behavioural outcomes at baseline in order to establish whether randomisation was successful in avoiding any imbalances across study arms. Identified imbalances could subsequently be adjusted for in the analysis of outcomes at follow up. The follow up survey was used to measure primary, secondary and exploratory outcomes for comparison across study arms. All the outcomes were measured on students enrolled and

attending grade IX in the randomly allocated schools. The secondary schools in Bihar have only grades IX and X and the grade X students were not included for evaluation to minimise interference with their academic objectives. Students of grade X appear in the Secondary School Certificate Examination as a completion examination of secondary education; it is an equivalent to General Certificate of Secondary Education in the UK.

Figure 4.1: Study design



O1= baseline survey (July 2015)
X = SEHER intervention (July 2015 to February 2016)
O2 = follow up survey (March 2016)

4.3 Setting

The SEHER project was conducted in Nalanda district of Bihar, India (Image 4.1). Bihar is a state in northern India with a total population of over 103 million, with 22.5% of the population aged 10-19 years. Bihar was ranked 21 out of 23 major Indian states in terms of human development in 2014 (Census of India, 2011). Hindi is the official and the major language of Bihar. Nalanda district has a population of over 2.8 million, and a literacy rate of 66.4% compared with India's overall literacy rate of 74.0% (Government of India; GOI, 2013-14). The Department of Education (DoE) is the main education provider in Bihar; of the total 7261 secondary schools in Bihar, 5506 (75.8%) were government-run schools in 2015-16 (GOI, 2016). The gross enrolment ratio in secondary schools (grade IX and X) in Bihar was 78.4% in 2015-16 (GOI, 2016).

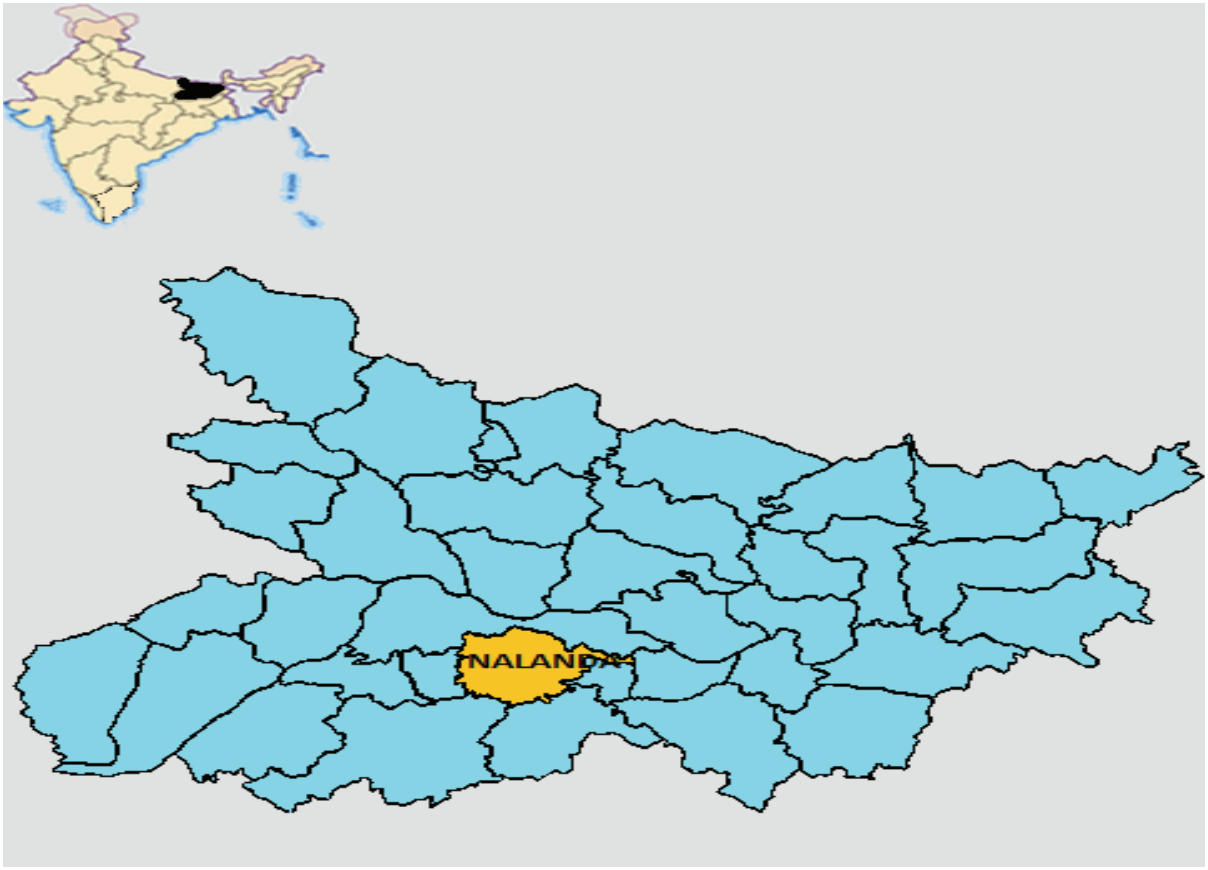


Image 4.1: Nalanda district on the map of Bihar, India

The state of Bihar was selected because the State Council of Education Research and Training (SCERT), Department of Education (DoE), Government of Bihar has introduced a teacher-led TARANG-AEP in Bihar with financial support from the United Nation's Population Fund (UNFPA) and technical assistance from the Center for Catalyzing Change (C3), India. The programme was being implemented in nine districts of Bihar, including Nalanda since July 2010. Under the aegis of the same programme, Sangath piloted the SHAPE intervention's individual counselling component by training 20 TARANG-AEP nodal teachers from Gaya and Darbhanga districts in 2011-12. The district of Nalanda was selected because of two reasons; one, sufficient number of schools were implementing the TARANG-AEP in the district and two, the feasibility of traveling to these schools from the district headquarter.

Image 4.2: A secondary school in Nalanda, Bihar

4.4 Sample

Of the136 secondary and higher secondary schools in Nalanda, 112 schools eligible for randomisation were identified based on the following criteria:

- Currently implementing TARANG-AEP as it is the common intervention in all three arms of the trial;
- Total number of students in grade IX at least 100 as this was one of the assumptions for power calculations;
- Total number of employed teachers in a school at least 5, in order to have a choice for selecting a TSM.

Of the 112 eligible schools, 75 were selected to participate in the trial using stratified random sampling. To ensure that the selected schools were likely to be representative, 68% of co-educational (63/93) schools were randomly selected, as were 69% of girls-only (9/13) schools, and 50% of boys-only schools (3/6).

The schools were allocated to the three arms in a 1:1:1 ratio using minimization (Taves, 1974), balancing on:

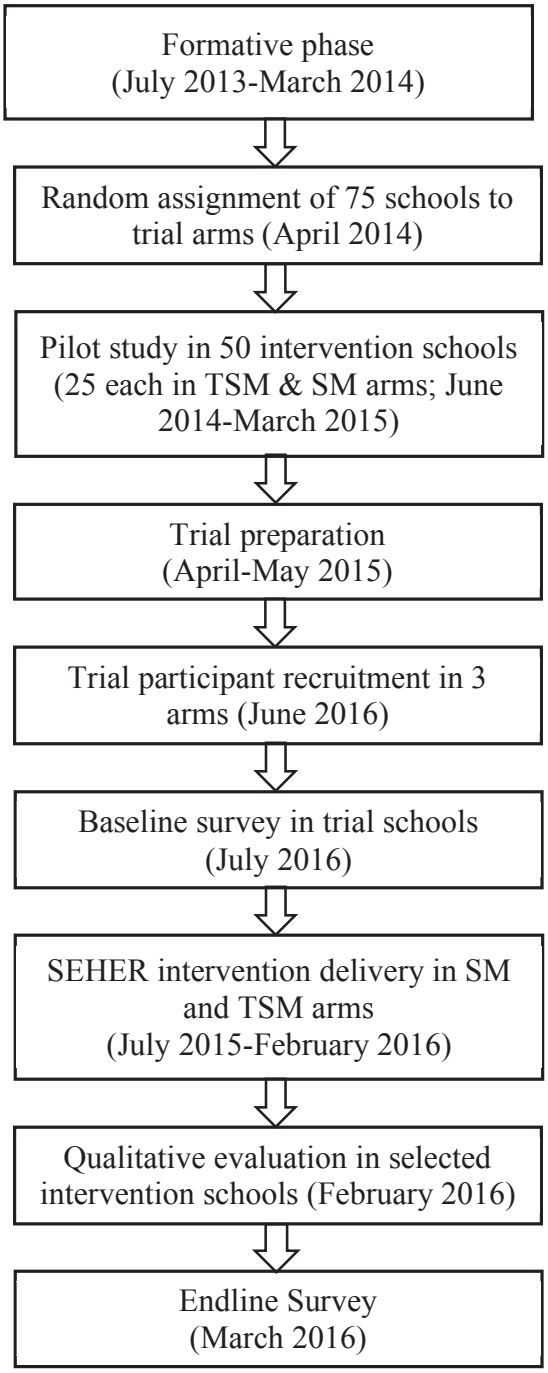
1. Type of school (only secondary or combined secondary and higher secondary school);
2. School size (small [101-300 students]; medium [301-600] or large [>600]); and
3. Gender composition of the school (co-educational; boys only; girls only).

The random allocation was carried out by an independent statistician (Guian Luca) at the London School of Hygiene and Tropical Medicine (LSHTM) in April 2014. The random allocation sequence was generated in “R” software to avoid predictable sequences. Appendix 3 lists the schools randomly allocated to the three arms. Following the pilot study, one school that had been randomly allocated to the TSM arm withdrew, with the school administration stating that they thought that the content of the intervention was not appropriate for grade IX students. This school was not replaced, leaving a total of 74 schools in the trial. The main reason for not replacing the school was that the SEHER intervention is a complex intervention and it was implemented for over an academic year (i.e. April 2014-March15) to embed in the intervention schools.

We conducted the pilot study in the same schools as the main trial because these schools start from the grade IX and thus a new cohort of grade IX students enters school every year. This means that, since pilot-testing was conducted with grade IX students during the school year April 2014-March 2015, no prospective trial participants (to be recruited in June 2015) were exposed to the survey or the intervention. This design had the advantage of enabling us to embed and finalise the complex and multicomponent SEHER intervention in each of the intervention schools over an academic year.

All the grade IX students present on the day of the baseline and/or endpoint outcome assessment were invited to give assent to participate in the study. The surveys were not repeated in the schools to cover the absent students due to feasibility issues and cost implications.

Figure 4.2: SEHER Project timeline



4.5 Intervention

The government-run TARANG-AEP took place in all three arms and comprised 16 hours of classroom sessions delivered by the nodal teachers. The topics of the TARANG-AEP comprise of: the process of growing-up, establishing positive and responsible relationships, gender and sexuality, prevention of HIV/AIDS and other sexually transmitted diseases, and

prevention of substance use. The programme uses a school-based transaction methodology and follows a co-curriculum based syllabus. This programme was being implemented through 1600 nodal teachers in 809 secondary schools in 9 districts of Bihar since July 2010 (Centre for Catalysing Change, 2014).

The theory and development of the multicomponent SEHER intervention has been described in Chapter 3. In brief, this multicomponent and whole-school intervention was based on the HPS framework (WHO, 1995) which had inspired a lay counsellor delivered an intervention pilot in Goa, India (Rajaraman, Shinde & Patel, 2015). The intervention's conceptual framework (See Figure 3.1 in chapter 3) identified four targets: promoting social skills among adolescents, engaging the school community, i.e. adolescents, teachers and parents in the school-level decision making processes, providing access to factual knowledge to the school community, and enhancing problem solving skills among adolescents. Following formative and pilot work in Bihar which were conducted between July 2013 and May 2015, the SEHER intervention strategies were implemented between July 2015 and March 2016. They were organized in 3 levels: whole school-, group- and individual-levels. The key components of the whole-school level strategy included awareness generation activities, monthly wall magazine, a suggestion box, extracurricular competitions, a School Health Promotion Committee, and implementation of two school health policies i.e. zero tolerance to bullying and anti-substance use policy. The group-level strategy included forming and conducting monthly meetings with peer groups of grade IX students to discuss the problems of the students and identify solutions to them, plan intervention activities and disseminate intervention-related information in the classrooms. The group-level strategy also included annual workshops on effective learning skills for students and on disciplinary practices for school teachers. Through the individual-level strategy, basic problem-solving counselling and referral services were provided to the students who were self-referred or referred by teachers.

We evaluated two models of the delivery of this intervention, i.e. delivery by a lay counsellor known as the SEHER *Mitra (*meaning a 'friend') (SM) or by a teacher (TSM). There was either one SM or one TSM per school. The TSMs were nominated by the school principals and were required to have a minimum experience of 5 years of teaching in secondary schools, minimum of 12-15 years of service remaining, not teaching TARANG-AEP curriculum, and willing to undergo a weeklong residential training. The trainee SMs were required to be above 18 years of age, to have a Bachelor's degree, to be fluent in the local language (Hindi), and to have an expressed desire to work with adolescents. Trainee SMs were recruited by placing advertisements in local newspapers and through word of mouth, and selected based on their performance in a structured interview and role play. Post selection, the trainees who

underwent a weeklong participatory workshop and met the competency standards (based on role play and multiple-choice questions; Appendix 4 & 5) were progressed to the pilot study.

The TSMs and SMs were trained separately in a weeklong residential training, but with an identical curriculum. Appendix 6 describes the training curriculum used to train the SMs and TSMs. This was followed up with further in-service training through separate monthly group meetings for SMs and TSMs. Both were supervised by the same set of eight supervisors who were required to have a Master's degree in Clinical psychology, Counselling, or Social work and having at least two years of experience of working with adolescents or youth. The supervisors were trained in providing supervision and support to the SMs and TSMs, reviewing the school-level progress of the intervention delivery, identifying school-level concerns and/or challenges to intervention delivery and developing solutions to address them. Each supervisor provided support and supervision to a group of eight SMs and TSMs through three planned visits per month. The supervisors were supervised and supported by two Intervention Coordinators and a Project Director.

Image 4.3: Classroom training of the counsellors by the author of the thesis

4.6 Data collection

4.6.1 Outcome data

The outcome data were collected at two points; baseline and endpoint assessment, at approximately 8 months from baseline. The baseline assessment was collected at the beginning of the academic year of grade IX, i.e. in July 2015 and the endpoint data were

collected in March 2016.

All the students who were enrolled and studying in grade IX and were present in the school on the day of assessment were invited to participate in the outcome assessment. Following data was collected from consenting participants:

- Complete name (not part of the questionnaire and linked directly with the outcome assessment questionnaire)
- Complete address and contact details, if available (not part of the questionnaire and lined directly with the outcome questionnaire)
- Grade, section, and school roll number
- Age (in years)
- Gender
- Caste
- Marital status
- Father's education
- Mother's education
- Father's occupation
- Mother's occupation
- Baseline measures of the primary, secondary and exploratory outcomes (listed in section 4.7)

Students completed a self-administered paper-pencil questionnaire in a classroom setting under the supervision of the trained field investigators (Image 4.4). The field investigators were independent of the evaluation team, recruited only for the outcome assessment task and masked to the allocation status of the schools. A class of approximately 70 students was supervised by two field investigators. The field investigators were trained in obtaining the assent of the students and administering the questionnaire in a classroom setting in a weeklong training by the evaluation team. A member of the school staff was also present in the classroom while administering the questionnaire. All the students who participated in the baseline and endpoint assessment were provided with a refreshment after the questionnaire administration. The baseline and end-point assessment data are matched through a unique participant ID assigned to each participant. This ID comprised of: School Code_Grade_Section_School Roll Number of the participant.

Image 4.4: SEHER Outcome Assessment in progress in a classroom setting

4.6.2 Process implementation data

Implementation indicators of SEHER intervention in both the intervention arms (i.e. SM and TSM) were obtained from: monthly logs reported by the SMs and TSMs, counselling case records maintained by the SMs and TSMs, the field visit reports by supervisors; and students' self-coverage of intervention activities at the endpoint assessment. Box 4.1 lists the implementation indicators collected for SEHER intervention. The SM/TSM's monthly report form is listed in Appendix 7. The supervisor fortnightly report form is listed in Appendix 8. The forms used for rating of wall magazine and peer-group meetings by the supervisors are listed in Appendix 9.

At the 8-month follow-up assessment, the self-coverage data of the SEHER intervention and AEP activities is collected from the students. This data included:

SEHER intervention self-coverage

- Awareness about the SEHER intervention
- Participation in the assembly
- Contribution to wall magazine
- Number of wall magazines read

- Awareness about the speak-out box
- Participation in the competition/s
- Knowledge of health policies
- Availed counselling services

TARANG-AEP self-coverage

- Aware about the TARANG-AEP
- Name of the TARANG-AEP teacher
- Number of class-room sessions attended
- Topics of the session attended

The student's self-coverage form is listed in Appendix 10.

In addition, the process data for the TARANG-AEP programme, i.e. number of sessions conducted by the teachers and average number of students who attended those sessions was requested for all trial schools from the Center for Catalyzing Change (C3), India, who provide technical assistance to the TARANG-AEP. Students' daily attendance data maintained by the schools was collected by the evaluation team.

Box 4.1: SEHER Implementation indicators

Whole school level activities

- Number of awareness meetings held with students against planned per month
- Number of awareness meetings held with teachers against planned per month
- Number of wall magazines produced against planned per month
- Types of topics covered through wall magazine
- Number of questions addressed against questions received per month through speak- out box
- Types of questions received through speak-out box per month
- Reasons for not addressing certain issues
- Type of competitions organised against planned per month
- Number of students participated in each competition
- Number of School Health Promotion Committee meetings held against planned

Group school level activities

- Number of peer groups formed per school
- Number of peer group meetings conducted against planned per month
- Number and types of issues addressed in peer group meetings

- Number of workshops organised for students against planned
- Number of workshops organised for teachers against planned

Individual level activities

- Number of students availed counselling services (total, and gender wise)
- Number and types of referrals
- Types of issues addressed

Fidelity of the intervention

- Description of the SEHER *Mitra* and Teacher as SEHER *Mitra*
- Total number of supervisory visits
- Fortnightly reports by the supervisors
- Monthly wall magazine rating by the supervisors
- Monthly peer-group meeting rating by the supervisors

4.7 Description of outcomes and instruments

4.7.1 Measurement of primary outcome-school climate

Adolescents' perceptions of school climate were assessed using the Beyond Blue School Climate Questionnaire (BBSCQ). The questionnaire was developed as a part of the larger Beyond Blue School Research Initiative in Australia (Sawyer et al., 2010). It has 28-item selected or adapted from a variety of sources (Epstein & McPartland, 1978; Roeser et al., 1996; Earl & Lee, 1998; Arthur et al., 2002; Bond et al., 2004). Box 4.2 lists the BBSCQ items. The questionnaire assesses perceptions of school climate across four domains: Supportive teacher relationships, sense of school belonging, participation, and commitment. The response set for the items is "Yes", "No", and "I cannot say". The total school climate score can range from 0 to 28, with higher scores indicating more positive school environment.

Box 4.2: Beyond Blue School Climate Questionnaire items

1. My teachers are fair in dealing with us students.
2. There's at least one teacher or other adult in this school I can talk to if I have a problem.
3. I feel I can go to my teacher with the things that are on my mind.
4. In this school, teachers believe all students can learn.
5. In this school, students' ideas are listened to and valued.
6. In this school, teachers and students really trust one another.
7. In this school, teachers treat students with respect.
8. This school really cares about students as individuals.
9. Most of my teachers really listen to what I have to say.
10. I like all my teachers.
11. I feel very different from most other students here.
12. I can really be myself at this school.
13. Other students in this school take my opinions seriously.
14. I am encouraged to express my own views in my class(es).
15. Most of the students in my class(es) enjoy being together.
16. Most of the students in my class(es) are kind and helpful.
17. Most other students accept me as I am.
18. I feel I belong to this school.
19. Doing well in studies is important to me hence I study hard in school.
20. Doing well in school is important to me.
21. Continuing or completing my education is important to me.
22. I feel like I am successful in this school.
23. There are lots of chances for students at my school to get involved in sports, clubs and other activities outside class.
24. Teachers notice when students are doing good work and let them know about it
25. At my school, students have a lot of chances to help decide and plan things like school activities, events and policies.
26. Student activities at this school offer something for everyone.
27. Students have a say in decisions affecting them at this school.
28. Students at this school are encouraged to take part in activities, programs and special events.

4.7.2 Measurement of secondary outcomes

The secondary outcome measures are depression, experience of bullying, violence (victimization and perpetration), attitudes towards gender equity, knowledge of and attitude towards reproductive and sexual health.

Depression was measured through the Patient Health Questionnaire-9 (PHQ-9; Patel et al., 2014). The recall period for the questionnaire is last two weeks and response set for the items is “Not at all”, “Several days”, “More than half of the days”, and “Nearly every day”. The minimum and maximum score range between 0 and 27, with higher scores indicating severe depression.

Experience of bullying was measured through the contextualized version of Bullying Victimization Questionnaire used for International Youth Development Project in India (Solomon et al., 2013). This is an adaptation of the Communities That Care Youth Survey that is widely used internationally for planning prevention services for children and young people Arthur et al., 2002). This questionnaire comprised of four items including: being kicked, pushed, hit, shoved or locked indoors in school; made fun of because of caste or religion; made fun of with sexual jokes, comments or gestures; and made fun of because of how the body or face looks. The response set for the items is “Never”, “Sometimes”, “At least once per day”, and “two or more times per day”. The recall period was of last 30 days and the total score range from 0 to 12, with higher scores indicating severe bullying.

Participants were classified as perpetrators of violence if they answered “yes’ to any of the two following items addressing perpetration of physical violence: threatening someone to injure or beating up someone so badly that they were physically hurt. Participants were classified as victims of violence if they answered “yes’ to any of the two following items addressing victimization of physical violence: experiencing physical threats or violence. These four items were contextualized based on the questions used for International Youth Development Project in India (Solomon et al., 2013).

Attitude towards gender equity: Participants responded to an adapted version of 10-items Gender Equitable Men Survey (Pulerwitz & Barker, 2008). The scale measures attitudes toward ‘gender-equitable’ norms and is adapted in six countries, including India via the International Men and Gender Equality Survey (ICRW, 2010). The response set for the items is “Yes”, “No”, and “I do not know”. The minimum and maximum score range between 0 and 10, with higher scores indicating more positive attitude towards gender equity.

Participants' knowledge of reproductive and sexual health (RSH) was measured through an 8-items questionnaire based on the WHO's Illustrative Questionnaire for Interview-Survey with Young people (Cleland et al., 1998-99). The response set for the items is "Yes", "No", and "I do not know". The minimum and maximum score range between 0 and 8 with higher scores indicating better knowledge of RSH.

4.7.3 Measurement of exploratory outcomes

Participants rated their current smoking and chewing of tobacco, drinking, other substance use, and sexual behaviour using a standard set of questions based on the WHO's Illustrative Questionnaire for Interview-Survey with Young people (Cleland et al., 1998-99). Participants who had smoked and/or chewed tobacco, drank alcohol or used any other substance since the grade IX has started (approximately 8 months) were asked about the type, frequency and quantity of the tobacco, alcohol or other substance use in the past 30 days. In addition, participants also reported a number of suicide attempts made since the beginning of grade IX.

4.7.4 Socio-demographic details

Socio-demographic details such as age of the participant, the sex of the participant, marital status of the participant, caste of the participant, and parents' education and occupation were collected at the baseline and endpoint assessment.

As described in Chapter 3, an extensive translation, back-translation, cognitive testing and piloting was undertaken between January and March 2015 to ensure that all the outcome measures were relevant and meaningful to the participants.

The order of outcome measures in the questionnaire was: Participant's contact details, socio-demographic details, BBSCQ, Attitudes towards Gender Equity Survey, PHQ-9, Question on suicide attempts, Questions on bullying and violence, Substance use questionnaire, Attitudes towards RSH Survey, and Sexual health behaviour questions. The English version of the Outcome Assessment Questionnaire is attached as Appendix 11.

4.8 Sample size calculation

The preliminary sample size estimations were based on various scenarios for the changes in two outcome indicators, *viz*. tobacco use, and the prevalence of psychosocial problems. The assumptions were:

- The baseline prevalence of tobacco use is 59% among secondary school students in Bihar, India (GYTS-India, 2001);

- 20% students in secondary school in India experience psychosocial problems measured using General Health Questionnaire-12 in India (Bansal et al., 2009),
- Twenty-five clusters (schools) per arm and 100 students per cluster (average classroom size in grade IX in secondary schools in Nalanda is 60-70 students with on average 2 divisions in each school), and
- Assumed 15% lost to follow-up.

The ICC ranged from 0.001 to 0.01 which is within the range of intra-cluster correlations (ICC) reported by several cluster trials in schools (Siddiqui et al., 1996; Aveyard et al., 1999). Siddiqui et al. (1996) calculated ICCs for common outcome variables, including tobacco use in a school-based smoking prevention study from the USA. Aveyard et al. (1999) provided the ICCs for smoking tobacco in 13-14 years old school-going adolescents from the West Midlands, UK. Based on these assumptions, the proposed trial with 25 schools per arm would have at least 85% power to detect a 6% absolute difference in tobacco use rates between the comparison and intervention arms, with 95% confidence and an ICC of 0.008. Initially, the tobacco use rates were used for the power calculation as it is a behavioural outcome. In addition, the school climate scores for Indian population were also not available in the literature. The trial would have at least 86% power to detect 4% absolute difference in the proportion of students who experience psychosocial problems between the comparison and intervention arms, with 95% confidence and an ICC of 0.008. The power estimations were based on the prevalence of these outcomes and ICCs reported in the literature (Siddiqui et al., 1996, Aveyard at al., 1999, Langford et al., 2014).

The power estimations were re-calculated after completing the pilot study in April 2015. In the 15 secondary schools in the pilot study, we observed that the mean score of the BBSCQ was 20.6 (SD 6.7) with an ICC of 0.02. This implies that the sample size of 25 schools per arm would provide 90% power to detect an effect size (ES) of 0.2 (difference in means/SD). Based on these assumptions, the trial with 75 schools and with a minimum cluster size of 100 students, randomized to three arms would allow us to test our hypothesis with 98% power (88% for boys only and 93% for girls only) for the primary outcome. This sample size gave us more than 80% power to estimate an ES of 0.4 for depression (small to moderate ES), an ES of 0.2 for bullying (small ES).

4.9 Data management and analysis

The completed outcome assessment questionnaires, fortnightly and monthly reporting forms and rating sheets were handed to the data manager who was responsible for setting up data

entry screens for all methodologies and for supervising data entry and cleaning. The paper-based questionnaires or digital files do not have any identifiers. The digital file containing the unique participation code and participant identifier are password protected while the hard-copies of the contact details of the participants with unique participation code are kept in locked cabinets. Data were entered in Microsoft ACCESS and exported to STATA. Before entering the data, inconsistencies were clarified by reviewing hard copies of questionnaires. Data cleaning was done through a combination of reviewing ranges of variables, running frequencies and descriptive tables for variables and eyeballing data. Data were analysed in STATA 14.0 (StataCorp, College Station, Texas, USA) by the author of this thesis.

4.10 Ethical considerations

The trial protocol was approved by the Institutional Review Boards at the London School of Hygiene and Tropical Medicine (see Appendix 12), the Indian Council of Medical Research, and Sangath Centre (see Appendix 13). The trial was registered at the National Institutes of Health (NIH) registry, USA (www.clinicaltrials.gov; Trial Registration Number NCT02484014).

4.10.1 Consent procedure for clusters and participants

Initial written consent for participation in the study was obtained from all 75 schools prior to randomization. Immediately after randomisation, the Department of Education, Government of Bihar sent a letter to the Principals of these schools informing them about the SEHER project and the school's allocation to one of the arms. An orientation meeting with principals, separate for each arm, was organized to brief them about the project and to obtain school-level assent. 'Opt-out' consent (Pope et al., 2000) was obtained from the parents of all Grade IX students for their child to participate in the outcome assessment. Prior to this, all Grade IX parents were invited to a meeting in each trial school at which the SEHER interventions and study were explained and any questions or concerns were addressed. An information sheet and the SEHER brochure were sent to each child's parent informing them of the study and asking them to specifically inform the school if they did not wish their child to participate in the research. All students participating in the outcome assessment were provided with complete information about the trial prior to inviting them to participate. The student's assent was obtained by the outcome evaluators in a classroom setting in the presence of a School Management Committee member or a parent. For students who were present only on endpoint assessment, the complete information about the trial was provided and assent was obtained before administering the survey questionnaire.

Appendix 14 lists the information sheet and opt-out consent form of parents and Appendix 15 lists the information sheet and assent form used for students.

4.10.2 Confidentiality

All the students who participated in the baseline and endpoint surveys were given a student number, which identified them. The names and contact details and corresponding study numbers were linked in one file. This file was only accessible to the study team. Names and study numbers only appeared together on the first sheet of the questionnaire. This sheet was detached from the rest of the questionnaire and entered in a separate password protected data set. All the remaining pages of the questionnaire only indicated the participant study number. Study questionnaires were kept in a locked cabinet at the Sangath Centre in Goa.

4.10.3 Compensation

Students participating in the study were not offered monetary compensation. Students were given refreshments after completing the baseline and/or endpoint surveys.

4.10.4 Risks and harms

Participants were informed that the questions asked may be of a sensitive nature and that there may be a risk of discomfort or distress as a result. For this reason, if a participant reported such an incident during the baseline or follow-up assessment, there was a space in the questionnaire asking to tick if s/he would like this information to be disclosed to a competent authority. If the adolescent ticked, this box, then the questionnaire was de-identified and the adolescent was approached by a senior member of the intervention team after consultation with the principal. The respective TSM/SMs in intervention arms and an independent counsellor in the comparison arm collected information from the student and provided them with “basic care and support”, which comprised emotional support, referral to medical care, protection from further violence, and the basic legal information and rights. See Appendix 16 for a detailed protocol on managing distress in survey participants.

4.11 Trial governance

Two committees, i.e. Trial Steering Committee (TSC) and Data Safety and Managing Board (DSMB) monitored the progress of the trial. See Appendix 17 for the details on the role and composition of these two committees. Trial monitoring comprised of collation and reporting of routine trial process indicators and adverse events. Summary statistics and graphs showing trends over time were compiled for the process indicators and monthly reported to the Trial Steering Committee. The Data Safety and Monitoring Board received tables showing baseline comparability of students’ characteristics and scores on outcome measures across the arms, and quarterly intervention progress reports.

4.12 Statistical analysis plan

4.12.1 Description of the cluster and participant flow

A participant flow is described using a schematic diagram in line with CONSORT guidelines for CRTs (Campbell et al., 2012). This includes the number of eligible schools for random allocation, random allocation of clusters to either intervention arms or comparison arm, arm-wise total number of grade IX student enrolment, the number of participants recruited in each arm, the number of participants refusing, the number of participants covered in the follow-up assessment, and the numbers analysed.

The following school-level variables are summarised by arm using mean (SD) and proportions.

- Type of school
- Nature of school
- Total number of students
- Total number of teachers
- School infrastructure, assessed by number of classrooms, toilets, drinking water facility, etc.

4.12.2 Describing the baseline characteristics and outcomes of study population

Characteristics of participants at baseline are compared by arm, summarised using mean and SD, median and inter-quartile range, or numbers and proportions as appropriate. No significance testing is done to compare characteristics at baseline, as the differences will be due to chance by definition, if the randomisation was correctly applied. The following baseline variables were summarised for participants by the arm: Age, gender, caste, marital status, overall school climate, total score on PHQ-9 (depression), experience of bullying victimization, total score on the Gender Equitable Men Survey, total score on RSH questionnaire, and experience of both violence perpetration and victimization. These data are presented by gender and trial arm.

For outcome indicators, histograms within each arm were plotted to assess how closely the scales follow a normal distribution to determine how to describe the outcome.

Continuous data that were approximately normally distributed were summarised in terms of the mean, standard deviation, median, minimum, maximum and the number of observations. Skewed data are transformed as appropriate to be normally distributed, or if a transformation is not possible, then presented in terms of the maximum, upper quartile, median, lower quartile, minimum and the number of observations. Categorical data are summarised in terms of frequency counts and percentages.

4.12.3 Summary of outcomes at end-point

The primary outcome measure was summarised by arm for all students present at endpoint. The data are studied to identify outliers and check for data errors. A similar approach is followed for the secondary and exploratory outcomes (listed in section 4.7).

4.12.4 Summary of intervention process indicators

The SEHER *Mitra*, Teacher as SEHER *Mitra* and supervisors are described in terms of age, experience and education. The SEHER intervention coverage is reported with proportions and means, as appropriate, and compared between intervention arms (the coverage indicators are listed in the section 4.6.2). For all three arms, the TARANG-AEP coverage is reported and compared with mean, proportion/rates, as appropriate (the coverage indicators are listed in the section 4.6.2).

4.12.5 Effectiveness analysis

4.12.5.1 Analysis of primary outcome

The main statistical analyses estimated the standardised mean difference (SMD, also known as the effect size (ES) i.e. mean difference/SD) for school climate by the arm at the 8-month follow-up assessment, adjusting for baseline school climate at the school level. The SMD was used because it is scale-independent estimates and enables comparison with other scales in other studies. The school-level characteristic was used because not all participants were present at baseline assessment. Research objectives # 1, 2 and 3 respectively (see Section 4.1.1) were addressed through the estimation of the SMD of the total score on the BBSCQ at 8 months between i) the TSM and comparison arm; ii) SM and comparison arm, and iii) the SM and TSM arm.

Due to the large number of clusters in the trial, data were analysed at individual-level using an intention-to-treat analysis, using a linear mixed-effects regression model with the outcome BBSCQ total score at 8 months with the intervention arm as a fixed covariate, and adjusting for the school-level BBSCQ score at baseline, also as a fixed covariate (Hayes & Moulton, 2009). A random-effect was included to account for clustering at school level (Adams et al., 2004; Roberts & Roberts, 2005). Fixed effects were also included to adjust for age, sex, marital status, and caste of the participant and school size collected at endpoint. Effect modification by gender was included to address Objective 4.1.2b.

Sensitivity analyses were performed by re-fitting the regression model restricting to participants who had completed both baseline and endpoint assessment. The data of the

students who have completed base and endpoint assessment are matched through the unique identity number given to each participant.

For gender-segregated sample for the participants who have completed end-line assessment: Independent ANCOVA-type analysis for sample of only boys and girls, using a linear mixed effects model was performed with outcome of the BBSCQ total score at 8 months with the intervention arm as a covariate and adjusting for the school-level BBSCQ score at baseline. A random effect is included to account for clustering at school level.

4.12.5.2 Analysis of secondary and exploratory outcomes

The analysis of the secondary and exploratory outcomes, addressing research objectives # 3 and 4 is similar to those done for the primary outcome. Binary outcomes are analysed using random effects logistic regression. For objectives related to self- reported behaviours, the onset of these behaviours is analysed using survival analysis.

The statistical analysis plan was finalised prior to unblinding the trial data and was uploaded at the National Institutes of Health (NIH) registry, USA (www.clinicaltrials.gov) in July 2016. Please refer to Appendix 18 for the detailed statistical analysis plan.

The next chapter will describe the baseline comparison of arms and the findings of the effectiveness of the intervention on primary, secondary and exploratory outcomes.

Chapter 5: SEHER TRIAL RESULTS

This chapter details the study cluster identification and participant flow, dates defining periods of recruitment and follow up and the numbers analysed, using the CONSORT guidelines for reporting of cluster randomised trials (CRT) (Campbell et al., 2004). This is followed by a description of the baseline characteristics of the study population by trial arm. The next three sub-sections provide the main effectiveness analyses results for all the participants who completed endpoint survey, sex-segregated participants who have completed endpoint survey and cohort of participants who have completed both baseline and endpoint surveys. This chapter concludes with an analysis of the process evaluation of the intervention.

5.1 Cluster description

The study was carried out in 74 secondary and higher secondary schools in Nalanda district of Bihar as described in Chapter 4. Table 5.1 describes the selected characteristic of the 75 schools by trial arm, including type, nature and size of school, student enrolment, teachers appointed, drinking water facility and functional toilet facility (Table 5.1).

Except for the functional toilet facility for students and school size, there was a good balance by arms on all school characteristic variables. This shows that the random allocation of schools to one of the trial arms worked correctly for school-level variables. School size was included as a covariate in effectiveness analyses.

5.2 Data collection from individuals attending schools

The parental consent procedure (described in Chapter 3, section 3.3.2) was completed between 15 June and 7 July 2015. The baseline outcome assessment was completed with all the grade IX students attending intervention and control schools and assenting to participate in the study between July 10, 2015 and July 29, 2015. The intervention was implemented between July 2015 and February 2016. The 8-months follow up survey was conducted in March 2016 using the same approach as for the baseline survey.

Table 5.1: Characteristics of the 74 schools enrolled for the trial

		SM (n=25)	TSM (n=24)	Control (n=25)
Type of school (%)	Only secondary	36.0	33.3	36.0
	Secondary and higher secondary	64.0	66.7	64.0
Nature of school (%)	Co-education	84.0	83.3	84.0
	Only girls	12.0	12.5	12.0
	Only boys	4.0	4.2	4.0
School size (Total students enrolled; %)	101-300	24.0	29.2	24.0
	301-600	44.0	47.5	44.0
	≥601	32.0	33.3	32.0
Student enrolment	Total number of students enrolled	16443	15106	16747
	Median number of students	483	410	536
Teachers appointed	Mean number of teachers (SD)	11.36 (4.44)	11.13 (6.37)	11.92 (5.69)
Drinking water facility (%)	Proportion with a hand pump	96.0	100.0	100.0
Functional toilet facility (%)	For students	68	37.5	64
	For teachers	44	44	44

Figure 5.1 shows the numbers of participants at baseline and follow-up as well as the number of clusters.

Of the 21,550 students enrolled at the start of the academic year in Grade IX in the 74 trial schools, 69 parents (0.2%; 43 from SM; 16 from TSM and 10 from comparison arm schools) informed the school before the baseline that they did not wish their child to participate in the study. At baseline, 17 students (0.07%; 10 from the SM and 7 from the comparison arm) and at endpoint, 23 students (0.10%; 7 from SM, 6 TSM and 10 from the comparison arm) declined participation in the study. A total of 13035 (60.4%) students participated at baseline assessment; of these 52.5% were boys. A total of 14414 (66.8%) students participated in the endpoint assessment; of these 52.9% were boys.

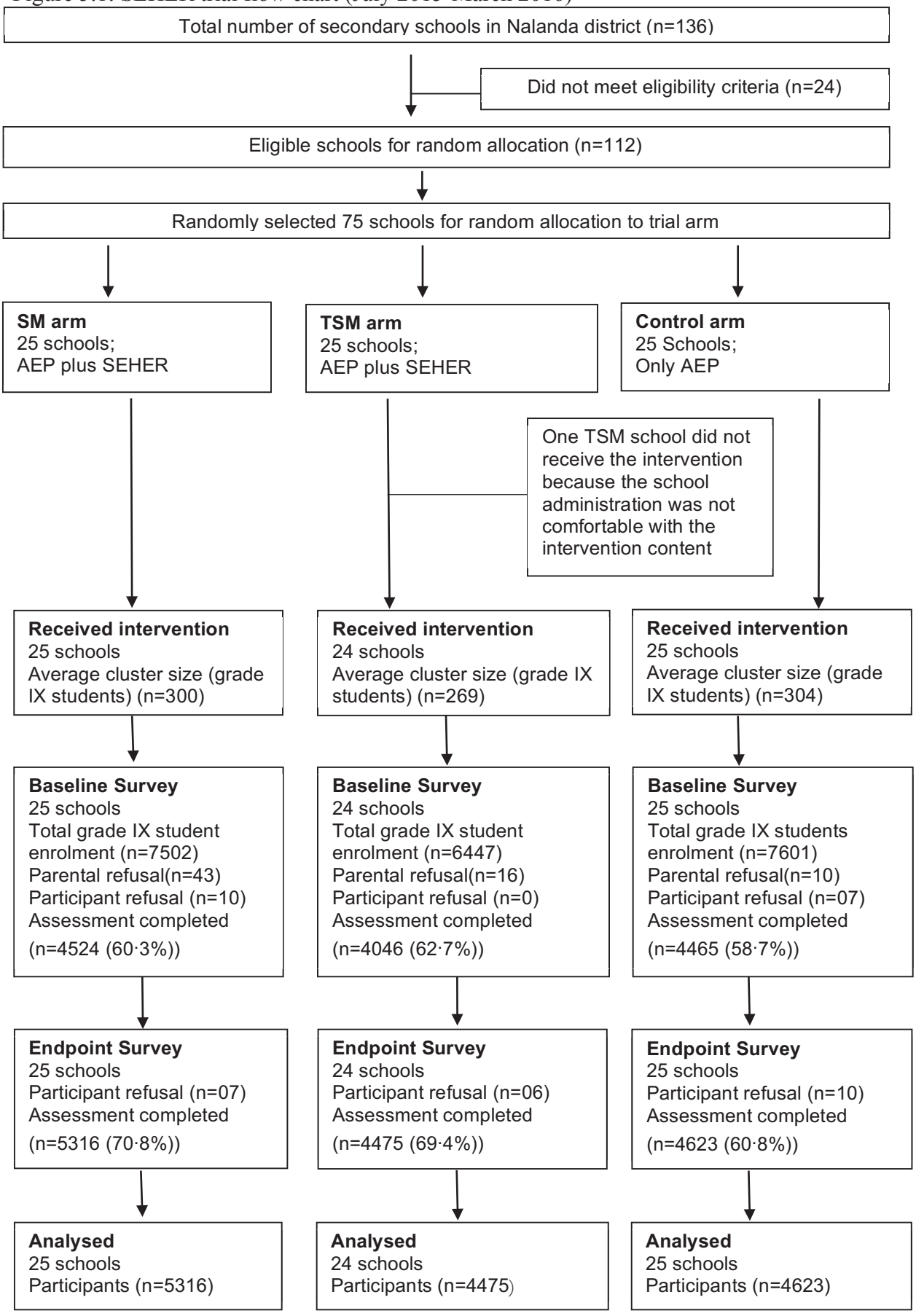
At baseline, 4525/7502 (60.3%) of students at SM schools, 4046/6447 (62.7%) students at TSM schools and 4465/7601 (58.7%) students from comparison schools completed the questionnaire.

At endpoint, 5316/7502 (70.8%) from the SM, 4475/6447 (69.4%) from the TSM, and 4623/7601 (60.8%) from the comparison arm schools completed the questionnaire (Figure 5.1). Most of those students who were absent during baseline and endpoint assessment (approximately 20% of the total enrolled) were actually not truly enrolled with the school or were irregular (i.e. absent for more than 15 continuous school days) in the school.

There was some differential response between intervention and comparison groups at the follow-up assessment; mainly because the SMs and TSMs could mobilize students for participation in the follow-up assessment.

78.2% (10, 202 participants) completed both the baseline and follow-up assessment. Of these 10, 202 participants, 35.4% were from the SM arm, 31,3% of TSM arm and 33.3% from the control arm. Of the total 5316 participants from SM arm who participated in the baseline survey, 67.8% participants also completed the endpoint survey. Of the total 4475 participants from the TSM arm who participated in the baseline survey, 71.3% participants also completed the endpoint survey. Of the total 4623 participants from control arm who participated in the baseline survey, 73.5% participants also completed endpoint survey.

Figure 5.1: SEHER trial flow chart (July 2015-March 2016)



5.3 Comparison of baseline characteristics for the study population

Table 5.2 compares characteristics of the participants at baseline. The table shows that, in general participant characteristics were similar between arms except for caste and marital status. The mean age of the baseline participants was 13.7 years (SD=0.84). A little more than two third participants (67.9%) were of the backward caste. Majority of the participants (96.5%) were unmarried, however, a higher proportion of girls were married in the TSM arm than girls from other two arms.

5.4 Baseline comparison of primary, secondary and exploratory outcomes

Table 5.2 compares the primary, secondary and exploratory outcomes of the participants at baseline, by sex and trial arms. The primary outcome, the school climate score, was balanced across trial arms, by sex (SM arm (Mean (SD)): Boys=17.64 (4.08), Girls=18.09 (4.05); TSM arm: Boys=17.96 (4.18), Girls=18.10 (4.45); Control arm: Boys=18.09 (3.89), Girls=17.79 (4.16). First, the arm-wise ICCs were calculated using the pre-intervention BBSCQ data. The ICC value observed for the SM arm was 0.14 (95%CI: 0.08, 0.23; 25 clusters; average cluster size 181 and range of cluster sizes:25-770), for the TSM arm 0.18 (95%CI: 0.11, 0.29; 24 clusters; average cluster size 168 and range of cluster sizes: 37-642) and the control arm 0.05 (95%CI:0.03, 0.10; 25 clusters; average cluster size 178 and range of cluster sizes:49-545). These ICCs were used to calculate the mean ICC value for the entire pre-intervention BBSCQ data, which is 0.12. This means, 12% of the variation in the pre-intervention total BBSCQ score is due to variation in clusters or due to clustering within clusters.

The secondary outcomes were also balanced across the trial arms, by sex. The mean PHQ-9 score, knowledge of RSH questionnaire scores, and frequency of bullying were higher among boys than girls. The prevalence of both violence perpetration and victimization were higher among boys than girls.

Boys had higher prevalence of suicide attempt in last 12 months than girls. An imbalance in other substance use in last 12 months (SM arm: Boys=6.0%, Girls=6.3%; TSM arm: Boys=7.4%, Girls=17.9%; Control arm: Boys=5.3%, Girls=5.1%), and sexual intercourse in the last 12 months (SM arm: Boys=17.6%, Girls=13.9%; TSM arm: Boys=18.4%, Girls=11.1%; Control arm: Boys=13.3%, Girls=12.3%) was seen between the trial arms. Girls in the TSM arm had higher prevalence of other substance use than the girls in other two arms. Boys in the control arm had lower prevalence of sexual intercourse in the last 12 months than boys in the two intervention arms.

Table 5.2: Selected baseline measures of 13,035 participants who participated in the baseline survey, by sex and trial arm

		SM arm	TSM arm	Control	SM arm	TSM arm	Control
			Boys			Girls	
N		2195	2169	2491	2329	1877	1974
Age	Mean (in years)	13.8	13.9	13.7	13.7	13.8	13.7
Marital status	Unmarried (%)	97.9	97.5	98.5	96.6	93.0	96.0
Caste	"Backward"	62.6	69.3	70.6	66.2	70.0	69.4
	"Scheduled" caste	26.2	24.2	20.6	21.7	21.1	18.2
	General	9.0	5.4	7.2	9.3	7.8	10.0
	Not known	2.1	1.1	1.6	2.8	1.1	2.4
Primary outcome	School climate score (Mean (SD))	17.64 (4.08)	17.96 (4.18)	18.09 (3.89)	18.09 (4.45)	18.10 (4.45)	17.79 (4.16)
Secondary outcomes	Depressive symptom score (Mean (SD))	7.02 (5.08)	7.13 (5.38)	6.86 (5.26)	6.25 (5.53)	5.88 (5.36)	5.83 (5.07)
	Attitude towards gender equity (Mean (SD))	5.29 (1.57)	5.22 (1.61)	5.37 (1.63)	5.40 (1.61)	5.27 (1.54)	5.35 (1.67)
	Knowledge of RSH (Mean (SD))	2.41 (1.86)	2.65 (1.88)	2.52 (1.95)	1.89 (1.66)	1.95 (1.77)	1.57 (1.58)
	Frequency of bullying (Mean (SD))	1.00 (1.72)	1.07 (1.87)	0.87 (1.54)	0.52 (1.40)	0.59 (1.42)	0.45 (1.20)
	Violence (victimization) in last 12 months (%)	21.5	23.7	23.0	10.7	11.8	10.0
	Violence (perpetration) in last 12 months (%)	17.2	19.8	17.5	8.4	9.4	7.0
Explora-tory outcomes	Tobacco smoking in last 12 months (%)	4.2	4.6	4.5	2.1	4.1	2.5
	Tobacco chewing in last 12 months (%)	4.7	4.7	5.1	3.3	4.8	2.7
	Alcohol drinking in last 12 months (%)	4.0	4.2	4.4	3.1	4.3	2.4
	Other substance use in last 12 months (%)	6.0	7.4	5.3	6.3	17.9	5.1
	Sexual intercourse in last 12 months (%)	17.6	18.4	13.3	13.9	11.1	12.3
	Forced sex in last 12 months (%)	7.7	8.9	7.2	6.0	7.7	5.4
	Suicide attempt in last 12 months (n (%))	70 (3.1)	79 (3.6)	86 (3.7)	10 (0.6)	42 (2.2)	30 (1.1)

5.5 Effectiveness analysis (all endpoint participants)

5.5.1 Primary outcome- School climate

As discussed above, with the exception of school size at cluster level and marital status and caste at the participant level, the randomisation process was effective, with no substantial imbalances by the arm at baseline (Table 5.2). An adjusted analysis of the primary outcome was undertaken as initially stated in the study protocol.

Table 5.3 shows intervention effects (i.e. adjusted mean differences, effect size with 95%CI) for the primary, and secondary outcomes and Table 5.4 shows intervention effects (i.e. odds ratio with 95%CI) for the exploratory outcomes for participants who completed endpoint assessment (boys and girls combined), including those not present at baseline.

School climate score at endpoint was significantly higher in the SM arm than in the control arm (mean BBSCQ=24.13 vs 17.75; adjusted mean difference (aMD)=7.44, 95%CI:5.88, 8.99; effect size (ES)=1.86, 95%CI:1.39, 2.33; p<0.001). There was no evidence of a difference in school climate score between TSM and control arms (mean BBSCQ=17.16 vs 17.75; aMD=-0.47, 95%CI:-2.03, 1.07; ES= -0.12, 95%CI:-0.60, 0.36; p=0.55). There was strong evidence that school climate score at endpoint was better in the SM arm than in the TSM arm (aMD=7.91, 95%CI:6.35, 9.48; ES=1.98, 95%CI:1.48, 2.47; p<0.001).

5.5.2 Secondary outcomes

The SM arm had significantly improved secondary outcomes than the control arm, i.e. lower PHQ-9 scores (mean PHQ-9= 5.24 vs 6.51; aMD=-1.24, 95%CI:-1.90, -0.58; ES=-0.27, 95%CI: -0.43, -0.10; p<0.001), less bullying (mean frequency of bullying=0.63 vs 1.52; aMD=-0.84, 95%CI:-1.08, -0.60; ES=-0.43, 95%CI:-0.58, -0.28; p<0.001), less violence victimization (11.9 vs 17.2%; odds ratio (OR)=0.67 95%CI:0.50, 0.89; p=0.005 improved attitudes towards gender equity (mean GEMS=5.85 vs 5.55; aMD=0.38, 95%CI:0.19, 0.58; ES=0.23 95%CI:0.10, 0.36; p<0.001), and improved knowledge of RSH (mean knowledge of RSH=3.08 vs 2.83; aMD=0.29, 95%CI:0.07, 0.52; ES=0.16, 95%CI:0.02, 0.30; p=0.01). There was no evidence of difference in violence perpetration between the SM and the control arm (9.7 vs 13.9%; OR=0.73, 95%CI:0.52, 1.02; p=0.06).

There was no evidence of a difference between the TSM arm and the control arm on PHQ-9 score (mean PHQ-9=6.76 vs 6.51; aMD=0.12, 95%CI:-0.53, 0.77; ES=0.03 95%CI:-0.14, 0.19; p=0.73), bullying (mean frequency of bullying=1.44 vs 1.52; aMD=-0.08, 95%CI:-0.33, 0.16; ES=-0.05 95%CI:-0.19, 0.10; p=0.49), attitude towards gender equity (mean GEMS=5.58 vs 5.55; aMD=0.13, 95%CI:-0.05, 0.32; ES=0.08 95%CI:-0.06, 0.21; p=0.17), and knowledge of RSH (mean knowledge of RSH=2.93 vs 2.83; aMD=0.06, 95%CI:-0.17,

0.29; ES=0.03 95%CI:-0.11, 0.18; p=0.60). The TSM arm schools had worse outcomes for, both violence victimization (22.8 vs 17.2%; OR=1.38 95%CI:1.05, 1.82; p=0.02) and perpetration (18.2 vs 13.9%; OR= 1.49 95%CI: 1.07, 2.08; p=0.017) relative to the control schools.

The SM arm had significantly improved secondary outcomes than the TSM arm, i.e. lower PHQ-9 scores (aMD=-1.36, 95%CI:-2.02, -0.69; ES=-0.29 95%CI:-0.47, -0.12; p<0.001), less bullying (aMD=-0.75, 95%CI:-1.00, -0.50; ES=-39 95%CI:-0.54, -0.23; p<0.001), less both violence victimization (OR=0.48 95%CI:0.36, 0.64 P<0.001) and perpetration, (OR=0.45 95%CI:0.31, 0.64; p<0.001), improved attitudes towards gender equity (aMD=0.25, 95%CI:0.06, 0.44; ES=0.15 95%CI:0.01, 0.29; p=0.01) and no evidence of effectiveness for knowledge of RSH (aMD=0.23, 95%CI:0.00, 0.47; ES=0.12 95%CI:-0.02, 0.27; p=0.048).

5.5.3 Exploratory outcomes

There was no evidence of difference between the SM arm and the control arm for the exploratory outcomes, i.e. incidence of tobacco smoking (6.4 vs 7.1%; OR=0.91, 95%CI:0.59, 1.40; p=0.67), incidence of tobacco chewing (4.9 vs 5.4%; OR=0.88 95%CI:0.57, 1.36; p=0.59), incidence of alcohol drinking (3.4 vs 4.4%; OR=0.89 95%CI:0.54, 1.46; p=0.64), incidence of other substance use (3.8 vs 4.9%; OR=0.87 95%CI:0.56, 1.34; p=0.53), incidence of sexual intercourse (14.3 vs 11.8%; OR=1.14 95%CI:0.88, 1.48; p=0.29), incidence of forced sex relative to control arm (8.4 vs 7.5%; OR=1.11 95%CI:0.79, 1.56; p=0.51), incidence of suicide attempt (2.0 vs 2.8%; OR=0.76 95%CI:0.49, 1.18; p=0.23).

The TSM arm had significantly improved exploratory outcomes than the control arm, i.e. lower incidence of tobacco smoking (3.9 vs 7.1%; OR=0.59, 95%CI:0.38, 0.94; p=0.02) and lower incidence of tobacco chewing (3.1 vs 5.4%; OR=0.52, 95%CI:0.32, 0.84; p=0.007). There was no evidence of a difference between TSM and the control arm for incidence of alcohol drinking (2.8 vs 4.4%; OR=0.69 95%CI:0.41, 1.15; p=0.16), incidence of other substance use (3.5 vs 4.9%; OR=0.71 95%CI:0.45, 1.12; p=0.15), incidence of sexual intercourse (14.3 vs 11.8%; OR=1.24 95%CI:0.96, 1.61; p=0.09), incidence of forced sex (7.4 vs 7.5%; OR=1.01 95%CI:0.71, 1.43; p=0.95), incidence of suicide attempt (3.0 vs 2.8%; OR=1.04 95%CI:0.67, 1.60; p=0.85).

The SM arm had worse outcomes than the TSM arm for incidence of tobacco chewing (OR=1.69 95%CI:1.07, 2.67; p=0.02), and there was no evidence of a difference for incidence of tobacco smoking (OR=1.52 95%CI:0.96, 2.39; p=0.07), incidence of alcohol drinking (OR=1.28 95%CI:0.77, 2.12; p=0.33), incidence of other substance use (OR=1.21

95%CI:0.78, 1.90; p=0.38), incidence of sexual intercourse (OR=0.92 95%CI:0.71, 1.19; p=0.54), incidence of forced sex (OR=1.10 95%CI:0.78, 1.55; p=0.56) and incidence of suicide attempt (OR=0.73 95%CI:0.47, 1.15; p=0.18).

Table 5.3: Intervention effects at 8 months on school climate and secondary trial outcomes (all endpoint participants; boys and girls combined)

	SM vs Control		TSM vs Control		SM vs TSM	
	AMD (95%CI)	Effect size (95%CI)	AMD (95%CI)	Effect size (95%CI)	AMD (95%CI)	Effect size (95%CI)
Primary outcome						
School climate	7.43 (5.88, 8.99)	1.86 (1.39, 2.33)	-0.47 (-2.03, 1.08)	-0.12 (-0.60, 0.36)	7.91 (6.34, 9.47)	1.98 (1.48, 2.47)
Secondary outcomes- continuous						
Depressive symptom score[1]	-1.24 (-1.90, -0.58)	-0.27 (-0.43, -0.10)	0.12 (-0.53, 0.77)	0.03 (-0.14, 0.19)	-1.36 (-2.02, -0.69)	-0.29 (-0.47, -0.12)
Attitude towards gender equity[2]	0.38 (0.19, 0.58)	0.23 (0.10, 0.36)	0.13 (-0.05, 0.32)	0.08 (-0.06, 0.21)	0.25 (0.06, 0.44)	0.15 (0.01, 0.29)
Knowledge of reproductive and sexual health[3]	0.29 (0.07, 0.52)	0.16 (0.02, 0.30)	0.06 (-0.17, 0.29)	0.03 (-0.11, 0.18)	0.23 (0.00, 0.47)	0.12 (-0.02, 0.27)
Frequency of bullying	-0.84 (-1.08, -0.60)	-0.43 (-0.58, -0.28)	-0.08 (-0.33, 0.16)	-0.05 (-0.19, 0.10)	-0.75 (-1.00, 0.50)	-0.39 (-0.54, -0.23)
Secondary outcomes- binary: Odds ratio (95%CI)[4]						
Incidence of violence (victimization)	0.67 (0.50, 0.89)		1.38 (1.05, 1.82)		0.48 (0.36, 0.64)	
Incidence of violence (perpetration)	0.73 (0.52, 1.02)		1.49 (1.07, 2.08)		0.45 (0.31, 0.64)	

Key:

1 The more negative the score, the more the person's responses reflected depressive symptoms.

2 The more positive the score, the more the person's attitudes reflected gender equity.

3 The more positive the score, the more person's knowledge of reproductive and sexual health.

4 If the OR is < 1 the intervention is better than the comparison.

Table 5.4: Intervention effect (with 95%CI) at 8 months on exploratory trial outcomes (all endpoint participants; girls and boys combined)

Outcome	SM vs Control	TSM vs Control	SM vs TSM
Incidence of tobacco smoking	0.91 (0.59, 1.40)	0.59 (0.38, 0.94)	1.52 (0.96, 2.39)
Incidence of tobacco chewing	0.88 (0.57, 1.36)	0.52 (0.32, 0.84)	1.69 (1.06, 2.65)
Incidence of alcohol drinking	0.89 (0.54, 1.46)	0.69 (0.41, 1.15)	1.28 (0.77, 2.12)
Incidence of other substance use	0.87 (0.56, 1.34)	0.71 (0.45, 1.12)	1.21 (0.78, 1.90)
Incidence of sexual intercourse	1.14 (0.88, 1.48)	1.24 (0.96, 1.61)	0.92 (0.71, 1.19)
Incidence of forced sex	1.11 (0.79, 1.56)	1.01 (0.71, 1.43)	1.10 (0.78, 1.55)
Incidence of suicide attempt	0.76 (0.49, 1.18)	1.04 (0.67, 1.60)	0.73 (0.47, 1.15)

5. 6 Effectiveness analysis (Gender-segregated sample)

Table 5.5 and Table 5.6 shows intervention effects for the primary, and secondary outcomes by gender.

5.6.1 Primary outcome- School climate

School climate score at endpoint was significantly better in the SM arm than in the control arm for boys (mean BBSCQ=23.35 vs 18.05; aMD=6.65, 95%CI:5.07, 8.23; ES=1.53 95%CI:1.04, 2.03; p<0.001) and girls, respectively (mean BBSCQ=23.97 vs 17.36; aMD=8.15; ES=2.41 95%CI:1.81, 3.01; p<0.001).

There was no evidence of a difference in school climate score between TSM and control arms for boys (mean BBSCQ=17.31 vs 18.05; aMD=-0.18, 95%CI:-1.77, 1.40; ES=-0.04 95%CI:-0.56, 0.41; p=0.81) and for girls, separately (mean BBSCQ=17.00 vs 17.36; aMD=-0.39; ES=-0.12 95%CI:-0.72, 0.49; p=0.64).

There was strong evidence that school climate score at endpoint was better in the SM arm than in the TSM arm for boys (aMD=6.84, 95%CI:5.26, 8.41; ES=1.57 95%CI:1.09, 2.06; p<0.001) and for girls, respectively (aMD=8.54, 95%CI:6.86, 10.21; ES=2.53 95%CI:1.87, 3.19; p<0.001).

5.6.2 Secondary outcomes

For boys, the SM arm had significantly improved secondary outcomes than the control arm, i.e. lower PHQ-9 score (PHQ-9 score 5.22 vs 6.53; aMD=-1.21, 95%CI:-2.06, -0.36; ES=0.31 95%CI:-0.50, -0.03; p=0.005), improved knowledge of RSH (knowledge of RSH score 3.51 vs 3.22; aMD=0.46, 95%CI:0.17, 0.76; ES=0.24 95%CI:0.04, 0.44; p=0.002), lower frequency of bullying (frequency of bullying 0.78 vs 1.60; aMD=-0.75, 95%CI:-1.00, -0.50; ES=-0.37 95%CI:-0.52, -0.22; p<0.001), lower victimization violence (15.3 vs 21.9%; OR=0.70 95%CI:0.51, 0.96; p<0.028) and there was no evidence of a difference for attitude towards gender (GEMS score 5.63 vs 5.51; aMD=0.16, 95%CI:-0.03, 0.36; ES=0.10 95%CI:-0.04, 0.24; p=0.10) and violence perpetration (12.6 vs 17.5%; OR=0.80 95%CI:0.56, 1.16; p=0.25).

For girls, the SM arm had significantly improved secondary outcomes than the control arm, i.e. lower PHQ-9 score (PHQ-9 score 5.25 vs 6.49; aMD=-1.66, 95%CI:-2.53, -0.79; ES=-0.36 95%CI:-0.58, -0.14; p<0.001), improved attitudes towards gender (GEMS score 6.08 vs 5.61; aMD=0.62, 95%CI:0.37, 0.87; ES=0.37 95%CI:0.20, 0.54; p<0.001), lower frequency of bullying (frequency of bullying 0.46 vs 1.22; aMD=-0.90, 95%CI:-1.27, -0.53; ES=-0.50 95%CI:-0.74, -0.25; p<0.001), and lower victimization violence (8.1 vs 11.4%; OR=0.58 95%CI:0.36, 0.93; p=0.026); there was no evidence of a difference for knowledge of RSH

(knowledge of RSH score 2.62 vs 2.33; aMD=0.26, 95%CI:-0.02, 0.55; ES=0.15 95%CI:-0.04, 0.33; p=0.07) and violence perpetration (6.5 vs 9.3%; OR=0.64 95%CI:0.39, 1.05 p=0.07).

For boys, there was no evidence between the TSM arm and the comparison arm for the secondary outcomes, i.e. PHQ-9 score (PHQ-9 score 6.81 vs 6.53; aMD=0.31, 95%CI:-0.53, 1.16; ES=0.07 95%CI:-0.18, 0.32; p=0.47), attitude towards gender (GEMS score 5.49 vs 5.51; aMD=0.11, 95%CI:-0.08, 0.31; ES=0.07 95%CI:-0.08, 0.21; p=0.26), knowledge of RSH (knowledge of RSH score 3.33 vs 3.22; aMD=0.19, 95%CI:-0.11, 0.50; ES=0.10 95%CI:-0.11, 0.30; p=0.21), and frequency of bullying (frequency of bullying 1.57 vs 1.60; aMD=-0.07, 95%CI:-0.34, 0.18; ES=-0.04 95%CI:-0.20, 0.12; p=0.54) and violence victimization (24.5 vs 21.9%; OR=1.22 95%CI:0.90, 1.66; p=0.18); and evidence of a difference for violence perpetration (20.9 vs 17.5%; OR=1.48 95%CI:1.03, 2.14; p=0.033).
For girls, there was no evidence between the TSM arm and the control arm for the secondary outcomes i.e. PHQ-9 score (PHQ-9 score 6.70 vs 6.49; aMD=-0.19, 95%CI:-1.07, 0.69; ES=-0.04 95%CI:-0.27, 0.19; p=0.67), attitude towards gender (GEMS score 5.68 vs 5.61; aMD=0.14, 95%CI:-0.11, 0.39; ES=0.08 95%CI:-0.09, 0.26; p=0.27), knowledge of RSH (knowledge of RSH score 2.53 vs 2.33; aMD=0.05, 95%CI:-0.25, 0.35; ES=0.03 95%CI:-0.16, 0.22; p=0.74), and frequency of bullying (frequency of bullying 1.47 vs 1.22; aMD=-0.06, 95%CI:-0.45, 0.32; ES=-0.03 95%CI:-0.28, 0.21; p=0.75) and there were worse outcomes for both violence, i.e. victimization (21.0 vs 11.4%; OR=1.86 95%CI:1.16, 2.95; p=0.009) and perpetration (15.4 vs 9.3%; OR=1.66 95%CI:1.02, 2.71; p=0.041).

For boys, the SM arm had significantly improved secondary outcomes than the TSM arm, i.e. lower PHQ-9 score (aMD=-1.52, 95%CI:-2.37, -0.68; ES=-0.33 95%CI:-0.57, 0.10; p<0.001), lower frequency of bullying (aMD=-0.67, 95%CI:-0.92, -0.41; ES=-0.33 95%CI:-0.48, -0.18; p<0.001), lower victimization violence (OR=0.57 95%CI:0.42, 0.78; p<0.001) and lower violence perpetration (OR=54 95%CI:0.37, 0.77; p<0.001); there was no evidence for attitude towards gender (aMD=0.05, 95%CI:-0.14, 0.24; ES=0.03 95%CI:-0.11, 0.17; p=0.60) and knowledge of RSH (aMD=0.27, 95%CI:-0.02, 0.58; ES=0.14 95%CI:-0.05, 0.33; p=0.07).
For girls, the SM arm had significantly improved secondary outcomes than the TSM arm, i.e. lower PHQ-9 score (aMD=-1.47, 95%CI:-2.36, -0.58; ES=-0.32 95%CI:-0.56, -0.08; p<0.001), improved attitude towards gender (aMD=0.48, 95%CI:0.22, 0.73; ES=0.29 95%CI:0.10, 0.47; p<0.001), lower frequency of bullying (aMD=-0.84, 95%CI:-1.22, -0.45; ES=-0.46 95%CI:-0.73, -0.20; p<0.001), lower victimization violence (OR=0.31 95%CI:0.19, 0.50; p<0.001) and lower violence perpetration (OR=0.38 95%CI:0.23, 0.63; p<0.001); there was no evidence for knowledge of RSH (aMD=0.21, 95%CI:-0.08, 0.51; ES=0.12 95%CI:-0.08, 0.32; p=0.15).

Table 5.5: Intervention effects at 8 months on school climate and secondary trial outcomes (boys only)

	SM vs Comparison		TSM vs Comparison		SM vs TSM	
	AMD (95%CI)	Effect size (95% CI)	AMD (95%CI)	Effect size (95% CI)	AMD (95%CI)	Effect size (95% CI)
Primary outcome						
School climate	6.65 (5.07, 8.23)	1.53 (1.04, 2.03)	-0.18 (-1.77, 1.40)	-0.04 (-0.56, 0.41)	6.84 (5.26, 8.41)	1.57 (1.09, 2.06)
Secondary outcomes- continuous						
Depressive symptom score[1]	-1.21 (-2.06, -0.36)	-0.26 (-0.50, -0.03)	0.31 (-0.53, 1.16)	0.07 (-0.18, 0.32)	-1.52 (-2.37, -0.68)	-0.33 (-0.57, -0.10)
Attitude towards gender equity[2]	0.16 (-0.03, 036)	0.10 (-0.04, 0.24)	0.11 (-0.08, 0.31)	0.07 (-0.08, 0.21)	0.05 (-0.14, 0.24)	0.03 (-0.11, 0.17)
Knowledge of reproductive and sexual health	0.46 (0.17, 0.76)	0.24 (0.04, 0.44)	0.19 (-0.11, 0.50)	0.10 (-0.11, 0.30)	0.27 (-0.02, 0.58)	0.14 (-0.05, 0.33)
Frequency of bullying[3]	-0.75 (-1.00, -0.50)	-0.37 (-0.52, -0.22)	-0.07 (-0.34, 0.18)	-0.04 (-0.20, 0.12)	-0.67 (-0.92, -0.41)	-0.33 (-0.48, -0.18)
Secondary outcomes- binary: Odds ratio (95% CI)[4]						
Incidence of violence (victimization)	0.70 (0.51, 0.96)		1.22 (0.90, 1.66)		0.57 (0.42, 0.78)	
Incidence of violence (perpetration)	0.80 (0.56, 1.16)		1.48 (1.03, 2.14)		0.54 (0.37, 0.77)	

Key:

1 The more negative the score, the more the person's responses reflected depressive symptoms.
2 The more positive the score, the more the person's attitudes reflected gender equity.
3 The more positive score, the more the person's knowledge of reproductive and sexual health.
4 If the OR is < 1 the intervention is better than the comparison.

Table 5.6: Intervention effects at 8 months on school climate and secondary trial outcomes (girls only)

	SM vs Comparison		TSM vs Comparison		SM vs TSM	
	AMD (95%CI)	Effect size (95% CI)	AMD (95%CI)	Effect size (95% CI)	AMD (95%CI)	Effect size (95% CI)
Primary outcome						
School climate	8.15 (6.50, 9.79)	2.41 (1.81, 3.01)	-0.39 (-2.07, 1.28)	-0.12 (-0.72, 0.49)	8.54 (6.86, 10.21)	2.53 (1.87, 3.19)
Secondary outcomes- continuous						
Depressive symptom score[1]	-1.66 (-2.53, -0.79)	-0.36 (-0.58, -0.14)	-0.19 (-1.07, 0.69)	-0.04 (-0.27, 0.19)	-1.47 (-2.36, -0.58)	-0.32 (-0.56, -0.08)
Attitude towards gender equity[2]	0.62 (0.37, 0.87)	0.37 (0.20, 0.54)	0.14 (-0.11, 0.39)	0.08 (-0.09, 0.26)	0.48 (0.22, 0.73)	0.29 (0.10, 0.47)
Knowledge of reproductive and sexual health[3]	0.26 (-0.02, 0.55)	0.15 (-0.04, 0.33)	0.05 (-0.25, 0.35)	0.03 (-0.16, 0.22)	0.21 (-0.08, 0.51)	0.12 (-0.08, 0.32)
Frequency of bullying	-0.90 (-1.27, -0.53)	-0.50 (-0.74, -0.25)	-0.06 (-0.45, 0.32)	-0.03 (-0.28, 0.21)	-0.84 (-1.22, -0.45)	-0.46 (-0.73, -0.20)
Secondary outcomes- binary: Odds ratio (95% CI)[4]						
Incidence of violence (victimization)	0.58 (0.36, 0.93)		1.86 (1.16, 2.95)		0.31 (0.19, 0.50)	
Incidence of violence (perpetration)	0.64 (0.39, 1.05)		1.66 (1.02, 2.71)		0.38 (0.23, 0.63)	

Key:

1 The more negative the score, the more the person's responses reflected depressive symptoms.
2 The more positive the score, the more the person's attitudes reflected gender equity.
3 The more positive score, the more the person's knowledge of reproductive and sexual health.
4 If the OR is < 1 the intervention is better than the comparison.

5.7 Effectiveness analysis for the cohort who had completed both base- and end-point surveys

Table 5.7 shows the intervention effects for the primary and secondary outcomes for the subset of participants who completed both base and endpoint surveys.

5.7.1 Primary outcome- School climate

Among the participants who had completed both the surveys, i.e. baseline and endpoint, the SM arm had significantly improved school climate score than the control arm (mean BBSCQ 24.26 vs 17.67; aMD=7.46, 95%CI:5.87, 9.05; ES=1.85 95%CI:1.35, 2.35; p<0.001) and the TSM arm (mean BBSCQ 24.26 vs 16.96; aMD=8.02, 95%CI:6.42, 9.62; ES=1.99 95%CI=1.47, 2.51; p<0.001). There was no evidence of a difference between the TSM arm and the control arm for these cohort of participants (mean BBSCQ aMD=-0.55, 95%CI:-2.14, 1.03; ES=-0.14 95%CI:-0.64, 0.36; p=0.49).

5.7.2 Secondary outcomes

Among this subset of participants, the SM arm had significantly improved secondary outcomes than the control arm, i.e. lower PHQ-9 score (mean PHQ-9 score 5.03 vs 6.37; aMD=-1.21, 95%CI:-1.88, -0.54; ES=-0.26 95%CI:-0.44, -0.09; p<0.001), improved attitude towards gender (GEMS score 5.86 vs 5.53; aMD=0.42, 95%CI:0.22, 0.62; ES=0.25 95%CI:0.11, 0.39; p<0.001), improved knowledge of RSH (mean knowledge of RSH score 3.02 vs 2.79; aMD=0.29, 95%CI:0.05, 0.53; ES=0.16 95%CI:0.01, 0.031; p=0.015), less bullying (frequency of bullying 0.56 vs 1.43; aMD=-0.90, 95%CI:-1.14, -0.66; ES=-0.46 95%CI:-0.61, -0.32; p<0.001) and lower both violence i.e. victimization (11.2 vs 17.2%; OR=0.63 95%CI:0.47, 0.85; p=0.003) and perpetration (8.8 vs 13.7%; OR=0.69 95%CI:0.48, 0.97; p=0.038).

Among the participants who had completed both surveys, i.e. baseline and endpoint, there was no evidence of a difference between the TSM arm and the control arm for the PHQ-9 score (PHQ-9 score 6.69 vs 6.37; aMD=0.12, 95%CI:-0.54, 0.79; ES=0.03 95%CI:-0.15, 0.21; p=0.70), attitudes towards gender (GEMS score 5.54 vs 5.53; aMD=0.15, 95%CI:-0.04, 0.36; ES=0.09 95%CI:-0.05, 0.24; p=0.12), knowledge of RSH (Knowledge of RSH score 2.92 vs 2.79; aMD=0.03, 95%CI:-0.21, 0.28; ES=0.02 95%CI:-0.13, 0.17; p=0.77), and frequency of bullying (frequency of bullying 1.55 vs 1.43; aMD=-0.06, 95%CI:-0.31, 0.18; ES=-0.03 95%CI:-0.18, 0.12; p=0.61); worse outcomes for both violence, i.e. victimization (23.1 vs 17.2%; OR=1.33 95%CI: 0.99, 1.79; p=0.050) and perpetration (18.1 vs 13.7%; OR=1.45 95%CI:1.03, 2.05; p=0.033).

Among the participants who had completed both the surveys, the SM arm had significantly improved secondary outcomes than the TSM arm, i.e. lower PHQ-9 score (aMD=-1.34, 95%CI:-2.01, -0.66; ES=-0.29 95%CI:-0.48, -0.11; p<0.001), improved attitude towards gender (aMD=0.26, 95%CI:0.06, 0.47; ES=0.16 96%CI:0.01, 0.16; p=0.011), improved knowledge of RSH (aMD=0.26, 95%CI:0.01, 0.51; ES=0.14 95%CI:-0.02, 0.030; p=0.040), less bullying (aMD=-0.84, 95%CI:-1.09, -0.59; ES=-0.43 95%CI:-0.58, -0.28; p<0.001) and lower both violence, i.e. victimization (OR=0.47 955CI: 0.35, 0.64; p<0.001) and perpetration (OR= 0.45 95%CI:0.31, 0.64; p<0.001).

Table 5.7: Intervention effects at 8 months on school climate and secondary trial outcomes who have completed both base- and end-point assessment (boys and girls combined)

	SM vs Comparison		TSM vs Comparison		SM vs TSM	
	AMD (95%CI)	Effect size (95%CI)	AMD (95%CI)	Effect size (95%CI)	AMD (95%CI)	Effect size (95%CI)
Primary outcome						
School climate	7.46 (5.87, 9.05)	1.85 (1.35, 2.35)	-0.55 (-2.14, 1.03)	-0.14 (-0.64, 0.36)	8.02 (6.42, 9.62)	1.99 (1.47, 2.51)
Secondary outcomes- continuous						
Depressive symptom score[1]	-1.21 (-1.88, -0.54)	-0.26 (-0.44, -0.09)	0.12 (-0.54, 0.79)	0.03 (-0.15, 0.21)	-1.34 (-2.01, -0.66)	-0.29 (-0.48, -0.11)
Attitude towards gender equity[2]	0.42 (0.22, 0.62)	0.25 (0.11, 0.39)	0.15 (-0.04, 0.36)	0.09 (-0.05, 0.24)	0.26 (0.06, 0.47)	0.16 (0.01, 0.16)
Knowledge of RSH[3]	0.29 (0.05, 0.53)	0.16 (0.01, 0.31)	0.03 (-0.21, 0.28)	0.02 (-0.13, 0.17)	0.26 (0.01, 0.51)	0.14 (-0.02, 0.30)
Frequency of bullying	-0.90 (-1.14, -0.66)	-0.46 (-0.61, -0.32)	-0.06 (-0.31, 0.18)	-0.03 (-0.18, 0.12)	-0.84 (-1.09, -0.59)	-0.43 (-0.58, -0.28)
Secondary outcomes- binary: Odds ratio (95%CI)[4]						
Incidence of violence (victimization)	0.63 (0.47, 0.85)		1.33 (0.99, 1.79)		0.47 (0.35, 0.64)	
Incidence of violence (perpetration)	0.69 (0.48, 0.97)		1.45 (1.03, 2.05)		0.45 (0.31, 0.64)	

Key:

1 The more negative the score, the more the person's responses reflected depressive symptoms.
2 The more positive the score, the more the person's attitudes reflected gender equity.
3 The more positive score, the more the person's knowledge of reproductive and sexual health.
4 If the OR is < 1 the intervention is better than the comparison.

5.8 Process evaluation

On average, the SMs were substantially younger than the TSMs (mean age 29.3 years (SD=5.14) vs 37.9 years (SD=6.03)), while the TSMs were slightly better educated than the SMs (100% vs 85% with a graduate degree).

Table 5.8 describes the coverage of intervention activities by arm during the trial period between July 2015 and February 2016. A high coverage of planned whole-school level intervention activities was observed in both the intervention arms. For example, 90% or more coverage was achieved for activities like meeting with the staff, wall magazine, and the SHPC meetings. However, the SM arm had better coverage of assembly-level awareness generation activities (92% vs 71.3% coverage) and had received and addressed more speak-out box chits than the TSM arm (received 1098 vs 254 and addressed 931 vs 211). For the group-level activities, the SM arm had better coverage of peer group meetings than the TSM arm (86.6% vs 73.5%) while both the intervention arms achieved 100% coverage of workshops with students and teachers. The SM arm counselled more number of students than the TSM arm during the intervention period (395 vs 41). The coverage of the supervisory visits was more in the TSM than the SM arm (76.7 vs 70%).

Table 5.9 shows the students' self-coverage of intervention activities by arm during the trial period between July 2015 and February 2016. Overall, 95% of the total 5316 participants from the SM arm schools and 88% of the total 4475 participants from the TSM arm schools at follow-up reported being aware of the SEHER intervention activities. Of the total aware participants from both the arms, more participants from the SM than the TSM arm reported of attending the assembly (91.6 vs 89.4%), participating in the monthly competitions (71.6 vs 65.2%) and being aware about the counselling services (vs 78.4 vs 72.4%).

Although the target number of TARANG-AEP sessions during the Grade IX school year is 21, the TARANG-AEP teachers from the SM arm conducted a mean of 6.0 sessions (95%CI:5.15, 6.85), from the TSM arm conducted a mean of 6.1 sessions (95%CI:5.47, 6.72) and from the comparison arm conducted a mean of 5.2 sessions (95%CI:4.72, 5.68) with the grade IX students of the trial schools during the implementation period.

Overall, 61.5% participants at endpoint reported of being aware of the TARANG-AEP (66.9 from the SM, 58.6 from the TSM and 58.2% from the comparison arm). Of the total aware participants, 71% participants reported of being present during the TARANG-AEP classes (72.2 from SM, 71.3 from TSM and 69.8% from Comparison arm). During the academic year

2015-16, the average percentage attendance of students in grade IX was more in the SM arm schools (52.2%) than the TSM (50.6%) and the comparison arm (48.3%).

Table 5.8: Coverage of intervention activities by arm during the trial period (July 2015 and February 2016)

	Target	SM	Coverage	TSM	Coverage
Whole school level activities					
No. of awareness generation meetings	4/school/month	736	92.0%	548	71.3%
No. of staff meetings	1/school/month	180	90.0%	185	96.3%
No. of wall magazine	1/school/month	198	99.0%	186	96.8%
No. of issue-based chits received through speak-out box	-	1098		254	
No. of issues received through speak-out box addressed	-	931		211	
No. of SHPC meetings conducted	2/school/year	50	100%	48	100%
Group level activities					
No. of peer groups formed	-	45		34	
No. of peer group meetings conducted	1 meeting/group/month	312	86.6%	200	73.5%
No. of workshops with students	1/school/year	25	100%	24	100%
No. of workshops with teachers	1/school/year	25	100%	24	100%
Individual level activities					
No. of students counselled	-	396		41	
No. of supervisory visits	3/school/month	420	70%	442	76.7%

Table 5.9: Students' self-coverage of intervention activities, by sex and intervention arm during the trial period (July 2015 and February 2016)

		Total		Boys		Girls	
		SM	TSM	SM	TSM	SM	TSM
	N	5316	4475	2769	2280	2547	2195
Awareness of SEHER Intervention	Yes (%)	93.8	87.8	90.5	85.9	97.1	89.7
	N	4979	3928	2505	1959	2474	1969
Whole-school assembly attended	Yes (%)	91.6	89.4	89.8	89.6	93.4	89.3
Contributed to the development of wall magazine	Yes (%)	83.5	80.9	80.9	81.0	86.1	80.9
Wall magazine issues read	Yes (%)	88.8	83.8	88.3	84.6	89.3	83.0
Participated in competitions	Yes (%)	71.6	65.2	71.0	68.0	72.3	62.5
Aware of counselling services	Yes (%)	78.4	72.6	73.7	70.7	83.1	74.8

Chapter 6: A NESTED QUALITATIVE STUDY

In this chapter I provide details on the qualitative study design, methods of data collection used, the types of participants recruited, the selection method of these participants, data management and method of analysis of qualitative data.

6.1 Aim and objectives

The aim of the qualitative study nested in the SEHER trial is to evaluate school community's perceptions of the impact of the SEHER intervention activities delivered by the SEHER *Mitra* or Teacher as SEHER *Mitra*, in order to inform interpretation of outcomes of the CRT.

The specific objectives of the sub-study are:

- To explore the process and quality of intervention delivery (how and why things were done),
- To explore the factors that helped in achieving targets set for the intervention components,
- To understand the challenges faced by the TSMs, SMs and schools in achieving targets set for the intervention components and ways to address them, and
- To identify the gaps and overlaps between AEP and SEHER intervention.

The qualitative study was conducted by the evaluation team in December 2016, i.e. before the commencement of 8-months follow-up assessment.

6.2 Rationale

There is increased recognition of the value of embedding qualitative research in RCTs as qualitative data can offer explanations of the processes and intervening factors that yielded quantitative outcomes (Hawe et al., 2004; Oakley et al., 2006; Lewin et al., 2009) and in evaluating outcomes which are difficult to assess using quantitative tools (e.g., subjective experiences of the quality of intervention delivery). Thus, the qualitative approach not only helps unpack the contextual factors or intervention characteristics that may have influenced the trial results, but also increases the range of outcomes which might be evaluated in the trial (Bower et al., 2006; Glenton et al., 2011). Lewin summarizes the ways in which qualitative methods can be used alongside randomised controlled trials (Box 6.1).

Box 6.1: Ways in which qualitative methods can be used alongside randomised controlled trials

Before a trial

- To explore issues related to the healthcare question of interest or context of the research
- To generate hypotheses for examination in the randomised controlled trial
- To develop and refine the intervention
- To develop or select appropriate outcome measures

During a trial

- To examine whether the intervention was delivered as intended, including describing the intervention as delivered
- To unpack processes of implementation and change
- To explore deliverers' and recipients' responses to the intervention

After a trial

- To explore reasons for the findings of the trial
- To explain variations in effectiveness within the sample
- To examine the appropriateness of the underlying theory
- To generate further questions or hypotheses

The qualitative study was nested in the SEHER trial to unpack processes of implementation and change and to explore deliverers' and school community's response to the intervention. This also helped in explaining plausible reasons for the findings of the trial.

6.3 Study design

The qualitative sub-study was conducted in 12 intervention schools (6 from each of the two intervention arms) selected using a combination of stratified and maximum variation sampling (Cohen & Crabtree, 2006). The schools were selected based on a combination of two criteria: a) school size (as defined in the main trial protocol) and, b) performance of the schools.

The schools' size is defined as follow in the main trial:

1. Small: 101-300 students enrolled in the school;
2. Medium: 301-600 students enrolled in the school, and
3. Large: 601 and more students enrolled in the school.

The performance of the schools is defined based on the monthly process indicators data and supervisors' reports:

- High performing school: Highest rate (defined as achieving the targets set for the intervention components at 85% or above) of achieving the targets set for the intervention components during the intervention implementation between July 2015 and January 2016;

and

- Low performing schools: Lowest rate (defined as achieving the targets set for the intervention components 84% or below) of achieving the targets set of the intervention components during the intervention implementation between July 2015 and January 2016.

One of the issues with any evaluation of processes within trials is that such evaluation can itself potentially change behaviour. When the behaviour change induced could affect outcomes, the process evaluation could therefore be seen as part of the intervention. One implication of this is that investigators should carefully consider the extent to which a process evaluation might affect outcomes, and ways of minimising risk of bias that might arise if the intervention and control arms were treated differently within the process evaluation (Eldridge and Kerry, 2012). If the aim of evaluating a process is to monitor intervention fidelity, and the feedback to clusters to enhance fidelity, then this could be seen as part of the intervention rather than part of a separate process evaluation. A further issue is the bias that can arise if the team responsible for the process evaluation is not kept separate from the main trial research team. (Ellard et al., 2011)

I faced a number of challenges in designing the protocol for the qualitative process evaluation of this trial. The major challenge was in terms of the academic year and the outcome assessment schedules. Generally, the DoE, Government of Bihar conducts the annual examination of grade IX students in March i.e. at the end of the academic year. However, in the academic year 2015-16 (trial period), the DoE decided to drift away from the regular paper-based examination and conduct a computerised annual examination for grade IX. This decision was taken in the month of January 2016, which provided a narrow window of time for preparation for students and organization of logistic arrangements to the schools. A normal day in a school is structured with set time for regular classes, breaks, other extracurricular activities which meant a little time for researcher to interview or engage in individual interviews or focus group discussions. I had learnt during the pilot study that the teachers and students tend to be more receptive in the mornings but this can clash with activities in the school.

Just as the design of a randomised trial is underpinned by a considerable theoretical literature, so the design of a process evaluation should be similarly underpinned. It is also important to clarify the theory that underlies the intervention being tested, because this will identify important processes to consider in the evaluation. In the qualitative process evaluation, I have used the conceptual framework to identify the causal processes through which change comes about as a result of the intervention's strategies and action, and have based the evaluation on the following key components of process evaluation: context, reach, fidelity, and quality of

implementation (Steckler & Linnan, 2002). Given the limited time for the qualitative evaluation, I decided that it was important to understand the views and opinions of students, principals, teachers, SMs, TSMs and supervisors. Their experiences, their attitudes to the intervention and how they thought the intervention could be improved will play an important part in interpreting the outcome data. Hence, the qualitative evaluation was conducted only in intervention schools.

It is important to maintain a distance between the process evaluation team and the main study team to minimise the bias. To a certain extent, I could keep the qualitative process evaluation team separate from the main trial surveys. The qualitative process evaluation team was only involved in supervising the field investigators who carried out the main trial surveys. The analysis of the qualitative data was independent of the outcome data. For example, data from the qualitative evaluation is used to explore the individual context of each arm which helped to explain variations in the effectiveness of the intervention. The results of the process evaluation were not disseminated to the school communities.

6.4 Data collection

Data were collected through focus group discussions (FGDs) and semi-structured interviews. FGDs are particularly useful for exploring participants' experiences and can be used to examine not only what participants think, but how they think and why they think that way as deliverers and recipients of intervention (Kitzinger, 1995). In addition, the comparisons that participants make among each other's experiences and opinions are a valuable source of insights (Morgan & Krueger, 1993).

The semi-structured interviews are an appropriate method to understand these experiences because they enable narratives of individuals to be elicited (Miles & Huberman, 1994), such that the interviewer can explore what was meaningful to individuals who were expected to respond to the intervention implementation.

6.4.1 Focus group discussions with students

Two FGDs were conducted per selected school (one each with boys and girls in co-education schools and two with students of single sex schools). Students were identified by the researcher and invited to take part if:

- Studying in grade IX,
- Members of the peer groups (see Table 3.2),
- Had parental opt- out consent to participate in the SEHER study, and

- Provided assent to participate in the FGD.

The steps below were followed before conducting the FGDs:

Assent to be considered for qualitative study: An assent to participate in the outcome assessment surveys and the FGDs was obtained from all the students by the evaluation team in June 2015. The facilitator invited all the peer group members to participate in the FGD with the help of respective SM/TSM. If the selected school had a large number of peer group members then the facilitator asked the peer group members to voluntarily nominate themselves for the FGD.

Arrangement for the FGD of participants who are randomly selected: The FGD was scheduled during the school time in consultation with the school administration and the SM/TSM.

Process of the FGD: The group discussion facilitator briefed the participants about the objectives of the study, the consent procedure completed during the quantitative assessment and explained the process of group discussion. The number of participants in each FGD ranged between 8 and 12. The participants were informed about the recording of the discussion using a digital tape recorder. Confidentiality and anonymity were also explained. The qualitative researcher answered any queries of the participants before starting the group discussion.

Image 6.1: Focus group discussion with girls in TSM school

6.4.2 Focus group discussions with TSMs, SMs and supervisors

We divided the 24 TSMs and 25 SMs into two subgroups each and conducted FGDs with each subgroup of TSMs and SMs. One FGD was conducted with the supervisors.

6.4.3 Semi-structured interviews with school teachers

In each selected school, the principal, one TARANG-AEP nodal teacher and one randomly selected teacher (using a random table) were interviewed.

The researcher met the principal, the TARANG-AEP nodal teacher and randomly selected other teacher separately in each selected school on a pre-fixed date and completed the informed consent procedure before starting the interview. The researcher provided information about the objectives of the interview and the consent procedure to the participant before the commencement of an interview. Confidentiality and anonymity were explained. The participant was asked if s/he voluntarily and freely consents to be interviewed and for the interview to be recorded using a digital tape recorder. The interviewer answered any queries of the participant before starting the interview.

6.4.4 Semi-structured interviews with students who used counselling services

One semi-structured interview per school was conducted with the purposefully selected student who had used counselling services from the SM or TSM between June 2015 and February 2016.

The steps below were followed before conducting the interviews:

1. Obtaining a list of students who have used counselling services: This was obtained from the respective TSM/SM for the selected schools. To assure confidentiality, the list did not have any student's name but the case ID assigned by the TSM/SM. The research coordinator randomly selected one student per school for the interview using the random table. The randomly selected student was approached with the help of the TSM/SM.
2. Arrangement for the interview: The assent and objectives of the interview were explained to the selected student.
3. Process of an interview: The researcher briefed the student about the process of the interview. The student was informed about the recording of the interview using a digital tape recorder. The student was also explained about confidentiality and anonymity. The researcher answered any queries of the student before starting the interview.

The interview and FGD guides are listed in Appendix 18. The interviews and group discussions were conducted in Hindi (the local language) by a team of four trained researchers (including the thesis author). The remaining three researchers were recruited for the SEHER project as Researchers and have completed their post-graduation in Psychology. The three researchers were trained by the thesis author in conducting semi-structured interviews and focus group discussions in a 4-day long training. The training comprised of presentations, demonstrations, and roleplays.

On average, interviews lasted 45-60 minutes and group discussions continued for 60-90 minutes and ranged from 8-12 peer group members. Interviews and group discussions were audiotaped, transcribed and then translated into English. Subsequently, the field notes/summaries and memos written by the researchers were attached to the main text of the interviews and group discussions.

6.5 Team debriefing sessions

The author of this thesis led a weekly debriefing session with the researchers during the data collection period. Audio recordings of the interviews and group discussions, and summaries/memos were used for reference during these meetings. The objectives of the debriefing meetings were:

- To review the quality of the data and address key questions such as:
    - To what extent are the emerging data addressing the research questions? If the data is not adequately answering all the research questions, how should the interview/group discussion guide be modified?
    - What are the new and unexpected themes those need to be added to the interview guide?
    - What is the variation in the quality of data between interviewers? What could be the possible way to address this variation?
- For interviewers to update each other on progress with data collection;
- For interviewers to discuss key findings from data collection so far, including differences and similarities,
- For interviewers to discuss any problems/changes with the interview guides, and
- For interviewers to get an idea of whether new ideas are still emerging or if saturation has been reached on key topics.

6.6 Data management

Each interview and FGD was assigned with a unique ID that comprised of interview or FGD number, school code, date of interview/FGD, and initials of the researchers. This was written

on the interview and group discussion transcript and translated file, notes taken/memo, and were used to name audio files. All hard copy interviews were anonymised, coded and maintained in a locked cabinet. Softcopy data were retained in an encrypted file to which only the research team had access. Meeting observation notes were also recorded on an encrypted Word document and saved on the same PC as the other data material.

6.7 Data analysis

The data were examined in detail, collated and explored for themes relating to topics covered through the interview and group discussion guides using a framework approach. A Framework Approach supports a more systematic way of completing a thematic analysis. This approach was taken as it is *"recommended for deductive data categories when interview questions and categories of interest are considered before the interviews"* (Evans & de Souza, 2008, p492). The Framework Approach was originally developed by the Social and Community Planning Research institute in the UK to address the specific needs of applied policy research studies (Ritchie & Spencer, 1994). Thematic analysis and indeed qualitative analysis, in general, are sometimes criticised because the process by which themes emerge from the data is often difficult to assess (Braun & Clarke, 2006). Framework Analysis, however, provides a structured and transparent method to effectively manage and analyse qualitative data thematically (Smith & Firth, 2011). Whilst deductive qualitative analysis is less popular (Pope, Ziebland, & Mays, 2000), it was deemed most appropriate in the current context because:

(a) In many applied research studies, as in the current study, objectives are based on pre-decided information requirements as well as the background literature. As a consequence, many themes are often identified a-priori and the data are then fitted into the categories or themes for interpretation (Ritchie & Spencer, 1994). Framework analysis provides an appropriate methodology for this type of research as it adopts a deductive approach to the identification of categories or themes. In the current context for example, the SEHER intervention components were designed based on the WHO's HPS framework and the current study aims to explore how these components were addressed in terms of school climate and adolescent health and health-related outcomes.

(b) Framework analysis provides a more structured approach to the organisation and analysis of the data which was important given the large volumes of data involved.

(c) This approach allows for considerable flexibility. Similar to other qualitative approaches, additional themes which emerge from the participants' responses can still be included alongside pre-established themes (Ritchie & Spencer, 1994).

(d) Interpretative phenomenological analysis and grounded theory approaches were

deemed not to be appropriate in the current context as they are theoretically bound to a particular epistemology (Braun & Clarke, 2006). In contrast, thematic analysis using a Framework approach is not fixed to a certain theoretical framework and is in line with the pragmatic perspective of the current study.

Pope, Ziebland and Mays (2000) recommend a number of specific phases of data analysis required for an effective framework approach and structured method of synthesising the available data. These include five key stages: familiarisation; identifying a thematic framework; indexing; charting; and mapping and interpretation. According to Matt (2004), a number of strategies can also be employed by the researcher to increase the validity of the analysis. In particular, the presentation of the analysis procedure as well as the process of interpretation improves the transparency of the analysis. The inclusion of useful quotes as well as a justification of the "*appropriateness of constructions"* is also of importance (Matt, 2004, p329).

Following this recommendation, the stages of analysis of the sub-study were as follows:

Stage 1: All transcripts were read by the thesis author a number of times to ensure adequate immersion in the data and relevant notes were made along each transcript.

Stage 2: Upon achieving satisfactory familiarisation with the data, the next stage in the analysis process is the identification of a thematic framework. The purpose of this stage is to identify the main issues and themes within the data that warrant exploration. The initial framework was based upon a-priori themes covered in the interviews and group discussions as well as new emerging issues highlighted by participants as identified by the researcher. As each interview and group discussion was examined, codes were adapted and new emerging themes were established and re-organised into an initial framework using a new table created in Microsoft Excel. Upon completion of this first thematic framework, the researcher reviewed notes and identified key issues, concepts and themes. The various theme headings were again checked with participants' verbatim responses to ensure data representation was maintained.

Box 6.2: Sample initial thematic framework for: "SEHER planning and implementation" (Stage 2)

Overarching theme: SEHER planning and implementation .
1. Understanding of SEHER
2. Roles and responsibilities of key stakeholders
3. HSP governance
4. Involvement of other staff in SEHER planning and implementation
5. Leadership and management of the SEHER

Stage 3: In this stage, the data were indexed (i.e. the thematic framework was applied to the data) and numeric codes were applied to the transcript data. Sub-theme heading/s identified in Stage 2 were revisited and explicit and implicit codes were applied to the data. The theoretical framework established in stage two was applied to the transcripts. As each transcript was assessed, the framework was adapted where appropriate. Codes were included along with these summaries, so the researcher could refer to the raw data source with ease and ensure that each summary accurately reflected the data. Summarised themes and sub-themes were continually refined, based on re-examination of the transcripts and code. This process was repeated until a concise and comprehensive index of themes and sub-themes was achieved.

Box 6.3: Example of data indexing (Stage 3)

Theme 2 sub-theme: Roles and responsibilities of key stakeholders	
Example of data indexing	Supporting quote
The central role of the SM	*"He (the SM) facilitated the formation of school health promotion committee, formed the peer groups of the students, streamlined the daily whole-school assembly activities. He helped students solve their problems through individual counselling."* (Principal, SM school)

Stage 4: In stage four data were organised or 'charted' according to its relevant thematic framework. Related charts were grouped under headings which permitted comparisons across respondents. A chart was created for each theme/sub-theme to include data from different respondents. Each summary point (within each case) maintained its own reference code for ease of access to the transcript quote. A number of categories were found to overlap both across and within themes and where this occurred, relevant sections were reviewed and edited. A descriptive analysis of each sub-category, including the data-point codes was completed. This process was repeated for each theme.

Box 6.4: Sample of 'charted' data (Stage 4)

Case	Principal 1	Teacher 1	FGD Boys 1
Sub-theme: Usefulness of intervention	- Provides useful information to the students - Students can seek help when in need - Platform to build skills	- Discuss various issues with the students which are important in context of gender discrimination and violence	- Awareness on health and hygiene - Programme helps in improving skills - Provision of counselling services

Stage 5: In the final stage of analysis, each chart was examined separately and a process of mapping and interpretation was undertaken (i.e. established charts were used to explore the range and nature of phenomena and any emerging associations between sub- themes were identified in order to explain the findings). In addition to emerging themes, this analysis was completed with the research questions in mind to ensure the data reflected the overarching aims of the study.

6.8 Ensuring reliability and validity of the qualitative research

A number of steps were taken in the current study to ensure a good standard of reliability and validity of the qualitative data. These steps were based on the RATS qualitative research review guidelines (i.e. Relevancy, Appropriateness of qualitative method, Transparency of procedures, Soundness; Clark, 2003) and further informed by the consolidated criteria for reporting qualitative research (COREQ; Tong, Sainsbury & Craig, 2007).

Relevancy of the research question is fundamental to the quality of any study. As set out in Chapter 1, the HPS approach has been endorsed by the WHO as an effective, comprehensive approach to address the health needs of children in the school setting. The literature review also highlights, however that this approach is still evolving and only few comprehensive evaluations have been completed to date. An essential consideration for schools and policy makers, especially in LMIC is to understand how such initiatives can be best delivered to address the health needs of the school community and what facilitating and prohibiting factors may affect future implementation. The identification of these issues may improve the effectiveness of future health promoting school initiatives. In this way, the research question in the current study is very relevant to public health and policy.

Appropriateness refers to the suitability of the qualitative methods used to address the study objectives. The justification for the use of interviews, focus groups and textual analysis are clearly addressed earlier in this chapter.

Transparency of procedures refers to the rationale for the sample, recruitment, ethics, and the role of researcher. Justification of the approach used for each of these important components is also set out in detail earlier in this chapter. An additional important consideration in the research process concerns the involvement of the researcher. For example, clear representation of the steps involved in the collection and analysis of the qualitative data by the researcher was also necessary to ensure that the findings will be as representative of the participants as possible. In doing this, the researcher underwent a continuous process of self-reflection to explore to what extent personal biases or experiences may have interfered with the interpretation of the data and how this can be minimised.

Finally, to ensure *Soundness of interpretative approach,* the framework analysis approach is described in detail earlier in this chapter, as is the justification for its use. A number of interpretation checks were also discussed to ensure reliability of the data (e.g. continuous reviewing of raw material to compare with analysis process). The quantification of the data was not deemed appropriate for most of the qualitative findings. The diversity of participants as well as their different levels of involvement would mean that quantification of opinions may not usefully represent the participants' experience of the SEHER intervention and the way in which implementation was perceived to be effective or ineffective.

Chapter 7: RESULTS OF QUALITATIVE STUDY

This chapter describes the key findings of the qualitative study.

7.1 Description of the participants and themes

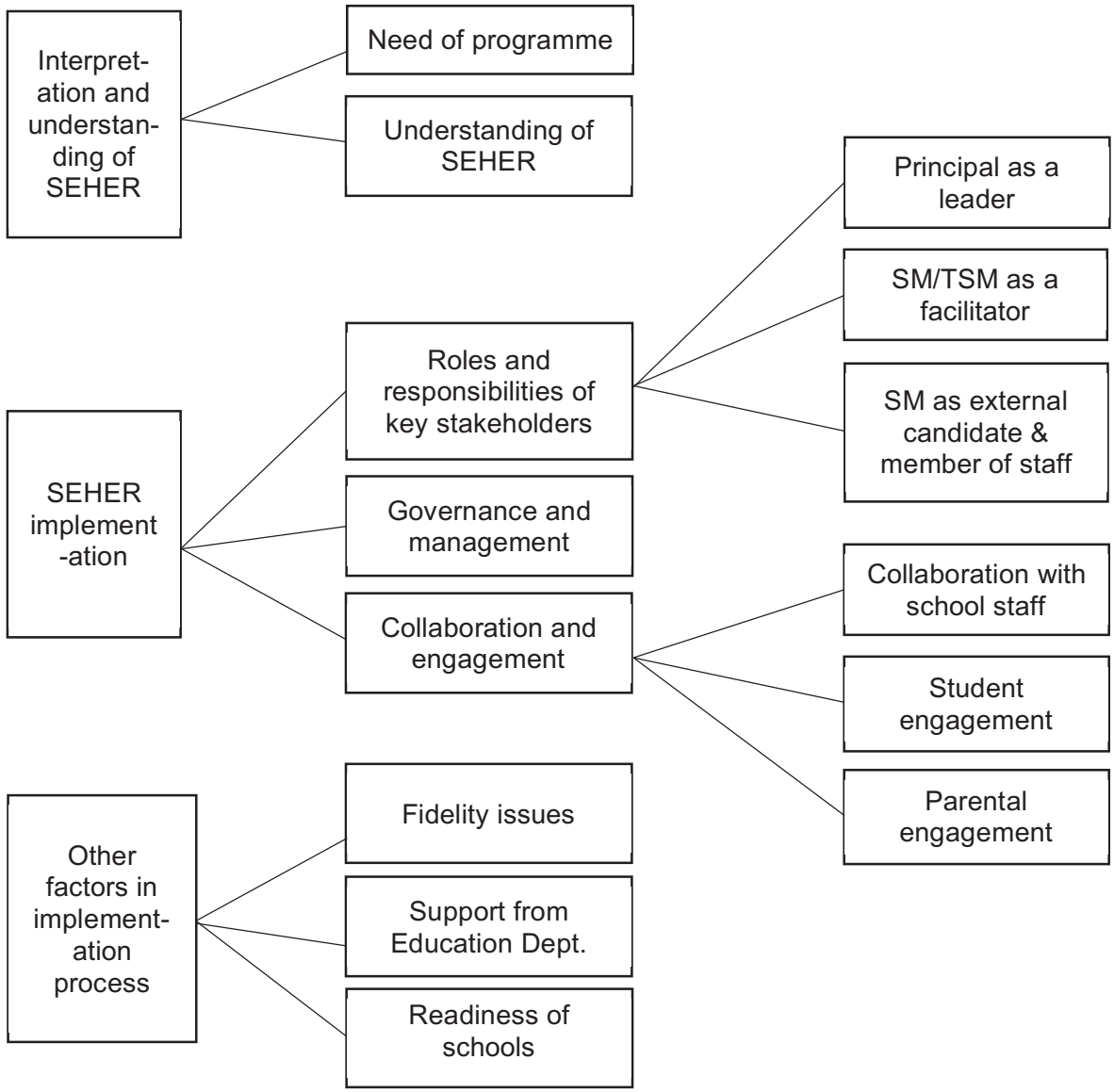
In total, 45 participants were interviewed from 12 schools, including 10 principals, 12 TARANG-AEP teachers, 12 teachers and 11 students who used counselling services (6 boys and 5 girls). We conducted 24 FGDs with students (14 with girls and 10 with boys), which involved 248 students; 2 each with SMs and TSMs and one with supervisors. The details of the number of participants interviewed by arm are shown in Table 7.1.

Table 7.1: Respondents interviewed for SEHER qualitative study

	SM arm n=6 schools	**TSM arm n=6 schools**
	Focus group discussions	
Male students	6 (56)	4 (47)
Female students	6 (61)	8 (84)
Teacher-as SEHER *Mitra*	-	24 (4 females & 20 males)
SEHER *Mitra*	2 (11 females & 14 males)	-
Supervisors	1 (8 males)	
	Semi-structured interviews	
Students who availed counselling services	6 (3 boys & 3 girls)	5 (2 boys & 3 girls)
School Principal	5 (1 female & 4 males)	5 (2 females & 3 males)
TARANG-Adolescence Education Programme Teachers	6 (5 females & 1 male)	6 (4 females & 2 males)
Teachers	6 (2 females &4 males)	6 (2 females &4 males)

The framework analysis revealed three overarching key themes to encapsulate the views of the stakeholders and plausible explanation for the trial results. These were: understanding and interpretation of SEHER intervention; intervention planning and implementation, and other factors in the implementation process. Within each primary theme, 14 sub-themes were also identified (Figure 7.1).

Figure 7.1: Diagrammatic overview of thematic framework



7.2 Understanding and interpretation of SEHER intervention

7.2.1 Need of programme

The majority of the stakeholders interviewed – students, principals, teachers, SMs, TSMs and supervisors – felt that education in life skills is an important component of the education of students. They were of the opinion that educating young men and women on health and hygiene, emotional health, gender issues and rights was a must in view of factors such as low literacy rates and low marital age among women, the high prevalence of violence against women and sexual abuse of women.

"The programme provides important education to the students. When we were of their age,

we did not know anything. We faced a lot of problems. This is an age when physical appearance changes and a lot of children face problems because of that. Our bodies were changing and we faced a lot of problems. In rural area, most of the parents are illiterate, they do not know all these things. These children do not get to share their concerns with guardians; there is a lot of hesitation about these subjects. These children are being educated on this and this is being done through the school. What is special about this programme is that the 9th grade girls and boys are getting this education at the time when they need it the most." [Principal, TSM arm]

Of all the stakeholders interviewed, only two TSMs and three teachers (1 SM and 2 TSM arm schools) expressed lingering doubts about the desirability of providing information on sex and pregnancy to adolescents. They feared that this might have negative consequences, such as heightening attraction to the opposite sex, which, in turn, could result in a growing number of romantic and/or sexual relationships.

"Most of the topics are relevant to adolescence, however, I feel these children are not mature to handle information given on reproductive and sexual health…there is too much curiosity at this age, know that, these children or at least some of them may act on the information, which is not good. So, we feel that we shouldn't have this topic on the SEHER programme. Even if it is there in the science syllabus, most teachers do not talk about it. Mainly, because these children are not able to think. It is good to give the information, but they start doing these things when they learn about them." [Teacher, SM arm]

For students from both the intervention arms three academic priorities, i.e. having a regular schedule of daily classes, having teachers to teach all the syllabus subjects, and focusing on children experiencing difficulties with their studies, ranked as the top areas requiring attention. Bullying was identified as an important issue in many schools, particularly by the female students. Family problems, health-related issues such as malnutrition, gender discrimination and topics related to life skills, including emotional difficulties, also featured in the top concerns identified by the students. Students and teachers also pointed at the lack of drinking water and inadequate toilet and washing facilities.

"we get to know about a range of topics through SEHER programme like reproductive and sexual health, gender, violence, bullying and mental health. Nobody discusses these topics with us in the classroom. But through a wall magazine, speak-out box, assembly activities, we get to talk about these issues. I really like this." [Female student, SM school]

7.2.2 Understanding of SEHER

Most of the interviewed participants acknowledged the importance of a shared understanding of the programme by the school community as a prerequisite for successful implementation of the intervention. Nevertheless, the findings suggested that there were mixed views and understanding of the SEHER intervention across both arms. In particular, none of the respondents from the lower performing schools hinted at the theoretical underpinnings of the SEHER intervention. In contrast, the principals and teachers from high performing schools were clearly conscious of the conceptual aspects of the programme.

The SEHER SOPs outline that the SM and TSM should brief the key stakeholders, i.e. principal, teachers and staff in their respective school about the SEHER intervention in the early stages of the implementation process. Despite this guideline, no orientation or induction was provided for any school members at the initial stage (or any other stage) of the programme by the TSMs in some schools. Several teachers from low performing TSM schools also noted that a copy of the SEHER SOPs was not given to the school. Understandably, this contributed to the divergence in understanding by stakeholders in the lowest performing schools and created a number of challenges in the planning and implementation of the intervention activities at a school-level.

"We were not briefed enough about the SEHER programme. We should have been given complete information at the initiation of the programme. I also feel that they should have given 2-3 copies of the SEHER manual to the school so that teachers could have read and gotten familiar with the key concept and activities of the programme." [Teacher, TSM school]

The teachers from high performing schools acknowledged that the monthly meetings with the school staff helped in increasing the understanding and awareness of the programme. These interviewees described how the intervention was modelled on the pillars of building positive school climate and designed to improve the capacity of the school to address the health needs of the students. In cases where effective health promotion-related information had been provided by the SM/TSMs to the staff, their awareness of the SEHER as an initiative which can address all areas of health in a holistic way was more evident.

"Initially, I thought that it is like TARANG programme, however, through the monthly meetings, it was clear that this programme is different. It is just not about talking about health, but improving schools so that students' needs are met. The main focus of the programme is improving the school infrastructure, relationships, and so on." [TARANG-AEP teacher, SM school]

Students from both the intervention arms emphasised the primary importance of SEHER intervention components and other discrete events (e.g. celebration of the international yoga day, cleanliness drive in the school, children's day event, etc.) and it was unclear how the development of the school climate had been addressed among them.

"The SEHER programme is about providing information on health topics to the children. It also talks about dowry system, gender discrimination. The SM sir conducts a lot of activities like wall magazine, speak-out box, celebration of yoga day, children's day and many other activities for the students." [Male student, SM school]

7.3 SEHER implementation

7.3.1 Roles and responsibilities of key stakeholders

Principal as a leader: Principals were perceived by the majority of stakeholders and especially by all the SMs, as essential to the acceptance and rollout of the SEHER. Indeed, many examples of principal leadership were reported by all the participants in high performing SM and TSM schools. Such examples included forming and organizing meetings of the SHPC, directing and guiding the work of the SM/TSM in their individual school, advising the SM/TSM and supervisors on solving the students' issues, and utilizing the school funds for purchasing school-level assets and/or equipment. The SMs noted that the influential leadership role of the principal or in-charge was vital as the enthusiasm and support of the principal was reflected in the behaviour of the teachers. The supervisors also mentioned that the school's principal as a leader and facilitator in creating a consensual plan of action has helped to solve students' concerns.

"…support by the school principal Mr. XYZ was very important. I would say that he is the captain of this ship. He has been teaching and living in this community for many years. He joined this school first as a teacher and then after a few years was chosen as the principal. He is very well respected in the school and in the community. His opinion is respected when there are conflicts within the school. He was very much interested in this initiative and because of his interest, other teachers were also compelled to support the programme activities." [Female SM]

The SMs noted that the influential leadership role of the principal or in-charge was vital as the enthusiasm and support of the principal was reflected in the behaviour of the teachers. The supervisors also mentioned that the school's principal as a leader and facilitator in creating a consensual plan of action has helped to solve students' concerns.

Contrary to this, it was observed by the supervisors in the TSM arm schools that many principals were reluctant to guide the TSMs mainly because they were not appointed as a principal but were in-charge (i.e. a senior teacher was asked to fill-in the position without giving any additional incentives). In such schools, the TSMs did not prefer to consult the principals in the intervention planning and reviewing activities. The principals were reluctant because they felt that the TSMs reached out to them only when the students demanded changes in infrastructure or it was necessary to consult the principal; for example, the formation of SHPC or organizing school level competitions. A few TSMs also felt that the principal nominated them to be a SEHER *Mitra* as s/he wanted to burden the teacher with additional responsibilities. It was clear that a lack of communication and dynamics between TSMs and the principals led to poor relationship building and collaboration between key stakeholders (i.e. among TSM, principal, supervisor, and school staff) and that this in turn led to a lack of buy-in and an impaired understanding of the SEHER amongst school staff.

TSM as a facilitator of SEHER: The SMs and TSMs were expected to act as a catalyst and facilitator of building positive school climate and addressing students' concerns through intervention activities. During monthly meetings, the SM and TSMs were reminded that their abilities to listen, assess, enable, and build trusting relationships were core skills that would lay the foundation for facilitating the planning, implementation, and evaluation of this collaborative approach. The TSMs mentioned that contrary to AEP, the SEHER programme implementation required continuous presence of the teacher in the school. However, they could not fully perform the role of the teacher-as-SEHER *Mitra* due to ancillary academic (e.g. deputation for evaluation of answer sheets, cluster meetings, training, etc.), non-academic (e.g. deputation for elections), and administrative duties (e.g. preparation and submission of monthly attendance reports and incentive schemes for students) given to them in addition to their primary responsibility of teaching regular syllabus. The majority of TSMs also raised concerns about the programme, creating additional work for them without providing any monetary incentives.

"…being a teacher is a tough job in this state…teachers are overburdened with responsibilities. We have been asked to do all clerical work, preparing documents for the distribution of all the student voucher schemes, admissions, and documentation of all student-related schemes, etc. We are also sent on election duties, examination duty, cluster meetings, training, etc. On the top of that there are programmes like TARANG, SEHER, Going-To-School, which are shouldered on us. We are not given any incentive or recognition to do this extra work." [Male TSM]

The TSMs also mentioned that attempts made by them to undertake a coordination role and to encourage staff to roll out activities themselves were met with some resistance.

"In this school, students have flooded the speak-out box with the chits that teachers do not attend the classes regularly. After discussing with the project team, I organized a meeting with the principal and fellow teachers to discuss this issue. Instead of suggesting changes, many teachers accused students that they are not interested in learning. Teachers were reluctant to act on the speak-out box chits submitted by the students and change their practices accordingly. The simple solution was to start having a regular class-schedule, however, a couple of senior teachers did not agree to this solution." [Female TSM]

Students mentioned that they were confused about the dual role of the teacher-as SEHER *Mitra*; the TSM was a regular teacher while teaching in the classroom however, performed as a SEHER *Mitra* during intervention activities. Students also expressed concerns about sharing their personal issues with the TSM through speak-out box or individual counselling as they thought the TSM would not respect confidentiality and share their issues with other teachers. Female students expressed their hesitation to seek help from the male TSMs. Students also mentioned that the TSM was not always available and/or approachable due to their other engagements in or out of the school.

SM as a facilitator of SEHER: Interviews with the principals and teachers indicated that the full-time presence of the SMs during school hours helped to develop a certain level of confidence by the principal and teachers in the programme as it was implemented. They also appreciated numerous events organized by the SMs throughout the year, which established better relationships between students and school staff to achieve a more supportive school environment (e.g. celebration of various days in school, organization of a cleanliness drive in the school, providing guidance to the students to prepare for inter-school competitions, tree plantation within school campus, etc.)

"I would say that the dialogue between teachers and students have increased since the SEHER programme has started in our school. There are so many opportunities for the students to interact with the teachers…every month there is some or other celebration or competition, which has improved the interaction between students and teachers." [Female teacher, SM school]

It was evident from the FGDs of supervisors and SMs that significant efforts were invested in integrating SMs in the school as they were new to the school. The SM took on an increasingly

hands-on role in schools with the purpose of creating 'a presence' and increasing relations with the school community. As a result, according to the SMs they were accepted, at least to some extent, by most schools as an additional member of staff.

Wherever possible, a vacant room was turned into SEHER activity room by the SMs so that they could be readily available to the students in that room. Students perceived the SM as someone who was 'friendly' and was more approachable than other teachers. They also expressed that they had faith in the SM that s/he would help them in solving their issues while maintaining the confidentiality. Students' faith in the SM also increased as they thought s/he was someone who engaged with them in fun-filled activities, which were not part of their regular studies and also helped in addressing perceived knowledge or skill deficit.

"…the ABC Ma'am is always there to help us. She is always sitting in the SEHER room. We have no problem in going there and asking questions. She is also good in counselling and solving students' problems. She listens to every student carefully. All students like her." [Female student, SM school]

7.3.2 Collaboration and engagement

Collaboration and networking with staff: According to the HPS literature, a collaboration which is participatory, inclusive and democratic is a key component of an effective health promoting school initiatives (Bamehow-Ramussen, 2005; Lahiff, 2009) and indeed, this was also acknowledged by most interviewees. At a strategic level, most respondents, mainly teachers, viewed certain aspects of SEHER more positively when the school community was involved in the planning and implementation of the programme. For example, despite mixed enthusiasm of principals to lead and manage the SEHER in their respective schools, principal's involvement in decision making was viewed by all stakeholders as central to the implementation of the SEHER. The SMs, TSMs and supervisors commonly reported that when principals were consulted and when they approved the work of SEHER, much more progress was observed.

Similarly, when school staff were consulted and involved in decision making, the resulting SEHER activities were viewed more favourably by students. For instance, the involvement of teachers in coordinating the children's day activities, cleanliness drive, and teacher's day celebration in all schools showed how positive collaboration could occur with school staff. These activities were very much driven by the school community and the school members took responsibility for the progress of these activities with the SM/TSM providing support. However, without continuous dialogue with the school staff, these efforts proved to be fragmented and freckled in most of the TSM schools.

"We [teachers] *were all asked if there was anything we thought maybe for the second year... anything that* [the SM] *could do, or anything that we might like* ... [There was] *the opportunity to give your ideas if you had them..."* [Teacher, SM school]

Teacher in high performing schools reported that they witnessed and/or experienced greater connections being made between students and teachers and among students over the course of the project. For example, one teacher explained that after the student health project was implemented *"there was kind of a connectedness in the whole school which was nice."*

Student engagement: It was evident from the interviews of the principals, teachers and students that whatever the topics of the programme, students were engaged due to the relevance and multiple benefits (i.e. personal, social, and academic) of the programme. Also, *novelty* was a strong way of initially engaging students' attention, but *novelty* alone was insufficient for maintaining engagement. The long-term health gain was mostly an abstract concept for students, so they needed to perceive another, more short-term (and non-health) gains from participating in a health promotion programme like SEHER. Amongst other things, this related simply to enjoyment (having some fun), identity development (e.g. status amongst peers), or midterm goals (e.g. developing transferable skills). Students' engagement pivoted on a perception that a programme was both fun to take part in and addressed a perceived knowledge or skill deficit. One principal explained:

"One can perceive that these students are from rural area and they do not have access to new technology or ideas that the urban children are exposed to. However, let me tell you one thing that no matter how the programme looks on paper if the students do not perceive it to help them, it is difficult to engage them. On this front, the SEHER programme has been a great success; the methods are novel as well as there is so much to learn for all the students. Information is being provided on various topics through fun activities by the SM; they get to improve their skills like public speaking, writing, painting and so on through various competitions; the SM provides them study tips and help those students who find it difficult to study; counselling is available to those students who have personal problems…I feel it is a good package and that is why students are participating in SEHER activities." [Principal, SM school]

There was an overwhelming consensus among students from high performing schools that the success of SEHER was the result of initiatives being student-led. In partnership with SM/TSM, students led all aspects of the initiative, from the initial needs assessment to the development and implementation of school-level activities. One student explained:

"Students just feel more comfortable talking to other students because some students just don't trust the teachers very much. You trust your friends and peers more. The XYZ sir [TSM] *involved students to shape the SEHER activities; be it naming the speak-out box, creating monthly wall magazines, deciding topics for skits, etc. Student representatives were involved in the School Health Promotion Committee. All the students were consulted; our voice was heard as a result students enjoyed participating in the SEHER programme activities."* [Female FGD participant, SM school]

Peer group members from high performing schools noted that prompt action on students' issues increased their faith in the intervention and the facilitator (i.e. SM and TSM). In the initial period of the SEHER intervention implementation, students from all schools complained through speak-out box or during peer group meetings about the unavailability of playground equipment to active play during recess/lunch. In high performing schools, especially in SM arm schools, purchase of sports equipment facilitated the success of SEHER activities. The SMs took the responsibility of distributing sports equipment to students and collecting from them. Similarly, some peer group members mentioned that there were books available in the school, however students were not allowed to access them as the librarian's post was vacant. In many schools, the SM took the responsibility of distributing books to the students during school hours.

Students from SM arm schools cited that the programme was successful at bringing students and teachers together, stimulating conversation, and engaging students with others that they would not normally associate with under a typical school day routine. Contrary to this, peer group members from TSM arm schools felt that not all students were aware about the programme activities. Students perceived that their teachers were not completely supportive of their involvement in SEHER activities. Peer group members also perceived that they did not have the support of fellow students in the beginning of the program. Not only were other students hesitant to try the school-specific programs due to nerves or capability, as some students suggested, but it was challenging to motivate other students to participate in the intervention activities. Several students mentioned that their schoolmates were nervous to try new activities (e.g. designing wall magazine and participating in competitions or assembly activities) and to join a peer club. In the beginning, this challenge was exacerbated by students not knowing the nature of these activities. The SMs and TSMs also recognized that for students to commit to activities and promoting a health initiative could prove difficult due simply to forgetfulness, or from fading enthusiasm among the students. Male students from low performing schools mentioned that students stopped participating in the programme activities

because the school did not take any action to the complaints or problems shared by the students through the speak-out box. In the words of one student:

"…we were told that we could share our concerns through the speak-out box so we kept complaining about dirty toilets, non-availability of fans through the speak-out box. There are no enough benches in the schools, a couple of teachers do not come regularly to the class. All these problems were shared through speak-out box. However, no action was taken by the school. No one communicated anything about these things to us." [Male FGD participant, TSM school]

It was also evident through students' discussion that *maintaining confidentiality* was key to student engagement. In TSM schools, students perceived that the TSM would share their personal problems with other teachers. In some TSM schools, students complained that the TSM invited them to the counselling session in the teacher's room where a couple of other teachers were present. Students also mentioned uneasiness about discussing personal issues, especially related to reproductive and sexual health with opposite-sex SM/TSM.

Parental involvement: SEHER project's efforts to involve parents in the SHPC were also considered beneficial by high performing school-based respondents. Principals and teachers opined that through SHPC, principal, teachers, students and parents formed the nucleus of the change process in the school. Parents' involvement was regarded important because it opened up a dialogue between the school management and parents regarding discipline issues and maintaining school schedule. The SMs and students felt that parents' involvement in SHPC impacted the school environment. In one of the high performing SM schools, the issue of open defecation around the school boundary and in the school ground was discussed in one of the SHPC meetings and the parents took an initiative to talk to the local leaders and community members to resolve this issue. Most staff respondents also indicated that the SMs had made multiple efforts to engage with parents throughout programme implementation; for example, inviting parents to celebrate children's day, world mental health day and republic day of India.

"Well [the SM] *does always ask, if parents have any ideas to put forward, what would they like to be brought in, or any particular area that they would like to focus on, and she'll go and get whoever it is to come in and give a talk or to do whatever."* [Female teacher, SM school]

Contrary to this, school staff, TSMs mentioned that they faced difficulties in getting parents representatives on the SHPC. The TSMs were of the opinion that parents visit the schools if

there is a distribution of vouchers, however, would not participate in constructive work. In words of one TSM:

"It was difficult to make the parents attend the school health promotion committee meetings. There is no culture of parents meeting in government schools. Even after pursuing them to attend the meeting through telephone calls and personal visits, they did not attend the meetings. They would cite hundred reasons for not coming. This in turn may have negatively affected the school environment." [Male TSM]

It is likely that this lack of involvement of parents in SHPC meetings had failed to open up a dialogue to improve the school environment in TSM schools.

"I think ideally the SHPC was a committee that involved parents, children and staff; in some TSM schools we failed to involve parents. This might have negatively affected the functioning of the committee…. putting pressure on the principal, and teachers change certain practices in the school strategy ...everybody could have a say in it more." [Male supervisor]

7.3.3 Governance and management

The SEHER intervention makes a number of recommendations aimed at providing a coherent and sustainable infrastructure for programme implementation. Thus, at an individual school level, each school was expected to establish its own SHPC committee comprising representatives from the entire school community. The objective of this committee was to drive the SEHER intervention and ensure the programme was rolled out in an effective and relevant way. It was thought that schools would be more likely to take ownership of the programme, thereby promoting programme relevancy and sustainability. This committee was envisaged to be principal-led with representation from all key stakeholders of the SEHER.

In high performing schools, the principals along with the SM/TSM followed the development and implementation of the SHPC. These committees understood its role in reviewing the priorities identified by the students and discussed and acted on the possible ways to address students' concerns. However, in most TSM schools these SHPCs never functioned in its fullest capacity due to resistance from school management from the outset. Most of the school principals expressed concerns, that assuming responsibility for SEHER governance and management would create additional workload pressures for staff. These concerns were perfectly legitimate in view of additional academic and non-academic responsibilities assigned to the teachers. Results from the interviews with principals and teachers indicate that this approach was generally not accepted. This reluctance to embrace the establishment of a

SEHER support infrastructure further reflects the lack of clarity around the understanding of the programme and the absence of shared agreement on roles and responsibilities. Furthermore, the programme tended to be seen by members of the school community as an add-on to school services rather than a proper framework and ethos embedded within existing school structures.

"Every school was supposed to set up a School Health Promotion Committee through which a school would decide the priorities for the school. This committee would come up with solutions for the students' concerns. However, in most of the TSM schools, this committee was formed as a formality. Parents were reluctant to visit schools and principals were not enthusiastic enough. This resulted in poor execution of this component and enough pressure was not built to implement activities which could have changed school ethos" [Male Supervisor]

7.4 Other issues in implementation process

7.4.1 Readiness of schools

A key consideration in the exploration and planning stage of implementation is an assessment of the 'readiness' of the setting. It was evident from a range of interviewee responses that many broader factors had posed an obstacle to successful SEHER implementation. For example, most principals noted that the they had budgetary restrictions; they could not use the school development funds to improve the school infrastructure due to political unwillingness (i.e. the permission from the local member of legislative assembly). The principals were of the opinion that without budgetary provisions, the impact of initiatives like SEHER is limited. The principals from the TSM schools also mentioned that the DoE is implementing multiple programmes when the schools are understaffed. The DoE is not filling the vacant positions of the teachers and non-teaching staff and multiple programmes are being shouldered by teachers. These challenges had in turn impacted on the ability and openness of the TSM schools to support new initiatives like SEHER. In words of one principal:

"…the government does not want to take responsibility for long term initiatives…multiple programmes are being implemented in schools; there is going to school programme, TARANG programme and now SEHER. All these programmes are being implemented by teachers. However, nobody in the government thinks about one programme or bringing these programmes under one umbrella." [Male Principal, TSM school]

7.4.2 Fidelity issues

SEHER was a manualised initiative and therefore, it is important that fidelity is supported and

maintained. Implementation fidelity refers to *"the degree to which an intervention or programme is delivered as intended"* by the implementing agents (Carroll et al., 2007). The process evaluation of the intervention during the implementation period indicates that the coverage of SEHER activities was better in the SM relative to TSM schools. This highlights the centrality of the SOPs developed to guide the implementation of each component of the intervention. According to responses from supervisors, low performing schools tended to implement their own version of the SEHER in each school. Thus, the programme was initially based on the individual views of how the programme would be delivered rather than the evidence- based health promoting school practice which underpinned it.

Indeed, most of the TSMs and principals still reported at the end of the implementation period that they had either not read the SOPs fully, or found it difficult to understand. Likewise, while the majority of teaching staff were aware of the SOPs, most of them were not familiar with its content. As the programme was intended to be a school-led initiative, a lack of awareness of programme content by the majority of the school community might have negatively impacted its implementation. This lack of awareness indicates that insufficient time was allocated to informing all stakeholders fully of the SEHER intervention throughout the stages of implementation - with negative consequences.

"The SOPs would point out that in order for the students to become engaged, an election method should be followed to select peer-group members. Instead, in some schools, the TSM selected the members. Similarly, the responsibility of designing a wall magazine was given to the same set of student every time. The manual describes the steps to be followed to read and discuss the wall magazine issues in a classroom setting, however, very few TSMs followed these guidelines." [Male supervisor]

Some principals from low performing schools felt that the SEHER framework of implementation was not as clearly structured or defined when compared with TARANG-AEP or Going-to-School programme. Some TSMs and principals suggested a need for more focused, clearer SEHER objectives and less number of activities. The vast number of activities was perceived by some TSMs as an obstacle to successful implementation.

"…in comparison to other programmes like TARANG and Going to School, the SEHER programme focuses on too many things with multiple activities…lots of different things to be done in each month…it could probably do with being a little more focused with less activities." [Female TSM]

The majority of TARANG-AEP teachers and TSMs mentioned that two different programmes relating to the same objectives had led to confusion among students. Although, apart from reproductive and sexual health, the topics were different in nature, both the programmes had some common elements like forming peer groups or clubs. There were very few schools where the TSMs and TARANG-teacher worked in collaboration, as a result, students were confused about who to approach in case of need.

7.4.3 Support from the Department of Education

Importantly, some stakeholders perceived that a current lack of Departmental support at a district level for SEHER implementation affected the extent to which staff might have engaged with such initiatives. Principals and TSMs complained that the officers from the DEO office never visited the schools to review the programme activities or to recognise the additional responsibilities shouldered by the TSMs and school staff to implement the programme. According to the principals, the involvement of the DEO is necessary to understand the challenges faced by the schools in bringing out change, however there were no efforts from the DEO office to reach out the principals and understand the ground-level situation.

7.5 Summary

This chapter described the qualitative findings to emerge from the study. The focus of this chapter is the 'exploration' of the implementation of the SEHER that occurred prior to the endpoint survey. A range of stakeholders was interviewed including principals, teachers, students, supervisors, SMs and TSMs.

There was little shared or accurate understanding of the SEHER amongst the majority of stakeholders. While awareness of the programme slowly improved, the overall lack of understanding had some significant implications for the implementation of the programme.

School principals were fundamental in leading and directing the SEHER at school-level, however principal engagement with this leadership role varied across schools and this had an important bearing on how the SEHER progressed in each school. The intervention team, and SM/TSMs took responsibility for the SEHER in cases where principals did not engage with this role.

The TSMs though enthusiastic about leading the programme in the schools, were overburdened with non-academic and academic responsibilities. This limited their engagement in the programme activities. The SMs were external staff based in schools with

responsibility for SEHER rollout. However, they were viewed by many as a member of school staff who provided hands-on support to the school community. Students could easily approach the SMs due to their full-time availability in the school.

The findings demonstrate the importance of collaboration and partnership when implementing any new initiative. It was evident that where inclusive collaboration occurred with members of the school community, the SEHER implementation was more successful. However, it was also apparent that many planning and implementation decisions were made without consultation with members of the school community; this had contributed to a lack of school enthusiasm and engagement Increased involvement of parents as well as staff is likely to have benefitted programme implementation quality and school community engagement. The findings outlined above are discussed further in the final chapter.

Chapter 8: DISCUSSION

This chapter is the final chapter in the thesis. In this chapter I will do the following: a) summarise the effectiveness evidence of the SEHER intervention; b) summarise the enablers and barriers that might explain the effectiveness results when delivered by two different agents, i.e. a lay counsellor and teacher; c) examine the limitations of the study; d) highlight the implications of the study findings, and e) discuss areas for future research.

8.1 Relevance of the intervention tested

Of 56.4 million global deaths in 2015, 39.5 million, or 70%, were due to non-communicable diseases (NCDs; WHO, 2017). Approximately 9 million of these deaths occur prematurely (before the age of 60), and over 80% in low- and middle-income countries (WHO 2010). Primary prevention approaches targeting public health problems are recommended as many risks are shared and modifiable. Such interventions are not only feasible and cost-effective particularly, in low- and middle-income countries, but also show that short-term interventions produce long-lasting effects (Pan *et al*. 1997; Ramachandran *et al*. 2007, 2010). By targeting populations before the onset of disease, the costs of treatment can be considerably reduced (Dagogo-Jack, 2006).

Research over many years has shown a reciprocal relationship between health and education (Patton et al., 2016; Whitman & Adlinger, 2009). Poor health status is associated with lower school enrolment and academic performance (Alderman et al., 2001; Arendt, 2005; Marmot, 2009; Jackson et al., 2015). Improvements in education and features of the school as a learning environment are associated with improvements in health (Whitman & Aldinger, 2009; Eccles & Roeser, 2011). Importantly, research has shown how improvements in health status, often delivered through schools, can lead to improved educational outcomes (Bonnell, 2013; Thapa & Cohen, 2012, 2013). For instance, preventing nutritional deficiencies promotes cognitive development; nutritional supplements and psychosocial stimulation help reverse cognitive delays (Jukes et al., 2008). Girls and women, in particular, benefit significantly from the health benefits of education. Over the years, many studies – especially those from developing countries – have linked education to improved health and well-being for women, their children, and their society (Benefo, 2006; Bandiera et al., 2012; Goldman & Smith, 2011; Groot & van den Brink, 2008; Olshansky, 2012; Cutler & Leras-Muney, 2012; Patton et al., 2016). With rapid extensions to education in many EMEs, secondary schools have the potential to be an important platform for health promotion and prevention.

By 2030, not only will EMEs contribute 65% of the global GDP, but they will also be home to

the majority of the world's working age population. Universal primary school attendance was established as one of the United Nations' Millennium Development Goals in 2000. Since that time, significant progress has been made; enrolment in primary education in developing regions reached 91% in 2015 up from 82 percent in 1999 (UN, 2017). Many countries have achieved Universal primary education and are now discussing about Universal Secondary education and the Post 2015 Agenda. The world average for secondary school enrolment is 73%; the gross enrolment ratio in secondary schools India is 63%. The global epidemiological relevance of the United Nations Sustainable Development Goals (SDGs) is implicit from the range of targets they address (UN, 2015). As SDGs 1-6 directly address the factors that contribute to health, disease and well-being in children (i.e. poverty, malnutrition, health, education, empowering women and girls and water), an innovative approach like WHO's HPS model, can be used to create change. The fundamental HPS approach is suited to the SDGs as two synergistic educational principles drive change; the acquisition of knowledge via creative additions to the curriculum and learning health-promoting behaviours through conduct of school-based healthy practice exercises.

The idea of improving health through school-based intervention is widely accepted, promoted and documented (Shackleton et al., 2016; Langford et al., 2014; Pommier et al., 2010; Stewart-Brown, 2006; WHO, 2000). The concept of Health Promoting Schools stresses the importance of also including the social and physical environment in addition to health education (Stewart-Brown, 2006). Evidence of effectiveness of the HPS approach suggests that multicomponent and whole-school interventions are effective in improving adolescent health and health-related outcomes. The systematic evaluation of these interventions has shown that a possible way to enhance learning and create ownership of the activities could be to include both interactive health and educational activities that engage the primary targets and involve stakeholders in designing and implementation of activities. However, many of these interventions have taken place in Europe and other high-income countries like the USA, the UK and Australia (Veugelers & Fitzgerald, 2005; DeBar et al., 2011).

Large-scale interventions in LMICs have primarily addressed RSH and nutrition (Verstraeten et al., 2012). Nevertheless, few studies show that school-based interventions to address other NCD risks bring about desired changes in some behaviours in school children (Kain et al., 2004; Jiang et al., 2007; Mwanga et al., 2007; Sherman & Muehlhoff 2007; Shah et al., 2010; Singhal et al., 2010). With a few exceptions of practical and participatory interventions, traditional classroom-based lectures are still the predominant approach of promoting health in schools in LMICs. For many health promotion interventions in LMICs, health education sessions are seen as a prerequisite for other participatory activities as it is assumed that

through health education sessions students get the knowledge and understanding of the importance of behavioural change.

The introduction of sex education in schools through programmes for HIV prevention in the 1990s led to the launch of the AEP by the Ministry of Human Resource Development, Government of India. This has formed a basis for school health promotion programmes in many parts of the country. A key challenge has been to deliver the intervention with fidelity and sustainability as the AEP nodal teachers face a number of challenges in performing this role due to academic and non-academic responsibilities assigned to them. Furthermore, there is recognition for the need of individual counselling for vulnerable adolescents, in addition to a universal life skills based programme. Two delivery models have tested in recent years to address these challenges. In one model, teachers are trained to deliver counselling services while in the second model an additional low-cost human resource in a form of counsellor is tested (Rajaraman, Shinde & Patel, 2015). While there is evidence testifying to the acceptability, feasibility and potential benefits of both delivery models, there is no definitive evidence on the effectiveness and, importantly, cost-effectiveness of these approaches compared with the usual AEP approach.

As the only cluster randomised study assessing the effectiveness of whole-school and multicomponent health promotion intervention delivered by lay counsellors (SEHER *Mitra*) and trained teachers for adolescents in secondary schools in Bihar, India, this study provides empirical evidence of the feasibility and effectiveness of an intervention to improve school climate and health and health-related adolescent outcomes, i.e. bullying, depression, violence, attitude towards gender equity, and knowledge of RSH). In Indian context, this study also provides an effective model to operationalise existing policy and guidelines. The study reported in this thesis adds empirical evidence to the literature on the effectiveness of whole-school and multicomponent school-based health promotion interventions through a gold-standard study design.

8.2 Comparison between intervention and control arms

8.2.1 Comparison of primary outcomes between intervention and control arms

The primary outcome of the trial was ‘school climate’ measured through the Beyond Blue School Climate Questionnaire (BBSCQ). Information on this outcome was collected at baseline and endpoint (i.e. 8-months after the baseline) through self-administered questionnaire from grade IX students of secondary schools in Nalanda, Bihar. Eight-months follow up comparison between the SM and control arms showed that the BBSCQ score was

significantly improved in the SM arm schools (ES=1.86 95%CI:1.39, 2.33). The comparison between the TSM and control arms did not show any significant difference in the BBSCQ score (ES=-0.12 95%CI:-0.60, 0.36). The BBSCQ score improved significantly in the SM arm schools than the TSM arm schools (ES=1.98 95%CI:1.48, 2.47). For the sex-segregated sample, effect of the intervention on primary outcome was consistent, i.e. the SM arm had improved school climate score than the control and TSM arms and there was no evidence of difference between the TSM and control arms. A similar analysis of the intervention effect on primary outcome among the participants who completed the baseline and endpoint assessment also showed that the SM arm had significantly improved the school climate score than the control and TSM arms and there was no evidence of difference in the school climate score between the TSM and control arms. Thus, the intervention when delivered by the lay counsellors showed strong and large effect on the school climate when compared with the control and TSM arms.

8.2.2 Comparison of secondary outcomes between intervention and control arms

The conceptual framework of the SEHER intervention assumed that the positive school climate would influence a range of adolescent health outcomes including knowledge, attitude and behavioural outcomes. Thus, a range of secondary outcomes were measured, including frequency of bullying (victimization), depressive symptoms, violence (i.e. victimization and perpetration), attitude towards gender equity, and knowledge of RSH.

The intervention when delivered by the lay counsellors had significantly improved secondary outcomes than the control arm, i.e. lower depressive symptoms (ES=-0.27 95%CI:-0.43, -0.10), lower frequency of bullying (ES=-0.43 95%CI:-0.58, -0.28), lower both violence i.e. victimization (OR=0.67 95% CI:0.50, 0.89) and perpetration (OR=0.73 95%CI:0.52, 1.02), improved attitude towards gender equity (ES=0.23 95%CI:0.10, 0.36) and increased knowledge of RSH (ES=0.16 95%CI:0.02, 0.30). There was no evidence of a difference for all the secondary outcomes between the TSM and control arms. The intervention when delivered by the lay counsellors had significantly improved secondary outcomes relative to the intervention delivered by teachers, i.e. lower depressive symptoms (ES=-0.29 95%CI:-0.47, -0.12), lower frequency of bullying (ES=-0.39 95%CI:-0.54, -0.23), lower both violence i.e. victimization (OR=0.48 95%CI:0.36, 0.64) and perpetration (OR=0.45 95%CI:0.31, 0.64), improved attitude towards gender equity (ES=0.15 95%CI:0.01, 0.29) and increased knowledge of RSH (ES=0.12 95%CI:-0.02, 0.27).

For sex-segregated sample, the intervention effects were consistent for selected secondary outcomes, i.e. the SM arm had significantly lower PHQ-9 score, lower frequency of bullying and lower victimization of violence than the control arm. There was no evidence of a difference

for secondary outcomes between the TSM and control arms for sex-segregated sample. The SM arm had significantly improved secondary outcomes, i.e. lower PHQ-9 score, lower frequency of bullying, lower both violence i.e. victimization and perpetration relative to the TSM arm.

For participants who had completed both the baseline and endpoint surveys, the intervention effects were consistent when the SM arm was compared with the control arm, i.e. lower PHQ-9 score, lower frequency of bullying, lower both violence, and improved attitude towards gender equity and increase knowledge of RSH. For these participants, there was no evidence of a difference between the TSM and the control arm for depression, frequency of bullying, attitude towards gender equity and knowledge of RSH. For the participants who had completed both surveys, the lay counsellor delivered intervention arm consistently showed improvements for all secondary outcomes relative to the teacher delivered intervention arm.

Thus, the intervention when delivered by lay counsellors had significant and strong effects relative to the control and TSM arms. There was no evidence of a difference between the TSM and control arms for secondary outcomes.

The findings of this study are consistent with the literature on school connectedness, ethos, and environment (Thapa & Cohen, 2013, Anderman, 2002; Bond et al., 2007, Blum, 2005; Catalano et al., 2005; Bonell et al., 2013). Bond and colleagues (2007) found that comparing to the baseline of good school and social connectedness, participants with low school connectedness but good social connectedness at Year (grade) 8 were at elevated risk of anxiety/depressive symptoms (OR=1.34, 95%CI:1.04, 1.76, p=0.026) regular smoking (OR=2.00, 95%CI:1.38, 2.88, p=0.001), drinking (OR=1.87, 95%CI:1.25, 2.23, p=0.001), and using marijuana (OR=2.02, 95%CI:1.63, 2.52, p<0.001) in Year (grade) 10. Markham et al. (2008) reported that from a longitudinal study of secondary schools in the West Midlands, UK (students age 13–14 at baseline) a measure of 'value added' school environments was associated with a reduction of borderline significance in smoking at least one cigarette per week at first follow-up age 14–15 (OR=0.85 95%CI 0.73 to 0.99 per SD increase in value added) and this became more significant at second follow-up at age 15–16 (OR=0.80 95%CI 0.71 to 0.91 per SD increase in value added). There was no significant interaction of the 'value added' measure with whether students were regular smokers at baseline.

8.3 The implementation process: Key enablers and barriers

The monitoring data collected during the trial period showed that the coverage of whole-school level activities was higher in both the intervention arms, however the coverage was higher in the SM arm relative to the TSM arm. Similarly, the coverage of monthly peer-group meetings

(group-level intervention component) was higher in the SM arm than the TSM arm. During the trial period, the SMs provided counselling service to a more number of students than the TSMs. The students' self-coverage of intervention activities also showed that the students in the SM arm were more aware of and participated in greater proportion in intervention activities than the students from the TSM arm.

A qualitative study was embedded in the main trial with the aim of understanding the experiences and views of key stakeholders, i.e. principal, teachers, students, TSMs, SMs, and supervisors. The qualitative study was conducted in 12 schools (6 from each intervention arm) based on the school size and performance on the SEHER intervention implementation.

The qualitative study results show that the fundamental lack of collaboration between the TSM and school staff might have impacted on programme development in some schools. For example, some of the schools tended to perceive aspects of the programme as not relevant to the needs of their school and this further compounded their lack of ownership and buy-in to the SEHER. In contrast, where there was evidence of collaboration between the school community and the SM/TSM, the SEHER work was viewed more positively. Similar findings emerged regarding the involvement of other members of staff.

Unsurprisingly, many studies highlight the importance of engaging and communicating with the school at every level in the development and implementation of health promoting school initiatives (Gleddie, 2011; Lee et al*.,* 2007; MacNab, 2012). Clearly, more emphasis on the core values of a health promoting school approach was needed in the local context in order to develop a collaborative, inclusive approach to school health planning. Without a school-led approach, the effectiveness of any health promoting schools model is likely to be limited. The SMs who were additional staff and given the sole responsibility of implementing SEHER intervention activities could effectively engage and communicate with the school community. Contrary to this, the SEHER intervention implementation was an additional responsibility given to the TSMs who faced difficulties in engaging and communicating with the school community due to multiple barriers. These barriers mainly included lack of time, additional academic and non-academic responsibilities given to the TSMs, and school-level dynamics between the principal and TSM.

In terms of planning and implementation, Fixsen and colleagues (2005) describe many core implementation planning components such as adequate training, clarification of roles and responsibilities, establishment of a clear delivery model and identification of inputs, outputs and outcomes. According to Fixsen and colleagues (2009), these 'implementation drivers'

interact to: (1) compensate for limitations of each component of the implementation process and; (2) support the development of a progressive implementation setting ethos. Importantly, the lack of training of principals and fellow teachers, non-availability of sufficient number of copies of SOPs, lack of support and consultation with all key stakeholders led to develop poor conceptualisation of the SEHER intervention in the TSM schools. Thus, without these essential components, it was not surprising that the SEHER activities were not effectively implemented in the TSM arm. Accordingly, the theoretical framework underpinning the SEHER activities was not fully understood and therefore not adhered to by the majority of stakeholders in many TSM schools when compared with the SM arm schools.

The SMs were solely appointed to implement the SEHER intervention activities. With the guidance of the principal and supervisor, they invested in generating awareness about the SEEHR intervention activities in the school and engaging and communicating with the teachers, students and parents. As a result, the school community, especially teachers, developed better understanding of the conceptual underpinnings of the SEEHR intervention. The leadership and involvement of the school principal was a key influencing factor in the planning and implementation of the SEHER intervention and this is consistent with the findings of a number of previous studies (Aggleton et al., 2000; Deschesnes, 2010; St. Leger, 1998; Valois & Hoyle, 2000). In particular, the principal leadership and support for the SEHER was evident in the SM arm and hence, the wider school community was more engaged with the SEHER activities. Contrary to this, the principals from the TSM schools displayed only limited support to the programme, this also clearly impacted on the programme implementation in terms of cooperation and involvement of staff. Importantly, the principals from the SM arm were open to guiding the SM in their school, this was not the case in many TSM schools; dynamics between the principal and the TSM marred the SEHER implementation in these schools. It was evident that the superficial involvement of the principals from the TSM schools in the SEHER intervention activities inhibited the development of a strong and effective leadership that has been identified as important in establishing such new initiatives (Burke et al., 2012).

The SEHER initiative clearly brought a number of additional benefits to the participating SM arm schools. In particular, the provision of an additional staff, i.e. lay counsellor, funding for competitions, increased interactions between the students and teachers, and facilitation of the School Health Promotion Committee (SHPC) were all highlighted by interviewees. Contrary to this, one of the concerns raised in the TSM schools was the level of motivation of the staff to deliver the interventions. While many of the staff members implementing the activities appreciated the personal benefits and were happy to see the impact on the students, they

viewed the programme as an external mandate and as an additional burden on their already heavy workload. In addition, although the SHPCs were also formed in the TSM schools, they did not function the way it was envisaged. Principals from the TSM arm also complained about the lack of budgetary allocation to implement this initiative.

As the SMs were an external staff member and younger than the teachers in the schools, students developed a favourable approach towards them. Students also valued their easy availability in the school campus. On the other hand, students from the TSM arm were confused about the dual role of the TSM (i.e. as a teacher and as a SEHER *Mitra*). Students from the TSM arm also reported that the teachers were not always available and had concerns regarding confidentiality. This, in totality, affected their participation in the intervention activities.

8.4 Strengths and limitations of the study

This study was unique in that it provided a comprehensive assessment of how an innovative whole-school and multicomponent health promotion intervention in resource poor setting in India. Importantly, the cluster randomised trial design, utilised by this study, permitted to assess the effectiveness of the intervention when delivered by two different agents on the school climate and adolescent health and health-related outcomes. The findings of this study provide mixed evidence for the effectiveness of the whole-school and multicomponent health promotion intervention on the school climate and adolescent outcomes. The lay counsellor delivered intervention had significantly better school climate and improved adolescent health outcomes than the currently available best option (i.e. AEP) and intervention delivered by the teachers. However, there was inconclusive evidence when the teacher-led intervention was compared with the currently available best option. Consequently, the qualitative findings provided an important support to the quantitative findings by contextualising the outcome findings. The Framework Analysis approach to qualitative analysis also delivers a clear and structured approach to the large volume of data collated in this study. The qualitative study findings provide insights regarding the facilitating and inhibiting factors to implementation that arose during the evaluation period.

Despite using a randomised controlled trial design, regarded as the gold standard for the evaluation of health interventions, there were several limitations of this study design. Two cross sectional surveys were conducted pre- and post- intervention delivery as it was assumed that enrolled students are regularly attending schools. However, only 78% participants captured in the baseline survey were interviewed at follow-up (67.8% from SM arm, 71.3% from TSM arm and 73.5 of control arm) suggesting fake enrolments and/or all students not attending the schools regularly. Ideally, follow up of a cohort of participants in the control and

intervention clusters could have provided stronger baseline data at individual level (rather than aggregate for cluster) and more accurate data on exposure to the intervention. However, the intervention effects for primary and secondary outcomes were similar for the total endpoint participants and for the cohort seen at both baseline and endpoint survey. This implies that little bias was introduced with the loss to follow-up.

Large cluster randomised trials like SEHER are complex projects with many operational uncertainties particularly related to the design and delivery of the intervention i.e. embedding of intervention in the system, acceptability of the intervention content and feasibility of delivering multiple components by trained but naïve human resource such as lay counsellor (Hawe et al., 2004; Rychetnik et al., 2002) and complexity of the causal chains linking intervention with outcome (Ogilvie, 2006) as well as issues related to recruitment of participants, set-up of sites, and timing and practicalities of data collection (Wolff, 2001). This could be mainly because the intervention consists of multiple components with different targets, which may produce non-linear and difficult to predict effects (Craig et al., 2008) as well as it is embedded within an adaptive but complex system such as a school (Plesk & Greenhalgh, 2001; Shiell, Hawe & Gold, 2008; Hawe, Shiell & Riley, 2009). Whilst, very valuable, no amount of preliminary (external piloting) work can fully remove or anticipate all problems.

Given this, the embedding of a formal check upon study viability at a pre-specified time point (sometimes referred to as an 'internal pilot study') is becoming increasingly common within large pragmatic randomised trials (Trickett, Kelly & Vincent, 1985; Kok et al., 2008; Craig et al., 2008). This process of embedding is recommended both over time and across a diversity of settings to ensure that the adoption and effectiveness of the intervention is not compromised as the population (in this context, principals, school staff, and students) respond to both the direct and indirect changes introduced by the intervention (MRC, 2000; Trickett et al., 2011; Victora et al., 2004). However, the high number of linkages between the components of the intervention and the system in which it operates, make it difficult to predict system-level outcomes change. The main aim of carrying out the pilot study in the same schools which participated in the trial was embedding the intervention in the schools and to test the feasibility of delivering the intervention and acceptability of the content to enhance the likelihood of success of the main study and potentially help to avoid doomed main study. Here, the embedding of the intervention included the use of intentional strategies by a teacher or lay counsellor to address specific learning goals within the context of everyday activities, routines at schools to refine the intervention and make it ready for the definitive trial.

Several factors will affect whether the intervention like SEHER can be delivered and received in other sites. Firstly, an intervention must be feasible. Secondly, providers will vary in their capacity to implement an intervention, as will schools in being suitable places for an intervention. Finally, an intervention generally must be acceptable to be effective. Acceptability refers to participants' assessment of their experience of an intervention and will influence whether recipients act on health advice, or practice skills learned. Although it is plausible that embedding of the intervention in the intervention arm schools might have impacted on non-student school elements, the complexity of the intervention and limited resources made it difficult to draw out those elements. Having said this, it has implications for the generalizability of the trial findings. Due to time and resource constraints, I could not systematically and critically investigate the dynamic, contextual processes that might have influenced the individuals (recipients as well providers) and system (schools in this context) change in order to adopt the SEHER intervention during the embedding phase and account it in the definitive trial findings.

Another limitation of this study includes changing the response pattern of the BBSCQ. A standardised questionnaire goes through psychometric validation. That means the items and response patterns used in the questionnaire have been shown to offer consistent responses (reliability), measure what they are intended to measure (validity) and are able to differentiate between good and bad qualities (sensitivity). Small changes to a standardised question are less likely to have a big impact. In fact, these changes might add clarity for respondents without sacrificing the psychometric properties of the questionnaire. The response patterns for the BBSCQ were changed after conducting the cognitive testing of the questionnaire with 60 Grade IX participants. Before conducting the cognitive testing of the questionnaire, a rigorous translation and back-translation exercise was employed with a group of four translators (described on page 70). The cognitive testing and subsequent focus group discussions with the respondents (described on page 70) revealed that the change in response pattern was required. One of the main perceived advantages of adding a “Don’t know” was that it would reduce noise in the data (Krosnick, et al., 2002). In other words, if one would omit the “Don’t know”, respondents that do not know the answer to the question or respondents without a strong opinion would nonetheless be forced to choose an opinion. It was perceived that it would create noise in the results and adding a “Don’t know” would reduce this noise.

In the scientific literature, various arguments are being put forward to understand why respondents will opt for the “Don’t Know”. First, respondents will opt for the “Don’t Know” if they are not fully certain of the meaning of a question (e.g. Feick, 1989). Second, to avoid thinking and/or committing themselves (e.g. Oppenheim, 1992). Third, when the survey exceeds their motivation or their ability (Krosnick, 1991; Schwarz & Bonner, 2001). When the

amount of cognitive work exceeds the respondent's motivation or ability, they will start looking for ways to avoid the workload while still appearing as if they are carrying on with the survey. A simple way of avoiding this cognitive workload in a survey is opting for the "Don't Know". To avoid some of the above discussed flaws, the BBSCQ was placed in the beginning of the outcome questionnaire. The participants were briefed before starting the surveys that they could ask their doubts or concerns to the field investigators in the classroom if the questionnaire item was not clear to them.

Further, the correlation between new changes in response pattern and the original response pattern was checked and found to be 0.82. This showed that the difference in responses was small. During the baseline and endline assessment, between 5 and 15% of the participants opted for the "Don't know" option for each item of the BBSCQ. Hence, I omitted the participants who have opted for the "Don't know" option and conducted the sensitivity analysis and found that the effectiveness results of the intervention on the school climate outcome do not vary drastically.

Although, I engaged in extensive translation, back-translation, cognitive testing, and piloting of the outcome measures and administration procedure to ensure that measurements were relevant and meaningful to participants, I could not perform additional psychometric analyses due to time and resource constrains. Notably, this study shows initial evidence of validity as Cronbach's alpha (described in table 3.4) was generally high for all measures used however, additional analyses, such as a confirmatory factor analysis, could help determine whether these questionnaires function similarly in this population as they do in others, which is an important area for future research.

Another limitation is that only self-report questionnaire was used. There are a number of difficulties associated with self-report, particularly among youth who have not previously encountered such questionnaires. They may have trouble understanding questions or the importance of research, or have an inflated sense of their improvements. Though we piloted questionnaire and explained the process and questions to participants as needed, there is still potential for error. However, logistical constraints limited our ability to diversify measures.

8.5 Implications of the findings

The study portrays a powerful example in which a lay counsellor delivered whole-school and multicomponent intervention can make a profound different in the school climate and the health and learning of young people. It shows that the intervention when delivered by lay

counsellors did impact on the school climate and secondary outcomes like depression, bullying, violence, attitude towards gender equity, and knowledge of RSH. Having a low cost trained human resource to facilitate the whole-school and multicomponent intervention proved to be important to it working well. The study also highlights the essential role of the school principal at the school-level if concept like SEHER is to be fully applied. This is especially the case because teachers and students often needed the added encouragement or support to try something so new. The findings of this study are more important given that it was conducted in a resource poor and rural setting of India. This study also demonstrated that the WHO's HPS framework can be adapted to the LMIC settings. These schools in rural settings were able to adapt the concept to fit their particular circumstances, whether it was local culture and customs, socioeconomic circumstances, particular issues, or their structure available for program delivery.

The SEHER trial also included a cost-effectiveness analysis. Costs specific to the delivery of the SEHER interventions were collected during the study period; total costs were estimated using an activity based costing approach from a program perspective. The cost-effectiveness analysis, not part of this PhD, will help understand the costs associated with gaining the benefits of SEHER intervention when delivered by lay counsellors. If the SEHER intervention delivered by lay counsellors is demonstrated to be cost-effective then there are several implications for future research, clinical practice and health policy. If found cost-effective, a lay counsellor presents a potentially sustainable and scalable alternative approach for school health promotion in LMIC. However, we need to keep in mind that scalability is influenced by a lot of factors beyond the cost-effectiveness of the intervention, acceptability by the school community, and feasibility of delivery by lay counsellors. Such factors include organisational policies, legislation and regulations, political support, levels of community engagement, leadership, demand for services, accountability systems, and social networks (Whitman & Adlinger, 2009; Milat et al., 2012). So the eventual scalability of the SEHER would be depending on adequate allocation of human, financial and infrastructural resources, political commitment and policy support.

India has recently launched Rashtriya Kishor Swasthya Karyakram (RKSK), a health programme for adolescents, in the age group of 10-19 years, which would target their nutrition, reproductive health and substance abuse, among other issues (GOI, 2014). One of the strategies of this programme is establishing Adolescent Friendly Health Clinics (AFHC) within existing facilities to provide a package of services including prevention, promotion, curative as well as counselling. In this context, the evidence gathered through this study have implications for the rollout of AFHCs and their outreach services in secondary schools.

The location of the study site in central Bihar as well as the inclusion of government-run secondary schools which represent the poor states in India allow the conclusion that the results of this study can be generalised to other government-run rural/peri-urban schools in the country. There are currently no published randomised controlled trials assessing the effect of whole-school and multicomponent interventions on school ethos and adolescent health outcomes in India. Much of the literature in this field is drawn from high income settings, including the United Kingdom, the United States, Europe, Australia and New Zealand. The use of rigorous study design in the present study supports the promotion of wider implementation of SEHER like initiatives by lay counsellors in resource poor settings. However, the question that needs answering is whether an intervention developed and evaluated in one low resource setting is effective in another or whether, despite common contextual strands, all low resource settings are not equal and have fundamental differences that cannot be transcended without further context-specific adaptations.

8.6 Future research

The SEHER intervention evaluation was extended by one year, i.e. the intervention was implemented in the schools for one more academic year (April 2016-March 2017). As described earlier, the secondary schools start in grade IX in Bihar and this gave an opportunity to recruit one more batch of grade IX students (enrolled in April 2016) who did not have any exposure to the intervention. The students who were in grade X in the academic year 2016-17 had an exposure to the intervention when they were in grade IX in the academic year 2015-16. We conducted the outcome assessment at the end of academic year with the batch of grade IX and grade X students enrolled for academic year 2016-2017. The outcome assessment data was collected in December 2016 and January 2017. Currently, the data analysis work is in progress. Thus, through this extension of SEHER intervention evaluation, we would be able to answer two additional research questions: 1) Are there any differences in the effect size in primary and secondary outcomes of the grade IX batches of year 2015-16 and 2016-17 when the intervention exposure is of a year, and 2) Does the effect size increase for primary and secondary outcomes among the cohort of students who have received the intervention for two consecutive academic years (from year I to year II)? This extension of SEHER intervention will also allow us to examine some of the proposed mechanisms through which the SEHER intervention works. A mediation analysis will be conducted to inform potential mediating factors which may help interpret the findings of the SEHER trial. Specifically, following two questions will examine: 1) are knowledge of RSH and attitude towards gender related to school climate, and 2) does school climate at 8-mmonths mediate

the effects of the SEHER intervention on secondary outcomes at 15-months including depressive symptoms, perpetration of violence and/or experience of bullying?
In addition, a mediation analysis for the participants who completed baseline and follow-up assessments at 8- and 15-months will help in examining whether the theoretically-driven *a priori* factor, i.e. the school climate at 8-months mediates the effects of the intervention on relevant outcomes, including depressive symptoms, perpetration of violence and experience of bullying.

The preponderance of school-based health promotion research has consisted of outcome evaluations focusing on categorical risk behaviour, such as smoking, drug use, sexual behaviour, and nutrition. A few notable studies have examined several risk behaviours simultaneously, such as nutrition, physical activity, and smoking and or have evaluated comprehensive, multicomponent health promotion programmes (Langford et al., 2014; Shackleton et al., 2016). There have been very few studies that have evaluated the effect of school on health and wellbeing (Bonell et al., 2013). The lack of evaluation studies of comprehensive health education is to a large extent the result of how school health promotion research has been funded at the global, national and local-levels. Generally, health concerns are divided into categorical areas for research and demonstration funding; the result is that funding agencies are interested in funding only research and development projects that address their particular disease area of responsibility. There is a scarcity of hard data about the potential impact of overall comprehensive and multicomponent health promotion programmes. Only a few commercially available multi-topic school health curricula have been evaluated to test their effectiveness (e.g., the Know Your Body programme). Some of these either are old and or have not made use of the methods demonstrated to be effective in categorical research and demonstration projects, which means that schools, local and national governments are faced with adopting programs that have not been evaluated or attempting to piece together evaluated programmes.

Many successful health promotion programs employ several conceptually diverse intervention strategies such as didactic, affective, and behavioural activities directed at students and school staff, as well as environmental and policy change. Although there is considerable evidence that such programs as a whole can work, the construct validity of specific subcomponents—that is, "why" programs achieve or fail to achieve their desired effects—remains unclear (Macfarlane, 2005). Identifying "active ingredients" can be achieved through factorial designs as well as post-hoc statistical techniques such as structural models, and discriminant analysis to elucidate mediating variables and specific intervention components that may account for intervention effects.

Although influencing behaviour is an ultimate goal of school health promotion interventions, schools, in isolation, do not shape student behaviour; family, peers, the media, community norms, and expectations also shape student behaviour and are beyond the control of the school. Therefore, comprehensive health education interventions delivered along with complementary community-wide or media campaigns need to be developed and evaluated to assess lasting behavioural effects.

The vast majority of evidence about the effectiveness of school-based health promotion interventions is from developed countries. Many of the published reports of school health from low-income countries tend to describe what happened, and assess changes in knowledge before and after the intervention. There is need to build a stronger evidence base on effective School Health Promotion approaches in low-income countries. One of the strategies in this direction can be replicating the SEHER intervention in other low-income settings to see if the effects would be similar for the adolescents. For example, a research group of renowned institutes, led by Prof. James Lewis from the LSHTM, will adapt the SEHER intervention to the school setting in Zimbabwe, if funded. This research will answer following questions: What are the core skills that are acceptable and feasible to impart, and likely to lead to health impacts in a school setting in Zimbabwe? How should the SEHER components be delivered and by whom? What are the barriers and facilitators to such an intervention?
Overall, a major step in this direction would be to develop an active research agenda on comprehensive and multicomponent health promotion interventions for adolescents for low income countries to fill critical knowledge gaps. This can be achieved by placing increased emphasis on basic research and outcome evaluation and on the dissemination of these research and outcome findings.

8.7 Conclusion

Promoting adolescent health is a priority for EMEs including the Indian national government. With the rapid extensions to education in many EMEs, secondary schools have the potential to be an important platform for health promotion and prevention. There is a strong connection between health and education. The study presented in this thesis established a theoretical framework to improve the school climate and knowledge, attitude and health behaviour outcomes in adolescents namely, depression, bullying, violence and attitude towards gender norms and knowledge of RSH. The initial phases also established the acceptability of intervention content for the school community and feasibility of delivering the intervention by two different agents i.e. lay counsellor and teacher. Further, the SEHER trial produced strong

evidence showing that the intervention when delivered by lay counsellors had a strong impact on the school climate and improved adolescent health outcomes. The qualitative study nested in the trial revealed that the factors that facilitated effective implementation of the intervention in the lay counsellor arm including: strong leadership of the principal, support from and involvement of teachers, dedicated human resource in terms of lay counsellor, and functional SHPCs.

As most attitudes and habits are formed in childhood and youth, nominal investment in low-cost human resource for promoting health in schools in resource poor settings could pay large dividends in terms of good health of our future generations. This whole-school and multicomponent intervention delivered by lay counsellors can be made more accessible, acceptable, and feasible by applying contextual adaptations that do not adversely impact its potential effectiveness, as they don't alter the core strategies of the intervention.

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APPENDICES

Appendix 1: Question guide for FGD with participants of intervention development workshop

INTERVENTION DEVELOPMENT WORKSHOP

TSM CHARACTERISTICS

- Which teacher should be selected and trained to deliver SEHER interventions in secondary schools?
    - What gender should this person be, and why?
    - What age should this person be, and why?
    - What subject/s should this person be teaching in the school?
    - Any required characteristics of the teacher?

TSM COMPETENCIES

- What skills does a TSM need while delivering the SEHER interventions? (Ask first in an open-ended manner for the SEHER intervention as a whole, and based on what respondents say, probe for specific level of SEHER intervention)
    - Skills required for providing individual counselling?
    - Skills required to delivering classroom sessions?
    - Skills required for implementing universal activities?
- What are the indicators of competence/ performance (that can potentially be measured through training/ supervision)? How can these be measured through training/ supervision? (Probe for each of the indicator previously mentioned)
- What do you think of assessing competencies of TSM by supervisors and peers through listening and rating audio-recorded counselling sessions?

TRAINING, SUPPORT AND SUPERVISION NEEDS FOR ACQUIRING COMPETENCIES

- What forms/ methods of training should be used to train TSM to deliver various levels of SEHER intervention?
- Who (all) should train? What qualifies these persons to be trainers?
- How long training should be done?
- Need for refresher training?
- What kind of support and supervision should be provided to the teachers as counsellors?
    - How often? Fortnightly vs Monthly?
    - By whom?

- What kind of support would this teacher as a counsellor require to effectively implement the SEHER interventions in the school?
    - From the Principal?
    - From the nodal teachers who are implementing AEP?
    - From other teachers?
    - How the parents can be involved in the programme activities?

DELIVERY OF THE SEHER INTERVENTIONS

Note: Show the overview chart developed for the group activity.

- What do you think of TSM implementing all the universal activities discussed in the earlier half, for example: facilitating the development of and implementation of school health policies, conducting SHPAB meeting, reviewing speak-out box, and facilitating a peer club and wall magazine? What could be the potential barriers? What can be done to address these barriers?
- What do you think of TSM delivering all the additional classroom sessions discussed on the earlier half of this workshop to the students of grade IX? What could be the challenges in delivering all the additional sessions? How can these challenges be addressed?
- In your opinion, would TSM be able to provide counselling services to all the students in the school? If No, what could be the reasons? What can be done to address these issues?
- How to get the referral system in place for students whose problems cannot be handled by the TSM or require specialist care?
    - How to handle issues of non-availability of specialists, lack of time, distant location of health care facility and high cost?
    - How can the principal and nodal teachers help the TSM in setting a referral system?

BARRIERS IN IMPLEMENTING SEHER INTERVENTIONS

- Overall, what could be other possible barriers or challenges in successful implementation of SEHER interventions through TSM?
    - Teacher-level barriers?
    - School-level barriers?
    - How these barriers can be addressed? (Probe for each of the barrier mentioned)

- What do you think of giving incentives to the teachers who will carry this additional responsibility of providing counselling services to the students?

- In terms of money? If yes, how it can be given? What could be the barriers/challenges in giving money for this additional responsibility?
- Other than money, what could be given as an incentive?

SM CHARACTERISTICS

- Who should be selected and trained to deliver SEHER interventions in secondary schools?
  - What gender should this person be, and why?
  - What age should this person be, and why?
  - Should the person belong to the same neighbourhood in which the school is located? If YES/NO, why do you think so?
  - Any required characteristics of the teacher?

SM COMPETENCIES

- What skills does a SM need while delivering the SEHER interventions? (Ask first in an open-ended manner for the SEHER intervention as a whole, and based on what respondents say, probe for specific level of SEHER intervention)
  - Skills required for providing individual counselling?
  - Skills required to delivering classroom sessions?
  - Skills required for implementing universal activities?
- What are the indicators of competence/ performance (that can potentially be measured through training/ supervision)? How can these be measured through training/ supervision? (Probe for each of the indicator previously mentioned)
- What do you think of assessing competencies of SM by supervisors and peers through listening and rating audio-recorded counselling sessions?

TRAINING, SUPPORT AND SUPERVISION NEEDS FOR ACQUIRING COMPETENCIES

- What forms/ methods of training should be used to train SM to deliver various levels of SEHER intervention?
- Who (all) should train? What qualifies these persons to be trainers?
- How long training should be done?
- Need for refresher training?
- What kind of support and supervision should be provided to the SMs?
  - How often? Fortnightly vs Monthly?
  - By whom?
- What kind of support would SM require to effectively implement the SEHER interventions in the school?

- From the Principal?
- From the nodal teachers who are implementing AEP?
- From other teachers in the school?
- How the parents can be involved in the programme activities?

DELIVERY OF THE SEHER INTERVENTIONS

Note: Show the overview chart developed for the group activity.

- What do you think of SM implementing all the universal activities discussed in the earlier half for example: facilitating the development of and implementation of school health policies, conducting SHPAB meeting, reviewing speak-out box, and facilitating a wall magazine and peer club? What could be the potential barriers? What can be done to tackle these barriers?
- What do you think of SM delivering all the additional classroom sessions discussed on the earlier half of this workshop to the students of grade IX? What could be the challenges in delivering all the additional sessions? How can these challenges be addressed?
- What do you think of the SM delivering the TARANG-AEP modules and additional SEHER modules to the grade IX students? What are the potential advantages of it? What are the potential disadvantages of it?
- In your opinion, would SM be able to provide counselling services to all the students in the school? If No, what could be the reasons? What can be done to address these issues?
- How to get the referral system in place for students whose problems cannot be handled by the SM or require specialist care?
    - How to handle issues of non-availability of specialists, lack of time, distant location of health care facility and high cost?
    - How can the principal and nodal teachers help the SM in setting a referral system?

BARRIERS IN IMPLEMENTING SEHER INTERVENTIONS

- Overall, what could be other possible barriers or challenges in successful implementation of SEHER interventions through SM?
    - Teacher-level barriers?
    - School-level barriers?
    - How these barriers can be addressed? (Probe for each of the barrier mentioned)

Appendix 2: Topic guides used for conducting FGDs and semi-structured interviews with the participants during pilot study

Topic guide for FGD with grade IX students (TSM arm)

Objectives

- To understand students' experiences of the SEHER programme activities
- To understand challenges and difficulties faced by the students in participating the programme activities and ways to address these difficulties

Guiding questions

1. Let us first get to know your school. Please tell us something about your school, anything you feel is important.

- What do you like about your school?
- What do you don't like about your school?
- What kind of change have you noticed in your school since last 4/5 months?
- What do you think about this change?

If the students are not able to response to the above question, then brief them about the various activities conducted by Teacher Counsellor in the school.

A few new things are introduced at the school level by your Teacher Counsellor (Name), like the speak-out box, wall magazine and also counselling services to those students who have some academic difficulties or personal problems. We want to talk you about these activities. We will talk one by one about these activities.

2. First, we shall talk about the speak-out box, the metal box which is now hanged in the (Place) in your school.

- Why this box is put there? What were all the students told about this box?
- What do you think about the usefulness of this box?
- What do you think about submitting your concerns or issues about school in that box? What are the reasons that less number of chits are shared in the speak-out box?
- In your opinion, who should address the concerns of the students?
- What kinds of difficulties are faced by the students in submitting their issues anonymously in the box?
- What do you want to change in the speak-out box?

3. Now we shall speak about the wall magazine activity. Every month a theme has been announced by the Teacher Counsellor (Name) at the assembly as well as on the notice board. You are requested to submit material like poems, articles, newspaper cuttings, posters, etc. to post on the wall magazine.

- What do you think about this activity?
- How useful this activity is for the students? Why?
- What all topics were covered through wall magazine in your school?
- What do you think about the topics covered through wall magazine?
- What topic was the most useful? Why?
- What topic was the least useful? Why?
- What new topics do you want to suggest for the wall magazine?
- What support and resources do you require to develop the monthly magazine?
- How did the Teacher Counsellor support you in developing material for wall magazine?
- What more support do you require from the Teacher Counsellor?
- How can we involve more number of students from your school in this activity?
- How can we involve other teachers and head master in this activity?
- What challenges did you face while collecting information for wall magazines?
- How these challenges can be addressed?

4. Now we shall discuss about the peer group that is formed in your school. Why is this peer group formed?

- How many times the peer group met in your school?
- What kinds of difficulties did you face in organizing the peer group meeting?
- What can be done to address these difficulties?
- What activities did you conduct under this peer group in last 4-5 months?
- What did you like the most about peer group?
- What did you like the least about peer group?
- How useful were these activities for you? Why
- Who all supported you to run this peer group/or conduct activities in this peer group?
- How can other teachers and head master support the peer group in conducting activities?
- What more activities the peer group can conduct?
- What kind of support the peer group would require for those activities?

5. Now we will speak about the counselling service that has been started by Teacher Counsellor (name) in your school.

- How did you get to know that Teacher Counsellor (Name) is providing counselling service in your school?
- When is Teacher Counsellor (Name) available for approaching for your problem?
- Who will benefit from counselling? How?
- If you have some personal problem, how would you feel to share it with Teacher Counsellor (Name) and take his/her help?
- How much faith do you have that the information or problem shared by any student will be kept confidential by Teacher Counsellor (Name)? Why?
- What difficulties students might face in going to Teacher Counsellor (Name) for their problems? (Space, timing, availability, reaction from other students and school staffs). How these difficulties can be overcome?

6. How easy /difficult for you to participate in various activities (Speak-out box, wall magazine, peer group, counselling) conducted by your Teacher Counsellor (Name)? Suggest some ways to improve participation by the students in various activities.

7. What other activities the SEHER programme should conduct in your school? Why?

Topic guide for FGD with grade IX students (SM arm)

Objectives

- To understand students' experiences of the SEHER programme activities
- To understand challenges and difficulties faced by the students in participating the programme activities and ways to address these difficulties

Guiding questions

1. Let us first get to know your school.

- Please tell us something about your school, anything you feel is important
- What do you like about your school?
- What do you don't like about your school?
- What kind of change have you noticed in your school since last 4/5 months?
- What do you think about this change?

If the students are not able to response to the above change question, then brief them about the various activities conducted by School Counsellor in the school.
A few new things are introduced at the school level by (Name) your School Counsellor, like the speak-out box, wall magazine, peer group and also counselling services to those students who have some academic difficulties or personal problems. We want to talk you about these activities. We will talk one by one about these activities.

2. First, we shall talk about the speak-out box, the metal box which is now hanged in the (Place) in your school.

- Why this box is put there? What were all the students told about this box?
- What do you think about the usefulness of this box?
- What do you think about submitting your concerns or issues about school in that box? What are the reasons that less number of chits are shared in the speak-out box?
- What do you think of school counsellor addressing your concerns?
- What kinds of difficulties are faced by the students in submitting their issues anonymously in the box?
- What do you want to change in the speak-out box?

3. Now we shall speak about the wall magazine activity. Every month a theme has been announced by the School Counsellor (Name) at the assembly as well as on the notice board. You are requested to submit material like poems, articles, newspaper cuttings, posters, etc. to post on the wall magazine.

- What do you think about this activity?

- How useful this activity is for the students? Why?
- What all topics were covered through wall magazine in your school?
    - What do you think about the topics covered through wall magazine?
    - What topic was the most useful? Why?
    - What topic was the least useful? Why?
    - What new topics do you want to suggest for the wall magazine?
- What support and resources do you require to develop the monthly wall magazine?
    - How did the School Counsellor support you in developing material for wall magazine?
    - What more support do you require from the School Counsellor?
- How can we involve more number of students from your school in this activity?
- How can we involve other teachers and head master in this activity?
- What challenges did you face while collecting information for wall magazines? How these challenges can be addressed?

4. Now we shall discuss about the peer group that is formed in your school. Why is this peer group formed?

- How many times the peer group met in your school? What kinds of difficulties did you face in organizing the peer group meeting? What can be done to address these difficulties?
- What activities did you conduct under this peer group in last 4-5 months?
- What did you like the most about peer group?
- What did you like the least about peer group?
- How useful were these activities for you? Why?
- Who all supported you to run this peer group/or conduct activities in this peer group?
- How can teachers and head master support the peer group in conducting activities?
- What more activities the peer group can take? What kind of support the group would require for those activities?

5. Now we will speak about the counselling service that has been started by your School Counsellor (name) in your school past 4/5 months.

- How did you get to know that School Counsellor (Name) is providing counselling service in your school?
- When is School Counsellor (Name) available for approaching for your problem?
- Who will benefit from counselling? How?
- If you have some personal problem, how would you feel to share it with School Counsellor (Name) and take his/her help?

- How much faith do you have that the information or problem shared by any student will be kept confidential by School Counsellor (Name)? Why?
- What difficulties students might face in going to School Counsellor (Name) for their problems? (Space, timing, availability, reaction from other students and school staffs). How these difficulties can be overcome?

6. How easy / difficult for you to participate in various activities (Speak out box, wall magazine, peer group, counselling) conducted by your School Counsellor (Name)? Suggest some ways to improve participation by the students in various activities.

7. What other activities the SEHER programme should conduct in your School? Why?

Topic guide for FGD with TSMs and SMs

Objectives

- To assess the cultural appropriateness, acceptability and feasibility of SEHER intervention, identify the barriers to delivery and describe strategies to overcome the barriers to delivery
- To assess the procedures employed for counsellors to acquire and maintain competency to deliver SEHER intervention, identify barriers and test strategies to address them

Guiding questions

1. To begin with, could you please tell us something about your overall work experience in the school for last month?

- What kind of support did you receive from the principal?
- How was the cooperation of other teachers?
- What do you think about the infrastructure (for example room, chairs, cupboard) provided to you?
- What kinds of school level difficulties did you face in last month? What kinds of action are taken to solve these difficulties?

2. Let us discuss about the three different levels of the SEHER intervention, i.e. Universal, Group and Individual level. We shall start with the Universal level.
   Universal level interventions:

- What kinds of awareness generating activities did you conduct in the last month? How was the response from students, to those activities? From principal? From other teachers?
- What difficulties did you face in conducting awareness generating activities? What can be done to address these difficulties?
- How did you introduce 'speak-out box' in your school? How was the response in last one month to speak-out box? What kind of cooperation and support did you receive from the school principal and management to address the speak-out box issues/concerns? What difficulties did you face in addressing the issues raised by students? What can be done to address these difficulties?
- What steps have you taken to develop and implement the health policies in the school? What do you think about the support offered by your supervisors in this activity? What difficulties did you face in facilitating this activity? What can be done to address these difficulties?

Classroom sessions:

- How was your experience of facilitating classroom sessions in the last month? How confident are you to facilitate classroom session?
- What kind of response did you receive for classroom sessions in the last month?
- What modules were easy to facilitate? Why?
- What modules were difficult to facilitate? Why?
- What do you think of the resources/material provided to you to help facilitate the classroom sessions?
- What is the usefulness of this resource material to facilitate the classroom session?
- What do you think about the Hindi translation of the resource material provided to you?
- What kinds of challenges or barriers did you face in facilitating classroom sessions? What can be done to address these barriers? (Note: Please ask for each barrier/difficulty)

Individual counselling:

- How was your experience of providing counselling services to the students for last month?
- How was the response of the student/s that availed the counselling services?
- What kind of support do you expect from your supervisor in providing counselling services?
- What kinds of challenges or barriers did you face in providing counselling over telephone in last two weeks/a month?
- What can be done to address these barriers? (Note: Please ask for each barrier/difficulty)

3. First we will discuss about the group supervision.

- What do you all think of the group supervision?
  Probe on:
  - Frequency of the supervision?
  - Format/structure of supervision?
  - What kinds of learning happen during this supervision?
  - What kind of challenges and difficulties do you face during this supervision?
  - What can be done to address these barriers? How can be this supervision improved? (Note: Please ask for each barrier/difficulty)

4. What do you all think of one to one supervision?

Probe on:

- Frequency of the supervision?
- Format of supervision?
- What kind of learning happens during this supervision?
- What kind of support do you expect from your supervisor?
- What kind of challenges and difficulties do you face during this supervision?
- What can be done to address these barriers? How can be this supervision improved? (Note: Please ask for each barrier/difficulty)

Topic guide for semi-structured interview with principal

Objectives

- To understand the principal's views about the SEHER programme
- To understand the barriers or challenges faced by the school in implementing the SEHER programme, and
- Suggestions to overcome these barriers and to improve the SEHER programme

Guiding questions

1. Let me start by asking you questions about the SEHER programme and its objectives. Can you tell us about the SEHER programme that is being implemented in your school by Teacher/School Counsellor (Name)?

- What are the main objectives of this programme?
- As a Principal, what role do you play in implementing the SEHER programme?
- (TSM arm only) (Name) teacher was selected from your school and trained to implement this programme. What do you think about it?
- Selection process?
- How competent do you think this teacher is to deliver the programme?
- How comfortable are students with this teacher?
- (SM arm only) (Name) counsellor was trained and placed in your school. What do you think about it?
- How competent do you think this person is to deliver the programme in your school?
- How comfortable are students with the (name) counsellor?

2. Now, let us talk about a few components of the SEHER programme delivered by the [Name] TSM/SM in your school. We will begin our talk with the awareness generation. What activities were conducted to generate awareness about health among students under the SEHER programme during this academic year?

- What kinds of difficulties did you face in conducting the awareness generation activities in the school?
- What are your suggestions to increase awareness about health and health related issues among the students and teachers?

3. Now we will talk in detail about the speak-out box. The speak-out box is a metal box hanged in the (Place). All the students can share their concerns, issues, thoughts, and suggestions through this box. What do you think about the usefulness of the speak-out box for the students?

- What kind of support did you offer to the TSM/SM (Name) in addressing some of the speak-out box chits?
- Most of the complaints received during this academic year are related to lack of school infrastructure. What can be done to make some of these infrastructures available to the students? (For example; enough benches, drinking water facility, separate toilets for boys and girls, etc.)
- What are the difficulties/barriers in addressing school infrastructure related concerns shared by students through speak-out box?
- What can be done to address these barriers? (ask for each barrier)
- In the last academic year, we also received some complaints regarding school discipline for example classes not being conducted on time, lack of teachers for each subject, lack discipline among students in the school, etc. What can be done to address these issues? [Discuss these issues one by one]

4. Now we shall speak about the wall magazine activity. What is your opinion about the wall magazine activity?
- How useful is the wall magazine activity for the students? Why?
- How relevant are the topics of the wall magazine to the students?
- How can we involve more number of students from your school in the wall magazine activity?
- How can we involve the TARANG-teacher in wall magazine activity?
- How can we involve all the teachers in the wall magazine activity?

5. Now we will speak about the School Health Promotion Advisory Board that is being formed in your school. This is a board or a committee which will be chaired by you and have membership of two parents, two teachers from the school and four students. The committee will also include the school management committee members if they are willing to attend the meetings regularly. The committee will meet twice in a year to review the progress of the project and discuss the plans for the academic year. What do you think of forming a committee like this?
    - What should be the role of this committee?
    - When should this committee meet?
    - Who all should be the members of this committee?
    - What kinds of barriers do you see in organizing this kind of committee and holding regular meetings?

6. Now we will speak about the counselling service that has been started by TSM/SM in your school. What are your views about the counselling service provided by the [Name] TSM/SM in your school?

- How easy is it for the student to meet the [Name] TSM/SM?
- Space?
- Availability of time?
- What is the response of other teachers to counselling component of the programme?
- What could be done to improve referral by the teachers?
- What could be the difficulties / barriers faced by the students in availing the counselling service provided by the TSM/SM in the school?
- What kinds of difficulties or barriers are faced by the TSM/SM in offering effective services?
- What can be done to overcome these difficulties /barriers?

7. Now we will talk about the involvement of other teachers and parents in the programme implementation.

- What can be done to increase the support and involvement of other teachers in the programme?
- How best the programme can be linked to the other existing programmes in the school like TARANG and Going to School?
- What are the limitations of the programme?
- How can we address these limitations?
- What can be done to involve parents in the programme?
- What kinds of activities should we conduct to involve parents in the programme?

8. Do you have any other suggestions to improve the programme in your school?

Topic guide for semi-structured interview with teacher

Objectives

- To understand views and experiences of the other teachers in school about the SEHER programme; and
- To explore suggestions to improve the SEHER programme.

Guiding questions

1. To begin with, can you tell us something about your school?
- Socio-economic background of the students who come to this school

2. What kinds of problems are faced by the students who come to this school?
- (Probe for each problem) What kind of help is offered from the school to solve this problem?

3. You might be aware that SEHER programme is being implemented by (Name) teacher/school counsellor in your school. What do you think about this programme?
- What is the main objective of the SEHER programme?
- What are the activities conducted under the SEHER programme?
- As a teacher in this school, what role do you play for the SEHER programme?
- How do other teachers support to SEHER programme activities?
- (TSM arm only) [Name] teacher was selected from your school and trained to implement this programme. What do you think about it?
- Selection process?
- How competent do you think this teacher is to deliver the programme?
- How comfortable are students with this teacher?
- (SM arm only) [Name] counsellor was trained and placed in your school. What do you think about it?
- How competent do you think this person is to deliver the programme?
- How comfortable are students with this XYZ teacher/school counsellor?

4. Now, let us talk about a few components of the SEHER programme delivered by the [Name] TSM/SM in your school. We will begin our talk with the awareness generation. What were the activities conducted to generate awareness about health among students?
- What can be done in your school to increase awareness on health and health related issues among the students and the teachers?

5. Now we will talk about the speak-out box. The speak-out box is a metal box hanged in the XXX area. All the students can share their concerns, issues, thoughts, feelings, and suggestions through this box. What do you think about the speak-out box for the students?

- What is the usefulness of such box in the school?
- Most of the complaints received during this academic year are related to lack of school infrastructure. What can be done to make some of these infrastructure available to the students? (For example; enough benches, drinking water facility, separate toilets for boys and girls, etc.)
- In the last academic year, we also received some complaints regarding school discipline for example classes not being conducted on time, lack of teachers for each subject, lack of discipline among students in the school, etc. What can be done to address these issues? [Discuss these issues one by one]
- What do you think of students sharing complaints about teachers through the speak-out box? How this complaint should be addressed?
- What are your suggestions to increase participation of students in the speak-out box activity?

6. Now we shall speak about the wall magazine activity. What is your opinion about the wall magazine activity?

- How useful is the wall magazine activity for the students? Why?
- How relevant are the topics of the wall magazine to the students?
- How can we involve more number of students from your school in the wall magazine activity?
- How can we involve head master, teachers, other school staff and parents in the wall magazine activity?

7. Now we will speak about the counselling service that has been started by (Name) TSM/SM in your school. What are you views about the counselling service provided by the Teacher Counsellor in your school?

- How easy is it for the students to meet the (Name) TSM/SM?
- What is the response of other teachers to counselling component of the programme?
- How was the response from the (Name) TSM/SM to the referrals you made?
- What could be done to improve referral by other teachers?

- What could be the difficulties barriers faced by the students in availing the counselling service provided by the (Name) TSM/SM in the school?
- What kinds of difficulties or barriers are faced by the (Name) TSM/SM in offering effective services?
- Can you suggest ways to overcome these difficulties /barriers?

8. What other activities the programme has undertaken in this academic year?
- What other activities the programme should conduct in the coming year?

9. What kind of changes have you observed due to SEHER programme in the school?
- Any changes in the school environment?
- Any changes in school infrastructure?
- Any changes in the student?

10. Do you have any other suggestions to improve the programme in your school?

Topic guide for FGD with supervisors

Objectives

- To understand challenges and difficulties experienced by the teachers as counsellors and school health counsellors in delivering the SEHER intervention, and the ways to address these challenges
- To understand the challenges faced during supervision of the teachers as counsellors and school health counsellors and the ways to overcome these challenges

Guiding questions

1. To begin with, could you please tell us your overall experience of setting up the SEHER programme at each school?

- What was your role in setting up the SEHER project in each school? What factors helped in setting the school health counsellors in the school? What were the challenges? How were these challenges addressed? What more could have been done to tackle these challenges?
- How is the overall cooperation from the Head Masters in School health counsellor arm? What are/were the challenges? How were these challenges addressed? What can be done to tackle these challenges?
- What was your experience of initiating the programme in teacher as a counsellor arm? What factors helped in initiating the SEHER programme in this arm? What were the challenges? How were these challenges addressed? What more could have been done to tackle these challenges?
- How is the overall cooperation from the Head Masters in teacher as a counsellor arm? What are/were the challenges? How were these challenges addressed? What can be done to tackle these challenges?
- How is the overall cooperation from other teachers in SHC arm? In teacher as a counsellor arm? What are the challenges? What can be done to address these?

2. Let us discuss the delivery of each level of SEHER intervention. We will start with the Universal level.

- What do you think about the overall response of all students to the SEHER program in the school health counsellor arm?
    - Awareness generation activities
    - Speak-out box?

    - Wall magazine
- What do you think about the overall response of all students to the SEHER program in the teacher as a counsellor arm?
    - Awareness generation activities
    - Speak out box?
    - Wall magazine
- Which component/s of SEHER is/are being accepted by the students and why? Which component/s of SEHER is/are not being accepted by the students? Why? What could be done differently?
- What is the progress on developing health related policies in the schools in teacher as a counsellor arm? In the school health counsellor arm?
- What are common difficulties in facilitating the development of health-related policies? How these difficulties can be tackled?

3. Now, we will talk about the SEHER intervention at group level.

- What are your observations about classroom sessions conducted by SHCs? By teacher as counsellors?
    - Probe on:
- What kinds of challenges are faced by the SHCs? By Teacher as counsellors?
- How can these challenges be addressed?
- What is the response of students to the classroom sessions?
    - Probe on:
- Any differences in two arms?

4. Now, we will talk about the individual counselling.

- How was the experience of counsellors of providing counselling services to the students in the last month?
- Probe on:
- Any differences between the experience of school health counsellors and teachers as counsellors?
- What kinds of challenges are faced by the school health counsellors in providing counselling services? What is done to tackle these challenges or difficulties? What more can be done to address these challenges?
- What kinds of challenges are faced by the teacher as counsellors in providing counselling services? What is done to tackle these challenges or difficulties? What more can be done to address these challenges?

- What is the response of other teachers to counselling component of the programme?
    - What is the response of students to counselling services?
    - Probe on: Any differences in two arms?

5. Now, we will discuss about the supervision process.

- What do you think about the overall competencies of the counsellors in implementing the SEHER programme?

  Probe on:
- Universal level activities?
- Group level activities?
- Individual counselling?
- Any differences between SHCs and teacher as counsellors?

6. Now, we will discuss about the group supervision process. How is your overall experience of the group supervision?

Probe on:

- Frequency of group supervision?
- Format or structure if group supervision?
- Participation of counsellors in group supervision?
- What kinds of learning happen during this supervision?
- What kind of challenges and difficulties do you face during this supervision?
- What can be done to address these barriers? How can this supervision method be improved? (Note: Please ask for each barrier/difficulty)

7. How is your overall experience of one to one supervision?
    - Probe on:

- Frequency of one to one supervision?
- Format of one to one supervision?
- What kinds of learning happen during this supervision?
- What kind of challenges and difficulties do you face during this supervision?
- What can be done to address these barriers? How can this supervision method be improved? (Note: Please ask for each barrier/difficulty)

Appendix 3: List of SEHER trial schools

School Name	Village	Block	School Code
Teacher as SEHER *Mitra* Arm			
Bapu High School	Chandi	Chandi	1
Ram Babu +2 High School	Hilsa	Hilsa	2
High School	Noorsarai	Noorsarai	3
N K S High School	Chiksaura	Hilsa	4
SVP High School	Aat	Ven	5
High School	Shivnagar	Prabalpur	6
High School	Dhekwaha Saraiya	Islampur	7
Shree Shankar High School	Kolava Amarpuri	Harnout	8
D P Rai High School	Deepnagar	Bihar Sharif	9
High School	Karaiparsurai	Karaiparsurai	10
High School	Veldar Vigaha	Rajgir	11
High School	Tarapur	Ekangarsarai	12
Project Girl's High School	Giriyak	Giriyak	13
RRS High School	Khushhalpur	Ekangarsarai	14
High School	Shivdah	Harnout	15
High School	Birnava	Chandi	16
Vidya Vihar +2 High School	Eksaara	Ven	17
SVP +2 inter School	Gangati	Ven	18
High School	Telmar	Harnout	19
National High School*	Shekhana	Bihar Sharif	20
Project Girl's High School	Harnout	Harnout	21
High School	Khodaganj	Islampur	22
Plus 2 High School	Vindidih	Silav	23
High School	Sarmera	Sarmera	24
Project Girl's High School	Asthawan	Asthawan	25
SEHER *Mitra* Arm			
High School	Rahui	Rahui	26
RKSB High School	Asthawan	Asthawan	27
Shree Gandhi +2 High School	Silav	Silav	28
High School	Sahokhar	Bihar Sharif	29
Shree Sivshankar High School	Tungi	Bihar Sharif	30
SSNS High School	Kundvapar	Ekangarsar	31
High School	Ghosrava	Giriyak	32
Ramlal High School	Khapura	Nagarnausa	33
Shai High School	Maafi Than	Asthawan	34
Nav Nalanda High School	Neerpur	Silav	35
High School	Dallu Vigaha Chiksaura	Hilsa	36
High School	Tribhuvan Vigaha	Tharthari	37
Project +2 Girl's High School	Chandi	Chandi	38

School Name	Village	Block	School Code
Jai Kisan +2 High School	Kharijama- Fareedpur	Islampur	39
High School	Ranipur-Vishnupur	Islampur	40
High School	Noowama	Asthawan	41
High School	Pavapuri	Bihar Sharif	42
Rajkeey High School	Rana Vigaha	Bihar Sharif	43
High School	Chakdin	Asthawan	44
Netaji Subhash High School	Islampur	Islampur	45
R Gupta Kanya High School	Hilsa	Hilsa	46
Rajkeey High School	Kalyan Vigaha	Harnout	47
High School	Barara	Noorsarai	48
Plus 2 High School	Harnout	Harnout	49
Project Kamala Nehru High School	Noorsarai	Noor Sarai	50
Comparison Arm			
Sogra High School	Bihar Sharif	Bihar Sharif	51
Rasbihari +2 inter School	Silav	Silav	52
High School	Bind	Bind	53
High School	Hussainpur	Rahui	54
S R P Singh High School	Naee Naeeyan	Ekangarsarai	55
High School	Mohamadpur	Asthawan	56
High School	Sonsa	Rahui	57
Sarvodaya High School	Sohsarai	Bihar Sharif	58
High School	Badi-Math	Prabalpur	59
BiharTown High School	Bihar Sharif	Bihar Sharif	60
Congress High School	Dasharathpur	Bihar Sharif	61
Chandramani High School	Yashawantpur	Chandi	62
Project Balika +2 High School	Khirouna	Rahui	63
Magadh Vidhyapeeth High School	Lodipur Usmanpur	Nagarnausa	64
Veerchand Patel High School	Pesour	Rahui	65
Sant Kabir +2 High School	Mandach	Ekangarsarai	66
High School	Benar	Asthawan	67
High School	Laranpur	Islampur	68
Tek Narayan +2 High School	Baadi	Katrisarai	69
Badi Pahadi High School	Badi Pahadi	Bihar Sharif	70
Girl's High School	Prabalpur	Prabalpur	71
High School	Asta	Tharthari	72
High School	Supasang	Rahui	73
Adarsh High School	Station Road	Bihar Sharif	74
Project Balika High School	Sarmera	Sarmera	75

Appendix 4: Multiple Choice Questions (MCQs) to test post-training knowledge of lay counsellors and teachers

MULTIPLE CHOICE QUESTIONNAIRE

Name of the participant: _____

Sex: Male/Female

Introduction

This questionnaire seeks to assess your knowledge of and views towards concerns about students in secondary schools. Read each question and options provided and circle your answers as per the instructions.

Duration: 30 min

1. Which of the following changes generally take place in boys during adolescence?
   (You may circle more than one option)
   a. Increase in height and weight
   b. Menstruation
   c. Nocturnal emissions (wet dreams)
   d. Change in voice

2. Anuja tells the counsellor that she is depressed about her recent breakup with her boyfriend. During her conversation Anuja says, “she wishes to go to sleep and never wake up.” In this situation, the counsellor should **(Circle only one option)**
   a. Assess whether Anuja is suicidal and intervene if she is.
   b. Assure her that she can get somebody better and he wasn’t worthy of her.
   c. Recognize that Anuja’s statement is only a cry for help and should not be taken seriously.
   d. See if there is any chance of reunion for Anuja and her boyfriend.

3. Examples of effective study skills/techniques are: **(You may circle more than one option)**
   a. Chunking
   b. Concept mapping
   c. Acronyms
   d. Rote learning

4. Reproductive Tract Infections may show in the following symptoms: **(You may circle more than one option)**

a. White/colourless discharge
b. Burning sensation while passing urine
c. Abnormal/foul smelling discharge from genitals
d. Boils/sores in genital area
e. Lower abdominal pain
f. We dreams/nocturnal emission

5. A child in grade IX is identified as being slow learner. In addition to having low intelligence, the child will also likely exhibit: **(You may circle more than one option)**

a. Deficits in adapting to everyday life
b. Deficits with regard to social responsibility
c. Deficits with regard to peer interaction
d. All of the above are correct

6. Identify which of the following is an effective way to manage stress **(Circle only one option)**

a. React to the stressor immediately without thinking
b. Assess all aspects of a stressor
c. Indulge in junk food to relieve stress
d. Limit sleep

7. Confidentiality is an important aspect of the counselling relationship because **(You may circle more than one option)**

a. It helps client feel safe in treatment
b. It encourages clients to share information that might be painful or embarrassing
c. It helps counsellor trust the client
d. It helps the client to build rapport with counsellor

8. What are sexually Transmitted Infections (STI's)? **(Circle only one option)**

a. Infections in reproductive organs
b. Skin infections
c. Infections that spread through sexual contact
d. Itching in private body parts

9. Our biological maleness or femaleness is called _____, whereas the psychosocial concept of maleness or femaleness is called _____. **(Circle only one option)**

a. Gender; sex
b. Androgyny; chromosomal sex
c. Sex; gender
d. Chromosomal sex; androgyny

10. Young people who are informed about the reproductive system and family planning will: **(Circle only one option)**

a. Get distracted and not focus on their studies
b. Be responsible in their sexual behaviour
c. Get encouraged to experiment sexually
d. Become too aware of the opposite sex

11. The following statements about assessment are TRUE, except:

a. Assessment is only useful for making a diagnosis
b. Assessment can be carried out by more than one method
c. Assessment has to be conducted periodically, and not just once
d. Assessment should be modified depending on the client's physical and mental status

12. Are there any changes you notice in the manner in which parents relate with adolescents in comparison with younger children? **(You may circle more than one option)**

a. Parents ask adolescents more questions
b. Parents are more friendly with adolescents
c. Parents and adolescents respect and listen to each other
d. Parents constantly keep track on all the actions of adolescents

13. A counsellor should not be: **(Circle only one option)**

a. Judgmental
b. Empathetic
c. Observant
d. All of the above

14. Which of the following statements about menstruation do you agree with? **(You may circle more than one option)**

a. It is a normal process for adolescent girls and women of childbearing age

b. During menstruation girls/women should not visit sacred places
c. During menstrual periods girls/women should not do their day to day activities
d. During menstruation girls/women should not touch pickles

15. Rajesh likes to do housework like cutting vegetables, washing dishes and cleaning. But when his friends come home, he hides this from them. He fears that the boys will tease him and call him a 'sissy' or a girl. Which of the following statements do you agree with?

a. Rajesh should stop doing housework
b. Rajesh is right in hiding the housework from his friends
c. His mother should have not allowed him to do household work
d. Rajesh should feel proud that he does housework and this might have a good influence on his friends.

16. Which of the following statement is FALSE**? (Circle only one option)**

a. Counselling is a collaborative process of change
b. Counselling involves giving factual knowledge to the client
c. Counselling is about talking to the client – telling him what to do and what not to do.
d. Counselling is tailor-made to each individual client's needs

17. All of the following are effective ways to control and redirect anger except:

a. Forgive and forget
b. React immediately
c. Express feelings constructively
d. Anticipate anger-provoking situations and brainstorm solutions in advance

18. In general terms, self-esteem refers to a positive overall evaluation of oneself. People with high self-esteem are likely to engage in all of the following behaviours except:

a. Frequently express doubt about their ability to perform on difficult tasks.
b. Volunteer to work on difficult tasks
c. Likely to get involved with social activities
d. Express a general positive attitude to life and others that they come in contact with

19. What do you think is the difference between Human Immuno-deficiency virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS)? **(Circle only one option)**

a. HIV and AIDS are same
b. HIV is the virus and AIDS is the stage (syndrome) where multiple infections can be seen in a person

c. HIV is the syndrome and AIDS is the virus
d. HIV and AIDS both are different types of diseases

20. Which of the following is not an example of an open-ended question? **(Circle only one option)**

a. What brought you here?
b. Tell me something about yourself?
c. Did you have a good week?
d. How did you react?

21. Rekha needed to move the pile of wood, but she was tired and wanted help. Which choice is an example of assertive communication? **(Circle only one option)**

a. Rekha asks her brother, “I’m feeling a bit tired, could you help me move the wood”.
b. Rekha moves the wood by herself.
c. Rekha finds her brother and says, “Come here first and help me! Can’t you see me moving the wood all by myself”?
d. Rekha complains to the mother and gets her brother to move the pile of wood.

22. Which of the following statements regarding anaemia is incorrect**? (Circle only one option)**

a. Anaemia patients have low haemoglobin count in their blood.
b. Anaemia is not a serious health concern.
c. Majority of Indian adolescents suffer from anaemia.
d. It is important to include green leafy vegetables and other iron-rich vegetables in the diet of anaemia patients.

23. Which of the following in your views are the most powerful influences that encourage young people to take intoxicants (e.g. tobacco, alcohol, etc.) for the first time**? (You may circle more than one option)**

a. Print media like magazines, newspapers etc.
b. Electronic media like T.V, radio, internet etc.
c. Friends
d. Family members

24. Which are the circumstances where you think a man is justified in beating his wife?
(You may circle more than one option)

a. She argues with him or the family

b. She is unfaithful to her husband
c. She neglects her children
d. None of the above

25. Examples of risk-taking behaviours include all of the following, except
a. Experimentation with illegal drugs
b. Having sex with contraception
c. Delinquent activity
d. “Fast and furious”-type driving

Appendix 5: Role plays for competency evaluation of lay counsellors

ROLE PLAY SITUATIONS

1. Raju, a 15 years old boy studies in grade X. Since last one month, he is keeping quiet in the classroom and does not respond to the questions asked by his teachers. Hence, one of his teachers has asked him to meet you (Counsellor). What all questions will you ask to Raju to understand his situation?
2. Seema is a young intelligent girl who studies in grade IX. Lately, she has not been present in the school. You visit her home and find out that Seema's parents want to fix her marriage. What can you do in such a situation?
3. Sameer is very bright boy who is studying in grade IX. He has put a chit in the speak-out box sharing that he is unable to come to school regularly because his father is an alcoholic. His mother wishes that being the eldest son in the family, Sameer should assist her in the field and help the family survive. As a counsellor, what can you do to help Sameer?
4. Meena and six of her classmates dropped a chit in the speak-out box. They mentioned in the chit that they do not want to come to school as some elder boys from their village stalk them on the way to school. These boys also pass lewd comments. These girls do not know how to handle this situation. Think of the various components of the SEHER intervention and tell us how will you handle this situation?
5. Part–I: Aman is in grade X and has come to you as he is not able to concentrate in his studies. He has also complained about severe headache and watery eyes. How will you assess Aman's problem?

   Part-II: After assessing Aman's problem, you think that he might have problem with vision, what can be done to help Aman?

Appendix 6: Training curriculum for SMs and TSMs

	MODULE NAME	LEARNING OBJECTIVES/ COMPETENCIES	SESSION PLAN
DAY 1 21/07/2014	Adolescent development (Cognitive, emotional and social)	a. To understand the developmental concerns of adolescents and its impact b. To understand risk and protective factors c. To provide an overview of issues for which adolescents seek help and/or are referred	1. Pre-training assessment 2. Interactive lecture on adolescent development 3. Group work on concerns of adolescents and its impacts
	Introduction to SEHER & Role of a counsellor	a. To understand the TARANG and SEHER interventions and links between these twos b. To understand the role and responsibilities of a counsellor and supervisor	1. Introduction to TARANG-AEP and SEHER 2. Group work on role of counsellors and supervisors
DAY 2 22/07/2014	School-level intervention activities	a. To understand the school-level intervention activities b. To develop an effective relationship with stakeholders c. To develop skills for planning and maintaining the wall magazine	1. Discussion on school level activities 2. Participatory learning on handling speak-out box queries, and facilitating SHPC 3. Group work on dealing with teachers, management and parents 4. Mentoring students in planning and maintaining the wall magazine
	Group-level intervention activities	a. To understand the group-level intervention activities b. To develop skills for facilitating peer group and workshops	1. Discussion on group level activities 2. Mentoring participants in facilitating peer group 3. Orientation on how to conduct a workshop

DAY 3 23/07/2014	Counseling skills, assessment and case formulation	a. To impart knowledge to trainees on general principles and skills of counselling b. To understand the importance and role of assessment in counselling c. To learn the skills of formulating a case	1. Video on basic counselling skills followed by discussion and role play 2. Role plays 3. Participatory learning on clinical 4. assessment and case formulation
DAY 4 24/07/2014	Counselling technique: Problem solving	a. To learn the techniques and skills of the problem-solving strategy in counselling adolescents b. To apply problem solving strategy in counselling	1. Video on problem solving strategy followed by discussion 2. Demonstration of the technique by trainers 3. Role plays
	Educational difficulties	a. To understand learning difficulties b. To understand simple skills that can help adolescents with educational difficulties c. To handle educational difficulties through SEHER intervention components	1. Short lecture on learning process and learning difficulties 2. Discussion on effective study skills 3. Group work on handling education difficulties
DAY 5 25/07/2014	Mental Health	a. What is mental health? b. To develop understanding on common mental disorders among adolescents c. To learn suicidal risk assessment and management d. To understand substance abuse e. To handle mental health issues through SEHER intervention components	1. Lecture on mental health issues among adolescents 2. Group work on suicidal risk assessment and management through case vignettes 3. Group work substance misuse and its consequences 4. Group work on handling mental health issues

	Reproductive and sexual health	a. To provide basic information on RSH issues among adolescents and clarifying myths about menstruation, masturbation, pregnancy, etc. b. To handle RSH concerns through SEHER intervention components	1. Quiz on RSH 2. Lecture on RSH 3. Group work on handling RSH concerns
DAY 6 26/07/2014	Gender, Violence and Sexual Abuse	a. To understand the concept of 'gender' and its influence on behaviour b. To understand violence/abuse and its impact	1. Group work on understanding gender 2. Group work on understanding 3. violence/abuse and its impact 4. Group work on generating awareness about gender, violence and sexual abuse
	Life skills	a. Importance of life skills during adolescence b. How to develop positive self-esteem, and effective communication? c. To differentiate between feeling angry and behaviour d. To recognize bullying, peer pressure & its impact e. To handle concerns/issues related to life skills f. through counselling	1. Short lecture on different life skills and its implications 2. Practicing skills of assertive 3. communication through role-plays 4. Practising cases related to life skills through role plays
DAY 7 27/07/2014	Ethics; referrals; and taking care of self	a. To understand the importance of ethical principles related to counselling practice b. To learn skills of managing and referring cases with severe problems c. To understand the need to look after oneself as counsellor	1. Lecture of counselling ethics 2. Group work on ethical dilemmas 3. Discussion on SOP for referral-when and whom to refer 4. Participatory learning on taking care of self 5. Post-training assessment

Appendix 7: Monthly reporting form of SM and TSMs

MONTHLY REPORTING FORM

School Name: _____ Code: ☐

Village: _____

Block: _____

SM/TSM Name: _____ Code: ☐

Reporting period (dd/mm/yy): _____ to _____

Whole school-level activity: Awareness generation						
Where	**For whom**	**No. of awareness generated meetings**	**Numbers present**	**General awareness (Newspaper reading, exercises, quiz results, etc.)**	**Specific topic-wise awareness methods (e.g. lecture, Poster, brochure, Skit etc.)**	**Please specify the topic/s covered**
Assembly	Students	1				
		2				
		3				
		4				
Classroom	Students	1				
		2				
		3				
		4				
Staff meeting	Staff					
Any other awareness generation activity (celebration of day)						

Whole school-level activity: Speak-out box				
In this month how many times box has been opened? ☐				
Domain	**No of chits received**	**No of chits addressed**	**No of chits not addressed**	**Reasons for not addressing**
Education				
Health				
Life skills				
School administration and infrastructure				
Competition related (Entries, answers)				
Other specify: 1. 2.				
Total				Not applicable

Whole school-level activity: Wall magazine			
Topic for the month:			
Stakeholder	**Total no. of submissions received**	**Total no. of displayed submissions**	**Type of submissions (e.g. essay, short story, poems, cartoon, poster, etc.)**
Students			
Teachers			
Others (Non-teaching staff, parents, etc.)			

Whole school-level activity: Intra school competition					
Topic for the competition:					
Date of competition (dd/mm/yy)	**Type of competition organized**	**No of students participated**		**No of teachers participated**	**Major challenges faced**
		Girls	**Boys**		

Whole school-level activity: SHPC meeting			
Date of meeting: _____ No. of members present*:			
Issue discussed	**Action plan**	**Action to be within (no of days)**	**Responsible person**

* **Note:** Details on meeting attendance form circulated during the meeting

Group-level activity: Peer group									
Group name	**Date of meeting (dd/mm/yy)**	**Topic of the session**	**No of members present**		**No of members absent**		**Issue discussed**	**Action plan**	**Responsible person**
			Boys	Girls	Boys	Girls			

Group-level activity: Workshop				
Date of the workshop (dd/mm/yy)	**Name of the workshop**	**Type of participants** Teachers =1 Students =2	**Total no of participants**	**Conducted by** TSM/ SM =1 Supervisor **=**2 Other specify =3

Individual-level activity: Counselling and referral										
Date	**Case ID**	**Grade section**	**Age**	**Sex** Male=1 Female= 2	**Type of session** New case=1 Follow up =2	**Referred by** Self=1 Teacher/ Principal=2 Speak out box=3 Other specify=4	**Reason for referral***	**Primary problem***	**Session conducted by** TSM/ SM =1 CS =2	**Referred to other agencies** Govt. Hospitals=1 Private Practitioners= 2 Other specify=3

TSM- Teacher as SEHER *Mitra*/SM-SEHER *Mitra* / CS- Clinical Supervisor:

*Physical Health=1; Mental Health=2; Educational/Learning Difficulties=3; Problems at school=4; Problems at home=5; Reproductive and Sexual Health=6; Substance Use=7; and Other (specify) =8.

Appendix 8: Fortnightly reporting form of supervisors

SUPERVISOR'S REPORTING FORM

Name of the Supervisor: _____ Code: ☐

Name of the School: _____ Code: ☐

Block: _____ Date of visit: _____

TSM arm: ☐ SM arm: ☐

Approximate time spent: hrs._____ min_____

Supervisors task	**Task achieved 1=Yes 2=No**	**If not achieved, note the reason/s**	**Action plan**
Section A: School level			
Review of awareness generation activities			
Review of SOB submission			
Review of wall magazine			
Review of Intra school competitions			

Participated in SHPAB meeting			
Formation and dissemination of school health policy			
Supervisors task	**Task achieved 1=Yes 2=No**	**If not achieved, note the reason/s**	**Action plan**
Section B: Group level			
Review of peer group activities			
Conducted workshops (teachers, students)			
Section C: Counseling			
Observation of counselling session			
Section D: Reporting Forms			
Review of reporting forms			
Section E: Other issue			
Review of other issues		If yes, elaborate:	

Signature of supervisor:_____

Appendix 9: Supervisor rating sheet

PEER GROUP RATING FORM

Date of Session: _____

School Name: _____ **Code:** ☐

SM/TSM Name: _____ **Code:** ☐

Name of Supervisor: _____ **Code:** ☐

Topic of Session: _____

Instruction: Please tick mark [√] in appropriate columns for each of the statements

Sr.no	**Observation Parameters**	Excellent	Good	Average	Below Average	Poor
1.	**Facilitator's organization skills**					
1.1	The objectives of the session are clearly stated					
1.2	The learning activities are well organized to use session time effectively					
2.	**Instructional strategies**					
2.1	The facilitator has good questioning skills and raises stimulating and challenging questions					
2.2	The facilitator provides clear directions for group work and facilitates group work well					
3.	**Content Knowledge**					
3.1	The facilitator is confident in explaining the topic					
3.2	The facilitator focuses on the important content of the session					
4.	**Presentation skills**					
4.1	The facilitator used interactive methods to make sessions more engaging					
5.	**Rapport with students**					
5.1	The facilitator motivates students and stimulates interest in the session					
6.	**Clarity**					
6.1	The facilitator responds to the questions clearly					
7	**Overall**					
7.1	Overall performance of the facilitator					

WALL MAGAZINE RATING FORM

Date of Session: _____

School Name: _____ **Code:** ☐

SM/TSM Name: _____ **Code:** ☐

Name of the Supervisor: _____ **Code:** ☐

Topic: _____

Instruction: Please tick mark [√] in appropriate columns for each of the statements

	Observation Parameters	Very Good	Good	Average	Poor
1	**Over all appearance of Wall Magazine**				
1.1	Display attracts the viewers' attention				
1.2	Display is readable				
2	**Content of Wall Magazine**				
2.1	Title clearly captures the theme/ content				
2.2	Content clear and easy to understand				
2.3	Displayed information is relevant and up to date				
2.4	Display communicates relevant messages				

Appendix 10: Student self-coverage form

Section 9 About TARANG Adolescence Education Programme

9.1 Are you aware of the TARANG- Adolescence Education Programme being implemented in your school?

Yes	No

IF your answer to question 9.1 is YES, continue. If NO then move to the next section.

9.2 Name the teachers who have taught you TARANG-Adolescence Education Programme topics?

1._____

2._____

9.3 During this academic year, how many times did you attend classes of TARANG-Adolescence Education Programme?

Weekly	Fortnightly	Monthly	Once every 3 months	No regular frequency	TARANG classes not held

9.4

Were the following topics taught by the TARANG teacher in your classroom?

Topic	Yes	No
Establishing and maintaining positive and responsible relationships		
Adolescence -process of growing up		
Gender and sexuality		
Sexual abuse		
Prevention of HIV and AIDS		
Prevention of substance misuse		

Section 10 About SEHER Programme

10.1 Are you aware of the SEHER programme being implemented in your school?

Yes	No

IF your answer to question 10.1 is YES, continue. If NO then wait for the instructions from the researcher.

10.2 During this academic year, how many times were you present in the assembly when the Teacher-as SEHER *Mitra*/SEHER *Mitra* discussed various issues related to adolescents?

Never	Rarely	Sometimes	Most of the time	Always

10.3 Are you aware about the wall magazine activity?

Yes	No

10.4 During this academic year, did you contribute to development of any wall magazine/s (in activities such as providing an article, poem, poster or writing the wall magazine exhibit)?

Never	Rarely	Sometimes	Most of the time	Always

10.5 During this academic year, how many times did you read the monthly wall magazine issues?

Never	About 1-2 months	About 3-6 months	Nearly every months	

10.6 Are you aware about the speak-out box activity?

Yes	No

10.7 During this academic year, did you share a complaint/s, suggestion/s or feeling/s through speak-out box?

Yes	No	I am not aware of this activity

10.8 During this academic year, how many times did you participate in the monthly competitions?

Never	About 1-2 months	About 3-6 months	Nearly every month

10.9 Are you aware of the health policy being implemented in your school?

Yes	No

10.10 If your answer to 10.9 is YES, please answer the following question.

List the main points about the policy being implemented in your school

1.
2.
3.

10.11 Are you aware of the peer groups being formed in your school?

Yes	No

10.12 Have you ever sought help from the Teacher as SEHER *Mitra*/ SEHER *Mitra* for your personal problem?

Yes	No

Appendix 11: SEHER outcome assessment questionnaire

SEHER: Strengthening the evidence-base on effective interventions for promoting adolescent health

Student's Contact Details

NOTE: THIS FORM WILL BE SEPARATED FROM THE REST OF THE QUESTIONNAIRE AND KEPT IN A LOCKED CUPBOARD SO THAT IT CANNOT BE LINKED WITH YOUR ANSWERS

Student name: ……

Father's name: ……

Grade: ……Section: ……Role number: ……

Permanent postal address

Muhalla & Village: ……

Police station: ……

Post office: ……

Block: ……

District: ……

Pin code: ……

Parent's or Guardian's Mobile No: ……

Sr. No	Question/Item	Type of data or possible value
	Contact information form (a separate form)	Participant name, father's name, detailed address, parent's mobile number

Before you begin, please read the following information:
This questionnaire is about your health and factors which affect your health.

Please read each question carefully. There are no right or wrong answers. Respond to the questions based on what you really do and know.

We would like you to answer all the questions. Please mark a tick (√) in the box that best reflects your response for questions with options provided. For a few questions, you will need to write your answers. Kindly do so in the box provided to write answer.

This diversity amongst us regarding dietary and living practices. For some questions you will see options that might not be practiced in your culture. Please ignore these questions and accept our apologies if you are bothered by them.

All your answers will be kept private. No one from your school or any other person outside the research team will ever see your answers.
The questionnaire should take you approximately 60 minutes to complete.

If there are any questions you are not sure about or that need explanation, please raise your hand and the researcher in the classroom will come to you and discuss this with you. After you finish, follow the instructions of the researcher.

	Participant ID	Date, School code, grade, section, and school roll number
Section 1 Socio-demographic details		
1.1	Age	Years
1.2	Sex	Male, Female
1.3	Caste	General, Scheduled caste, Scheduled tribe, Other backward class, other, IDK
1.4	Marital status	Single, Married, Widow, Separated
1.5	Father's education	Illiterate, Grade 1 to 12, College, IDK
1.6	Mother's education	
1.7	Father's occupation	Daily wage worker, Farmer, Government job, Private job, Small business, Unemployed/housewife, Other, IDK
1.8	Mother's occupation	

Sr. No	Question/Item	Type of data or possible value
Section 2 School Climate		
2.1	My teachers are fair in dealing with us students	Yes, No, I cannot say
2.2	There's at least one teacher or other adult in this school I can talk to if I have a problem	
2.3	I feel I can go to my teacher with the things that are on my mind	
2.4	In this school, teachers believe all students can learn	
2.5	In this school, students' ideas are listened to and valued	
2.6	In this school, teachers and students really trust one another	
2.7	In this school, teachers treat students with respect	
2.8	This school really cares about students as individuals	
2.9	Most of my teachers really listen to what I have to say	
2.10	I like all my teachers	
2.11	I feel very different from most other students here	
2.12	I can really be myself at this school	
2.13	Other students in this school take my opinions seriously	
2.14	I am encouraged to express my own views in my class(es)	
2.15	Most of the students in my class(es) enjoy being together	
2.16	Most of the students in my class(es) are kind and helpful	
2.17	Most other students accept me as I am	
2.18	I feel I belong to this school	
2.19	Doing well in studies is important to me hence I study hard in school	
2.20	Doing well in school is important to me	
2.21	Continuing or completing my education is important to me	
2.22	I feel like I am successful in this school	
2.23	There are lots of chances for students at my school to get involved in sports, clubs and other activities outside class	
2.24	Teachers notice when students are doing good work and let them know about it	
2.25	At my school, students have a lot of chances to help decide and plan things like school activities, events and policies	
2.26	Student activities at this school offer something for everyone	
2.27	Students have a say in decisions affecting them at this school	
2.28	Students at this school are encouraged to take part in activities, programs and special events	

Sr. No	Question/Item	Type of data or possible value
Section 3 About your attitudes towards boys and girls		
3.1	A woman's most important role is to take care of her home and cook for her family.	Yes, No, IDK
3.2	Giving the children a bath and feeding the children are a mother's and father's joint responsibilities.	
3.3	A man should have the final word about decisions in his home.	
3.4	A woman should tolerate violence in order to keep her family together.	
3.5	Since girls have to get married, they should not be sent for higher education.	
3.6	Men and women should be respected and treated equally	
3.7	Girls like to be teased by boys.	
3.8	In comparison with boys, girls are equally good in mathematics and science.	
3.9	It is a woman's responsibility to avoid getting pregnant.	
3.10	No matter what the situation is, a woman does not deserve to be beaten.	
Section 4 About your general health and happiness		
Over the last 2 weeks, how often have you been bothered by any of the following problems?		
4.1	Trouble falling or staying asleep, or sleeping too much	Not at all, Several days, More than half of the days, Nearly everyday
4.2	Feeling tired or having little energy	
4.3	Poor appetite or overeating	
4.4	Trouble concentrating on things, such as reading the textbook or paying attention to the teachers in the class	
4.5	Little interest or pleasure in doing things	
4.6	Feeling down, depressed or hopeless	
4.7	Feeling bad about yourself- or that you are a failure or have let yourself or your family down	
4.8	Moving or speaking so slowly that other people could have noticed? Or the opposite- being so fidgety or restless that you have been moving around a lot more than usual.	
4.9	Thoughts that you would be better off dead, or of hurting yourself in some way.	
4.10	During the past 6 months, how many times did you actually attempt suicide?	Number of attempts
Section 5 About being hurt		
The next questions ask about bullying. Bullying occurs when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased a lot in an unpleasant way or when a student is left out of things on purpose. Tick (√) the box that best reflects your opinion.		

Sr. No	Question/Item	Type of data or possible value
5.1	In the last 30 days, how many times were you hit, kicked, pushed, shoved around, or locked indoors in the school?	Never, Sometimes, At least once/ day, 2 or more times/day
5.2	In the last 30 days, how many times were you made fun of because of your caste and/or religion?	
5.3	In the last 30 days, how many times were you made fun of with sexual jokes, comments, or gestures?	
5.4	In the last 30 days, how many times were you made fun of because of how your body or face looks?	
5.5	How many times in the past 6 months has someone threatened to injure you?	Never, 1-2 times, 3-4 times, 5 or more times
5.6	How many times in the past 6 months you have threatened someone to injure you?	
5.7	How many times in the past 6 months has someone beaten you up so badly that you were physically hurt?	
5.8	How many times in the past 6 months have you beaten up someone so badly that they were physically hurt?	
Section 6 About your use of tobacco, alcohol and drugs		
6.1	Have you ever smoked a cigarette/*bidi*?	Yes, No, I don't want to answer
6.2	During the past 30 days, did you smoke a cigarette/bidi?	
6.3	During the past 30 days, on average how many times per day did you smoke cigarettes/*bidies*?	Never, Sometimes, at least once/day, 2 or more times/day
6.4	Have you ever used any tobacco products other than cigarettes/*bidies*, such as *khaini, gutkha*, or betalnut with tobacco?	Yes, No, I don't want to answer
6.5	During the past 30 days, did you use any tobacco products other than cigarettes/*bidies*, such as *kha*ini, *gutkha*, or betalnut with tobacco?	
6.6	During the past 30 days, on average how many times per day did you use any tobacco products such as *khain*i, *gutkha*, or betalnut with tobacco?	Never, Sometimes, At least once/day, 2 or more times/day
The next 4 questions ask about drinking alcohol. This includes drinking beer, whiskey, rum, vodka, and local drinks like *taari*. Drinking alcohol does not include drinking a few sips of wine for religious purposes. Tick [√] the box that best reflects your opinion.		
6.7	Have you ever drank alcohol?	Yes, No, I don't want to answer
6.8	During past 30 days, did you drink alcohol?	
6.9	During past 30 days, what type(s) of alcohol or drink containing alcohol did you drink? You can tick [√] multiple boxes.	Never, Beer, Whiskey, Vodka, Rum, *Taari*, *Madi*, Other
6.10	During the past 30 days, on how many days did you have at least one drink containing alcohol?	Never, On some days, Almost everyday
Other substance use The next 4 questions ask about other substance use. This includes using marijuana/Ganja (also called grass or pot), cocaine, opium, heroin, inhalants, Corex syrup, etc. Tick [√] appropriate option for each question.		
6.11	Have you ever used drugs?	

Sr. No	Question/Item	Type of data or possible value
6.12	During past 30 days, did you use drug?	Yes, No, I don't want to answer
6.13	During past 30 days, what type of drug/s have you used?	Never, Ganja, Cocaine, Heroine, Inhalant, Corex syrup, Bhang, Opium, Other
6.14	During last 30 days, on average on how many days did you use drugs?	Never, On some days, Almost everyday
Section 7 About sexual health		
7.1	Pregnancy is prevented by using condoms.	Yes, No, I don't' know
7.2	A condom can be used more than once	
7.3	HIV can spread through unprotected sexual intercourse with an infected person	
7.4	Masturbation causes damage to health	
7.5	Illegal abortions can cause severe bleeding and infections	
7.6	Having a child before 18 years age is not dangerous for a woman	
7.7	It is illegal to marry a girl whose age is below 18 and a boy whose age is below 21 years	
7.8	Sex with multiple partners increases chances of contacting sexually transmitted diseases	
Section 8 If you have ever had physical relationship		
The next 3 questions ask about any sexual intercourse/physical relationship that you may have experienced. Please remember that your name will not be on the questionnaire so no one who knows you will find out your answers. Tick [√] the box that best reflects your opinion.		
8.1	Have you ever had a sexual intercourse in your life?	Yes, No, I don't want to answer
8.2	Have you had sexual intercourse in the last 30 days?	
8.3	Have you ever been forced (against your will) to have sexual intercourse?	
If your response to 8.3 is YES, please answer the following question. Your identity will be kept confidential and an expert will help you to deal with your situation.		
8.4	Would you like to be contacted for further help?	Yes, No
Thank you for taking survey!		

Appendix 12: LSHTM IRB approval

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
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Observational / Interventions Research Ethics Committee

Prof Vikram Patel
Professor of International Mental Health and Wellcome Trust Senior Research Fellow
Department of Population Health (DPH)
Epidemiology and Population Health (EPH)
LSHTM

20 February 2015

Dear Vikram ,

Study Title: SEHER: Strengthening the evidence-base on effective school based interventions for promoting adolescent health

LSHTM Ethics Ref: 8595

The Interventions Committee reviewed the above application.

The documents reviewed were:

Document Type	File Name	Date	Version
Local Approval	Sangath IRB approval _ SEHER.pdf	05/08/2013	1
Protocol / Proposal	Sangath_CRCT final proposal_30Oct2013.docx	30/10/2013	3
Local Approval	Sangath IRB_approval letter_SEHER.pdf	30/06/2014	1
Protocol / Proposal	SEHER_DraftPilotstudyProtocol_v2_30July.docx	30/07/2014	2
Information Sheet	SEHER_Student_TC_infosheet&assent.docx	30/07/2014	1
Information Sheet	SEHER_Student_SC_infosheet&assent.docx	30/07/2014	1
Information Sheet	SEHER_Principal_TCarm_infosheet&consent.docx	16/08/2014	2
Information Sheet	SEHER_Principal_SCarm_infosheet&consent.docx	16/08/2014	2
Information Sheet	SEHER_Parent_TC_inforsheet&consentform.docx	16/08/2014	v2
Information Sheet	SEHER_Parent_SC_inforsheet&consentform.docx	16/08/2014	v2
Investigator CV	David_CV.doc	16/08/2014	1
Investigator CV	Vikram_CV.doc	21/08/2014	1
Sponsor Letter	Legal Sponsor Details_Sangath.docx	30/08/2014	1

Provisional opinion

The Committee would likely be content to give a favourable ethical opinion of the research, subject to receiving a complete response to the request for further information set out below.

The Committee will delegate authority to confirm its final opinion on the application to the Chair.

Further information or clarification required

1. Counselling v Teaching: further information is required regarding training of teachers, as counselling is an entrirely different approach to students than teaching. Please comment

2. Study Outcomes: the number and variety of outcomes for the study are quite vast (increasing the knowledge and building positive attitude towards reproductive and sexual health, and substance use; decreasing self-reported tobacco, alcohol and other substance use; improving mental health, and reducing suicidal behaviour; improving physical activity; reducing bullying, violence and unintentional injuries; and enhancing overall school climate). It may be worthwhile reviewing these? Please comment.

When submitting your response to the Committee, please submit a revised copy of the application form through the ethics online applications website: http://leo.lshtm.ac.uk

Please list the changes and requested clarification in a covering letter addressed to the Committee, to be uploaded on LEO. Please include any revised documentation, where appropriate underlining or otherwise highlighting the changes you have made and giving revised version numbers and dates as well as making any necessary changes to the application form.

For further instructions, in the 'Help' section on the website, please refer to the section on 'Provisional Approvals - submitting responses to queries raised by the committee'.

Yours sincerely,

[redacted]

[redacted]

Professor John DH Porter
Chair

ethics@lshtm.ac.uk
http://www.lshtm.ac.uk/ethics/

Improving health worldwide

Appendix 13: Sangath IRB approval

SANGATH INSTITUTIONAL REVIEW BOARD

Sangath

Title of study: SEHER: Strengthening the evidence base on effective school-based interventions for promoting adolescent health-RCT

Members:	Decision:
Raj Vaidya: Pharmacist, Chairperson **Dr. Amit Dias:** Epidemiologist **Anant Bhan** Bio-ethicist **Gracy Andrew:** Clinical Psychologist **Dr. Neerja Chowdhary:** Psychiatrist **Dr. Sheela Gupte** Medical Practitioner **Mr. Vishram Gupte** Lawyer **Prof. Vikram Patel** Psychiatrist **Larissa Rodrigues** Community Representative **Dr Abhijit Nadkarni** Psychiatrist, Member Secretary	Opinion of the Sangath Institutional review board: 1. Approved ☑ 2. Approved subject to suggested modifications (Does not need further committee review) ☐ 3. Not approved ☐ (Can be resubmitted but will need second review) 4. Not approved ☐
	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 to the IRB within 72 hours of coming to notice of the PI. 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. **Prof Vikram Patel recused himself from decision making on this proposal.* Date: 27th May 2015 [redacted] Raj Vaidya **Chairperson**

Appendix 14: Information sheet and opt-out consent form for parents/guardian

INFORMATION SHEET FOR PARENT/GUARDIAN

About this study

Sangath, a NGO (Non-government Organisation) in Patna, Bihar and the Department of Education, Government of Bihar are conducting a study to evaluate effectiveness of implementing a programme on promoting health amongst adolescents in schools, including the school where your child studies. We would like to invite your child to participate in this study and hence seeking your parental consent for the same.

We would like you to carefully read and think about the information provided in this sheet and then decide about the participation of your child.

About the health promoting programme

SEHER, a programme to promote health amongst school-going adolescents is being delivered by a trained teacher as SEHER *Mitra*/SEHER *Mitra* in your child's school. This teacher as SEHER *Mitra*/SEHER *Mitra* conducts awareness generation activities with the students, teachers, school management and parents and also assists in developing school health policies. Furthermore, this teacher as SEHER *Mitra*/SEHER *Mitra* also facilitates peer group and wall magazine in the school, through which students can discuss their concerns and conducts various activities on issues such as gender and violence, nutrition, mental health, substance misuse, etc. This teacher as SEHER *Mitra*/SEHER *Mitra* also provides counselling services to the students who are going through emotional, social or academic problems.

What will your child's role be?

Your child will be asked to respond to the self-reported questionnaire two times. The first interview will be at the beginning of the programme (in two weeks now) and the follow-up interview will be in March 2016. S/he will also be asked to participate in focus group discussion or an interview to share his/her experience of participating in and provide feedback about the programme. Our researchers will conduct these assessments during the school timing and in consultation with the school administration so that his/her study time is not compromised. The focus group discussion and an interview will be audio-taped to help us remember everything that s/he has told us. The tape along with any information s/he shares during the discussion/interview will be kept strictly confidential and will only be shared within the research team. We will also provide him/her adequate information before asking to respond to our questionnaires or to participate in discussion/interview.

Will your child's participation in the study be kept confidential?

The information that we collect from your child will be kept strictly confidential and will be shared only with our team. Any information given by your child will be carefully stored in specially created computer files in such a way that s/he cannot be identified by anyone else. All information by which your child can be identified (name, address) will be deleted before being entered into the computer for storage. All paper documents will be kept in locked cabinets which can be accessed only by the research team directly involved in this study.

What will we do with the information we collect from your child?

We will use his/her feedback to understand experiences of the programme. In this way, s/he will help us improve the programme for other students.

What are the possible risks of taking part?

To the best of our knowledge, there are no risks to your child in participating in these assessments. Some students might experience stress, shame or anxiety while responding to the questionnaire. We assure that these are natural feelings and may subdue in a day or two. If the problem persists, we assure that your ward will be provided with the services of trained counsellors and/or clinical psychologists.

What are the possible benefits of taking part?

There are no direct benefits to you or your child in participating in these assessments however, your child will receive information on life skills through our programme which will help him/her to cope effectively with growing up challenges. In addition, we will use feedback given by your child to understand his/her experience of participating in this programme. In this way, s/he will help us improve the programme for other students.

What do you have to do?

We want you to allow your child to participate in these assessments of our programme. However, your decision is completely voluntary. If you want your child to participate in these assessments of the health promoting programme, you simply do not fill the attached form. If you DO NOT want your child to participate in this assessment of our programme, please fill in the form attached with this letter and send it to school through your child. If you have any question about this study before taking the decision on participation of your child, please feel free to talk to Mr. Sachin Shinde on 7781048360.

Thank you!

SEHER: Strengthening the evidence-base on effective school based interventions for promoting youth health

PARENTAL OPT-OUT CONSENT

To be completed by a parent or guardian who DOES NOT AGREE to their child taking part in the assessments, focus group discussions and an interview.

Please tick [√] in the boxes if you agree

1. I confirm that I have read and understood the information sheet dated ……. for the study described above. ☐

2. I DO NOT wish my child to take part in the above study. ☐

Please use BLOCK CAPITALS
Your name
……

Child's full name
……

Child's school name
……

…… .....
Signature of Parent/Guardian Date

Appendix 15: Information sheet and assent form for students

INFORMATION SHEET FOR STUDENTS

About this study

Sangath, a NGO in Patna, Bihar and the Department of Education, Government of Bihar are conducting a study to evaluate effectiveness of implementing a programme on promoting health amongst adolescents in schools, including your school. We would like you to participate in this study. We would like you to carefully read the information provided in this sheet.

About the health promoting programme

SEHER a programme to promote health amongst school-going adolescents is being delivered by a trained teacher as SEHER *Mitra*/SEHER *Mitra* in your school. This teacher as SEHER *Mitra*/SEHER *Mitra* conducts awareness generation activities with the students, teachers, school management and parents and also assists in developing school health policies. Furthermore, this teacher teacher as SEHER *Mitra*/SEHER *Mitra* also facilitates peer group and wall magazine in the school, through which students can discuss their concerns and conducts various activities on issues such as gender and violence, nutrition, mental health, substance misuse, etc. This teacher as SEHER *Mitra*/SEHER *Mitra* also provides counselling services to the students who are going through emotional, social or academic problems.

What will your role be?

You will be asked to respond to the self-reported questionnaire two times. The first interview will be conducted right away and the follow-up interview will be in March 2016. You will also be asked to participate in focus group discussion or an interview to share your experience of participating in and provide feedback about the programme. Our researchers will conduct these assessments during the school timing and in consultation with the school administration so that his/her study time is not compromised. The focus group discussion and an interview will be audio-taped to help us remember everything that s/he has told us. The tape along with any information s/he shares during the discussion/interview will be kept strictly confidential and will only be shared within the research team. We will also provide you adequate information before asking to respond to our questionnaires or to participate in discussion/interview.

Will your taking part in the study be kept confidential?

The information that we collect from you at various points will be kept strictly confidential and will be shared only with our team. Any information given by you will be carefully stored in specially created computer files in such a way that you cannot be identified by anyone else.

All information by which you can be identified (name, address) will be deleted before being entered into the computer for storage. All paper documents will be kept in locked cabinets which can be accessed only by the research team directly involved in this study.

What are the possible risks of taking part?

To the best of our knowledge, there are no risks to you in participating in these assessments. Some students might experience stress, shame or anxiety while responding to the questionnaire. We assure that these are natural feelings and may subdue in a day or two. If the problem persists, we assure that you will be provided with the services of trained counsellors and/or clinical psychologists.

What are the possible benefits of taking part?

There are no direct benefits to you in participating in these assessments however, you will receive information on life skills through our programme which will help you cope effectively with growing up challenges. In addition, we will use feedback given by you to understand your experiences of participating in this programme. In this way, you will help us improve the programme for other students.

We want you to participate in these assessments of our programme. However, your decision is completely voluntary. Taking or not taking part in this study will not affect how you are assessed in the school examinations and would not have any effect on your relationship with counsellor teacher, other teachers and fellow students. If you have any further questions, please ask to the person who has given you this form. If you any questions about your participations, you may also contact Mr. Sachin Shinde on 7781048360.

Thank you!

STUDENT'S ASSENT FORM

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.
Title of study: *SEHER*: Strengthening the evidence-base on effective school based interventions for promoting youth health

Respondent ID:
Please put a tick mark [√] in the appropriate box

Please put a tick mark [√] in the appropriate box

	YES	NO
I have been adequately explained about the study.	☐	☐
I understand that my participation is voluntary and I am free to withdraw at any time without giving a reason.	☐	☐
I will face no known risks by participating in this study.	☐	☐
I am willing to participate in the SEHER research.	☐	☐
My identity will not be revealed as well as my name will not be mentioned in any reports on this research.	☐	☐

Name of the student: _____

Name of the school: _____

Grade and section: _____

Signature and date: _____

Name of the field investigator: _____

Appendix 16: Managing distress in survey participants

Subject: The process and documentation of managing and reporting psychological distress in research participants

Responsible staff: Project director, intervention coordinators in all arms; TSM and SM in respective arms and independent clinical psychologist in comparison arm

Introduction: The self-administered questionnaires contain questions about previous experience of distressing or traumatic events such as bullying, physical and sexual violence, etc. These can potentially cause distress in research participants through the process of recalling traumatic events. For these reasons, if an adolescent reports such incident during the baseline or follow-up assessment, there will be a space to ask them to tick if they would like this information to be disclosed to a competent authority. If the adolescent ticks this box, then the questionnaire will be de-identified and the adolescent be approached by a senior member of the intervention team after consultation with the principal. The TSM/SM in intervention arms and an independent counsellor in comparison arm will collect information from the student and will inform the student about the importance of breaching the confidentiality i.e. discussing it with the family in a sensitive manner. The adolescent will be provided with “basic care and support” which will comprise emotional support, referral to medical care, protection from further violence, and the basic legal information and rights. The adolescent and his/her parents will be briefed about the Protection of Children from Sexual Offences Act, 2012, which protects children from offences of sexual assault, sexual harassment and pornography and provides for establishment of Special Courts for trials of such offences and for matters connected therewith or incidental thereto.

The identity of the student will be protected by all the stakeholders. The parents will be briefed about the incident and given the reference to the local police station/NGOs for dealing with the issue and for further action and follow-up.

Training of research staff: All study staff involved with survey administration will be trained on how discuss sensitive issues. Study staff will also be trained in the early identification and immediate management of emotional and psychological distress by a qualified psychologist or counselling psychologist.

Managing emotional and/or psychological distress during the interview: If the participant displays sign of significant emotional or psychosocial distress, their survey will be stopped. With the permission of the participant, a counsellor will be requested to counsel and debrief the participant.

Appendix 17: SEHER trial governance committees

Committee	Role	Members	Frequency of meeting
Trial Steering Committee (TSC)	To provide overall supervision of the trial and ensure that it is being conducted in accordance with the protocol and the relevant regulations. The TSC should approve the trial protocol and any protocol amendments and provide advice to the TMC on all aspects of the trial. Decisions about continuation or termination of the trial or substantial amendments to the protocol are finally the responsibility of the TSC.	George Patton, Australia(Chairperson), Vikram Patel (PI) Helen Weiss (Co-PI) David Ross (Co-PI) Beena Varghese (PHFI) Venkatesh Srinivasan (UNFPA) Jaya (UNFPA) Monika Arora (PHFI) Dipa (MacArthur Foundation) Vibha (SCERT) Aparajita (C3) Prachi (SEHER: Program Director) Sachin (Secretary)	Once in two months through telephone and once in a year in person
Data Safety & Monitoring Board (DSMB)	To review the accruing trial SAE reports to assess whether there are any safety issues that should be brought to participants' attention or any reasons for the trial not to continue. It is the only body that makes recommendations to un-blind data and makes further recommendations to the TSC.	R M Pandey, Chairperson (Professor and Head, Department of Biostatistics, AIIMS, India), Neha Madhiwalla (expertise in Ethics, Member of editorial board of Indian Journal of medical Ethics), Shireen Jejeebhoy (Leading Adolescent Health Researcher, Population Council, India) Shubhada Maitra (Professor at Center for Health and Mental Health, TISS, India)	Once in a year

Appendix 18: Statistical analysis plan

QUANTITATIVE ANALYSIS PLAN (27/6/2016)

Scope of the analysis

This document outlines the plan for the primary analysis of the results of the SEHER: Strengthening evidence-base on school-based health promotion interventions trial for the primary SEHER results publication.

Some descriptive and follow-on analyses that will not be included in the primary paper have also been included in this protocol.

1 Description of the trial

See SEHER trial protocol (Annexure A).

1.1 Principal research objectives to be addressed

Primary objectives

1. To assess the effectiveness of the SEHER intervention plus TARANG-Adolescence Education Programme (AEP) delivered by the Teacher as SEHER *Mitra* (TSM) compared to AEP alone in building school climate as measured with Beyond Blue School Climate Questionnaire (BBSCQ) at 8 months.

2. To assess the effectiveness of the SEHER intervention plus AEP delivered by the SEHER *Mitra* (SM) compared to AEP alone in building school climate as measured with BBSCQ at 8 months.

Secondary objectives

3. To assess the effectiveness of the SEHER intervention plus AEP delivered by the SM compared to SEHER intervention plus AEP delivered by the TSM in building school climate as measured with BBSCQ at 8 months.

Sensitivity analysis will be performed for objectives 1, 2 and, 3 with those participants who have completed BOTH the base and end-line assessment.

4. Objectives # 1, 2 and, 3 will be analysed stratified by gender.

5. To assess the effectiveness of the i) SEHER intervention plus AEP delivered by the TSM compared to AEP alone; ii) SEHER intervention plus AEP delivered by the SM compared to AEP alone, and iii) SEHER intervention plus AEP delivered by the SM compared to SEHER intervention plus AEP delivered by the TSM in:

a) Improving attitudes towards gender equity as measured with adapted version of Gender Equitable Men Survey
b) Increasing knowledge and attitudes towards reproductive and sexual health (RSH) as measured with adapted version of WHO's Illustrative Questionnaire for Interview with Young People

c) Reducing depression as measured with Patient Health Questionnaire-9 (PHQ-9)
d) Reducing self-reported experience of bullying behaviour as measured with adapted version of Bullying Victimization Questionnaire
e) Reducing self-reported violence (perpetration and victimisation) as measured with adapted version of International Youth Development Project Questionnaire on Violence, India
6. Objective # 5 will be analysed stratified by gender.

7. To measure the costs and cost effectiveness of the TSM and SM interventions in improving the school climate scores compared to the AEP alone.

Objective # 5 will also be tested for exploratory outcomes (listed below). For these behavioural outcomes the trial does not have enough power to detect anything except extremely large differences between the intervention and comparison arms as being statistically significant due to the low prevalence of these behaviours at baseline. However, we perceive that it is important to gather information on these behavioural measures and to measure and report the results by trial arm.

a) Incidence of self- reported suicide behaviour since last 8 months
b) Incidence of self-reported tobacco use (smoking and chewing) since last 8 months
c) Incidence of self-reported alcohol use since last 8 months
d) Incidence of self-reported other substance use since last 8 months
e) Incidence of self-reported initiation of sex since last 8 months
f) Incidence of self-reported forced sexual encounters since last 8 months

1.2 Trial design including blinding

SEHER is a cluster-randomised controlled trial (CRT) comparing clusters (schools) in: (i) Teacher-as SEHER *Mitra* (TSM) and ii) SEHER *Mitra* (SM) arms versus the control arm (TARANG-Adolescence Education Programme) with follow up over 8 months.

The trial is conducted in 74 schools (24 in TSM arm, 25 in SM arm and 25 in comparison arm) across 20 blocks of Nalanda district of Bihar. All the students studying in grade IX in the academic year 2015-16 are invited to participate in the study at each school. In the SEHER *Mitra* arm the SEHER intervention is delivered by a trained lay worker called as SEHER *Mitra*; in the teacher-as SEHER *Mitra* arm, the SEHER intervention is delivered by a trained teacher called a Teacher-as SEHER *Mitra*.

The TARANG- Adolescence Education programme is delivered in all three arms by the nodal teachers selected and trained by the Department of Education with technical assistance from the Centre for Catalysing Change, India.

The random allocation of the schools has been carried out by an independent statistician who is not involved in the Trial.

Outcome measures are administered by researchers independent of the intervention and blind to the allocation of the intervention.

The data analyst will be blinded to the clusters' allocation.

a. Method of allocation of schools

Of the total 136 total secondary and higher secondary schools in Nalanda, 112 schools that were eligible for inclusion in the trial were identified based on the following criteria:

- Current implementation of T- AEP
- Total number of students in grade IX in a school >100
- Total number of employed teachers in a school >/=4

Of the 112 schools, 75 were randomly selected for the random allocation. To have a representative pool of 75 schools, and to ensure an equal number of schools of each type in each of the three trial arms, we selected 68% of co-educational (63 out of 93), 69% of only girls' (9 out of 13) and 50% only boys' schools (3 out of 6). All the 75 schools are allocated to comparison or one of the intervention arms by using minimisation. To carry out the allocation by minimisation [1], the arms were balanced on the following variables (classifying each of the variables into categories):

1. Type of school (secondary=1; and secondary and higher secondary school=2);
2. School size (small=101-300 students in school; medium=301-600, and large=601 and above students), and
3. Nature of school (Co-education=1; only boys'=2; and only girls'=3).

The random allocation by using minimization was carried out by an independent statistician (Gian Luca DiTanna, LSHTM) using the R software package.

b. Sample size estimation

The sample size estimations are based on for the changes in the primary and a secondary outcome measure, *viz.* school climate and being bullied, for the total as well gender segregated sample. The average score for school climate and the prevalence of being

bullied is drawn from the data collected during the pilot testing of the SEHER outcome assessment questionnaire. The assumptions are:

- The arithmetic mean score on Beyond Blue School Climate scale is 20.6 (SD 6.7) with an ICC of 0.018.
- 18% students in secondary school in Nalanda, Bihar reported experiencing bullying in the last 30 days (were made fun of with sexual jokes, comments, or gestures) with an ICC of 0.03.
- The cluster number is 24 in TSM, 25 each in SM and comparison arm and average cluster size is 115 (60 boys and 55 girls).
- Assumed 15% loss to follow-up.

Based on these assumptions, the proposed trial will have 98% power to detect an effect size of 0.2 (difference in means/SD) school climate score between the comparison and each intervention arm respectively, with 95% confidence and an ICC of 0.02 (88% and 93% power among boys & girls, respectively). The trial will have 83% power to detect a 6% absolute difference in the proportion of students who reported experiencing bullying between the comparison and each intervention arm respectively, with 95% confidence and an ICC of 0.03 (82% and 83% power to detect a 7% and 6% difference among boys and girls, respectively).

c. Duration of the intervention period

In each intervention arm school (SM and TSM), the SEHER intervention activities were conducted between July 2015 and February 2016. The SEHER intervention activities were delivered at three levels viz. whole-school, group and individual level.

Whole school level activities: Awareness generation, wall magazine, speak-out box, intra school competitions, healthy school policies, and School Health Promotion Committee.

Group level activities: Peer groups of grade IX students, and workshops for grade IX students and for all teachers.

Individual level activities: Counselling and referral services for all the students in the school.

These activities were conducted all through the 8 months.

1.3 Frequency and duration of follow-up

Data on all the outcome measures was collected at baseline and end-line assessment.

The participants were recruited in June 2015.

1.4 Data collection

The data were collected at two points; baseline and end-line assessment at approximately 8-month from baseline.

The baseline assessment was completed in July 2015 and the end-point assessment in March/April 2016.

Inclusion criteria

- All the students enrolled and studying in grade IX
- Present in the school on the day of assessment

Exclusion criteria

- None

Following data is collected from consented participants:

- Complete name (will not be part of the questionnaire and linked directly with the outcome assessment questionnaire)
- Complete address and contact details, if available (will not be reported)
- Grade, section, and roll number
- Age (in years)
- Gender
- Caste
- Marital status
- Father's education
- Mother's education
- Father's occupation
- Mother's occupation
- Baseline measures of the primary, secondary and exploratory outcomes (listed below)

Outcome Measures

The primary outcome measure is overall school climate. The secondary outcome measures are attitudes towards gender equity, knowledge of and attitude towards reproductive and sexual health, experience of bullying, violence, and depression. In addition, the following exploratory outcome measures will also be assessed: tobacco, alcohol and other substance use, sexual behaviour, and suicide attempts. The outcome assessment measures are summarised in Table 1.

Table 1: SEHER Trial outcome assessment measures

Outcome	Instrument	Description
		Primary Outcome
School climate	Beyond Blue School Climate Questionnaire (BBSCQ)	28 items questionnaire; minimum and maximum score range between 0 and 28 with higher scores indicating a more favourable experience of School Climate
		Secondary Outcome
Experience of bullying	Bullying Victimization Questionnaire	4 items; score range: 0 to 12 with higher score indicating experience of severe bullying; recall period: last 30 days
Violence	International Youth Development Project, India	4 items; 2 items each on perpetration and experience of physical violence; recall period: last 9 months (since the grade IX started)
Attitude towards gender equity	Gender Equitable Men Survey	10 items; score range: 0 to 10 with higher scores indicating more positive attitude towards gender equity
Knowledge of RSH	WHO's Illustrative Questionnaire for Interview-Survey with Young people	8 items; score range: 0 and 8 with higher score indicating better knowledge of and attitude towards RSH
Depression	Patient Health Questionnaire-9	9 items; minimum and maximum scores range between 0 and 27 with higher scores indicating severe depression; recall period: last 2 weeks
		Exploratory Outcome
Substance use	WHO's Illustrative Questionnaire for Interview-Survey with Young people	14, items measure use of tobacco (chewing and smoking), alcohol and other substances since the grade IX started, type of substances used, in last 30 days, frequency of use in last 30 days
Sexual behaviour		4 items measure sexual behaviour, and experience of forced sex since the grade IX started
Suicide attempts		One item measures suicide attempt since the grade IX started

Process indicators

The coverage of each component, the quality of intervention implementation (fidelity), and the extent to which stakeholders engaged with it will be examined. Coverage indicators are collected through monthly reporting forms and quality indicators are assessed through ratings of specific components, such as the wall magazine and peer group meetings by respective supervisors, and the observations made by the intervention team during field visits. The stakeholder engagement will be examined through students' reporting of self-coverage of intervention at the follow-up assessment.

Whole school level activities

- Number of awareness meetings held with students against planned per month
- Number of awareness meetings held with teachers against planned per month
- Number of wall magazines produced against planned per month
- Types of topics covered through wall magazine
- Number of questions addressed against questions received per month through speak-out box
- Types of questions received through speak-out box per month
- Reasons for not addressing certain issues
- Type of competitions organised against planned per month
- Number of students participated in each competition
- Number of School Health Promotion Committee meetings held against planned
- Number of health policies generated and implemented in the school

Group school level activities

- Number of peer groups formed per school
- Number of peer group meetings conducted against planned per month
- Number and types of issues addressed in peer group meetings
- Number of workshops organised for students against planned
- Students' feedback on the workshop organised for them
- Number of workshops organised for teachers against planned
- Teachers' feedback on the workshop organised for them

Individual level activities

- Number of students availed counselling services (total, and gender wise)
- Number and types of referrals

- Types of issues addressed
- Number of cases referred for specialist treatment

Fidelity of the intervention

- Description of the SEHER *Mitra* and Teacher as SEHER *Mitra* (mean age, and average years of education and experience)
- Total number of supervisory visits
- Fortnightly reports by the supervisors
- Monthly wall magazine rating by the supervisors
- Monthly peer-group meeting rating by the supervisors

At the follow-up assessment, the self-coverage data of the SEHER intervention and AEP activities is collected from the students.

SEHER intervention self-coverage

- Awareness about the SEHER intervention
- Participation in the assembly
- Contribution to wall magazine
- Number of wall magazines read
- Awareness about the speak out box
- Participation in the competition/s
- Knowledge of health policies
- Availed counselling services

TARANG-AEP self-coverage

- Aware about the TARANG-AEP
- Name of the TARANG-AEP teacher
- Number of class-room sessions attended
- Topics of the session attended

1.5 Brief description of proposed analyses

Analyses will be carried out by the Trial Manager (Sachin Shinde) in collaboration with Prof. Helen Weiss at LSHTM. Analyses will follow CONSORT guidelines for cluster-randomised trials. The primary analysis data will be analysed under intention-to-treat assumptions (i.e. analyse all those with data from three arms irrespective of intervention received).

Analyses will be conducted in Stata version 14. Do-files will be prepared based on blinded data, and data will not be unblinded until the dataset is finalized, locked and sent to the DSMB chair.

2 Data analysis plan –Data Description

2.1 Recruitment and representativeness of recruited participants

A CONSORT flow chart will be constructed. [2] This will include the number of eligible schools for random allocation, random allocation of clusters to either intervention arms or comparison arm, arm-wise total number of grade IX student enrolment, number of participants recruited in each arm, number of participants refusing, the number of participants covered at the follow-up assessment, number of participants lost to follow-up and the numbers analysed.

2.2 Baseline comparability of arms

Characteristics of participants at baseline will be compared by arm, summarised using mean and standard deviation, median and inter-quartile range, or numbers and proportions as appropriate. No significance testing will be done as differences will be due to chance if the randomisation was correctly applied.

The baseline variables that will be summarised for participants are as follows:

- Age
- Gender
- Caste
- Marital status
- Father's education
- Mother's education
- Father's occupation
- Mother's occupation
- Overall school climate
- Total score on PHQ-9 (depression)
- Total score on Gender Equitable Men Survey
- Total score on RSH questionnaire
- Experience of bullying
- Experience of violence

For outcome indicators like school climate, depression, attitude towards gender equity and knowledge of reproductive and sexual health, we will transform the data e.g. histograms within each arm will be plotted in order to assess how closely the scales follow a normal distribution

to determine how to describe the outcome. Transformations will be carried out if the continuous data are not normally distributed.

Continuous data that are approximately normally distributed will be summarised in terms of the mean, standard deviation, median, minimum, maximum and number of observations. Skewed data will be transformed as appropriate to be normally distributed, or if a transformation is not possible, will presented in terms of the maximum, upper quartile, median, lower quartile, minimum and number of observations. Categorical data will be summarised in terms of frequency counts and percentages.

The following school-level variables will be summarised by arm using numbers (SD) and proportions.

- Type of school
- Nature of school
- Total number of students
- Total number of teachers
- School infrastructure, assessed by number of classrooms, toilets, drinking water facility, etc.

2.3 Loss to follow-up

The numbers and proportion of participants lost at end-line will be reported by arm. The data for those lost at end-line will be shown in the CONSORT flow chart.

2.4 Descriptive statistics for outcome measures

The primary outcome measure will be summarised by arm at end-line.

The data will be studied to identify outliers and check for data errors.

A similar approach will be followed for the secondary outcomes (listed in section 1.4).

2.5 Description of intervention processes

The SEHER *Mitra*, Teacher as SEHER *Mitra* and supervisors will be described in terms of age, experience and education.

The intervention coverage will be reported with proportions and means, as appropriate, and compared between intervention arms (the coverage indicators are listed in the section 1.4).

For all three arms, the TARANG-AEP coverage will be reported and compared with mean, proportion/rates, as appropriate (the coverage indicators are listed in the section 1.4).

3 Data analysis plan –Inferential analysis

3.1 Main analysis of intervention differences

The main statistical analyses will estimate the standardised mean difference (effect size i.e. mean difference/SD) for school climate by arm at the 8-month follow-up assessment, adjusting for baseline school climate at the school level.

3.1.1 Analysis of primary outcome

The estimation of the SMD on the total BBSCQ score at 8 months between i) the TSM and comparison arm; ii) SM and comparison arm, and iii) the SM and TSM arm will address research objective #1, 2, and 3 respectively, see Section 1.1:

Data will be analysed at individual-level using an intention-to-treat (ITT) analysis, using a linear mixed effects model with outcome of the BBSCQ total score at 8 months with intervention arm as a covariate, and adjusting for the school-level BBSCQ score at baseline. A random effect will be included to account for clustering at school level [2-3]. Fix effects will be included to account for everything except school-level clustering. Effect modification by gender will be included in the model.

Sensitivity analyses for participants who have completed both baseline and follow-up assessment: Independent ANCOVA-type analysis for sample of students who have completed both base and end-line assessment, using a linear mixed effects model with outcome of BBSCQ total score at 8 months with intervention arm as a covariate and adjusting for the BBSCQ total score at the baseline. A random effect will be included to account for clustering at school level.

The data of the students who have completed base and end-line assessment will be matched through the unique identity number given to each participant.

For gender-segregated sample for the participants who have completed end-line assessment: Independent ANCOVA-type analysis for sample of only boys and girls, using a linear mixed effects model with outcome of BBSCQ total score at 8 months with intervention arm as a covariate and adjusting for the school-level BBSCQ score at baseline. A random effect will be included to account for clustering at school level.

Model assumptions of normally distributed data, and the missing at random assumption, will be tested (see section 3.1.3) and if necessary, the outcome analyses will be adapted as appropriate.

3.1.2 Analysis of secondary outcomes

The analysis of the secondary outcomes, addressing research objectives # 5 and 6 will be similar to those done for the primary outcome. Binary outcomes will be analysed using random effects logistic regression rather than linear regression. For objectives related to self-reported behaviours, on set of these behaviours will be analysed using survival analysis.

3.1.3 Statistical considerations

Time points

The primary analysis will be of the 8 months outcome for total score on the BBSCQ.

Clustering

School (cluster) will be included as a random-effect covariate in the regression.

Covariates

Socio-demographic variables such as age, marital status, caste, and parents' education and occupation will be included as covariates in the analysis model.

Adjustment for multiple outcomes and reporting p-values

Interpretation of the intervention effect will be based on the strength of evidence of effect size and consistency of results for related outcomes.

Missing outcome data

Missing outcome data will be imputed using multiple imputations, implemented in Stata.

Model assumption checks

The models assume normally distributed outcomes; this will be checked when describing the data. Model residuals will also be plotted to check for normality and inspected for outliers. If substantial departures from normality occur, transformations will be considered. If a suitable transformation cannot be found, a non-parametric analysis will be considered.

A sensitivity analysis that assesses the effect of deviations from the missing at random assumption on the intention to treat treatment differences for the primary outcome may be considered if there are considerable amounts of missing data (6). Sensitivity analysis will be conducted comparing results with and without imputation.

3.2 Exploratory analyses

The following are all follow-on analysis.

The models may be extended to include possible predictors of outcome including intervention coverage and students' self-reporting of coverage.

Inclusion of TSM and SM characteristics in models will be considered.

Any analysis of sub-scales or domains will also be reported as exploratory.

Analysis procedure described in 3.1.1 will be followed for the exploratory outcomes (listed in 1.10.

3.3 Cost-effectiveness analysis

Cost data specific to the interventions (TSM and SM) will be collected during the study period, i.e. activity based costing approach from a program perspective will be used. The program costs will include costs related to hiring, training, additional salary costs, costs of continuous supervision activities, cost of materials both for training and for continuous intervention (leaflets, posters, etc.). All costs related to research activities will be excluded from the cost estimation—this will be done in consultation with the study team (for example, proportion of study team used for research activities, travel costs related to collection of research data etc. will be excluded). Total cost will be estimated separately for the two arms of the intervention using unit costs, total number of months or total number of units that has been utilised by the program.

Cost estimates will be presented in terms of various process outcomes used in the study. Incremental cost-effectiveness (CE) ratio, however, will be estimated for the primary outcome and estimated as the additional cost per unit change in mean school climate score in the intervention arms compared to the control arm. One way sensitivity analyses will be done to

understand the effect of changes in cost and intervention parameters on the CE ratio.

4 Software

STATA version 14 will be used for data description and the main inferential analysis.

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5. White IR, Thompson SG. Adjusting for partially missing baseline measurements in randomized trials. Statistics in Medicine 2005 Apr 15; 24(7):993-1007.
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Appendix 19: Topic guides used for conducting FGDs and semi-structured interviews with the participants during qualitative sub-study of the trial

Topic guide for FGD with peer group members

Objectives

2. To understand student's experiences of the SEHER programme activities
- To understand challenges and difficulties faced by the students in participating in the programme activities and ways to address these difficulties to improve the intervention content and delivery

Guiding questions

1. I am here to talk about the SEHER programme with you. Can you tell me what is this SEHER programme?
    a. What kinds of activities are conducted by the TSM/SM (name of the teacher/SM) in your school?
    b. Why this programme is being implemented in your school?
    c. What do you like about the SEHER programme?
    d. What do you not like about the SEHER programme?
    e. How does this programme help you? help to other students?
2. Now I would like to discuss some of the activities of the programme in detailed. First, we will discuss about the speak-out box, the metal box which is hanged in the (Place) in your school.
    a. Can you tell me the reasons for putting this box in your school?
    b. How useful is speak -out box for the students? Why?
    c. What kinds of difficulties are faced by the students in submitting their issues in the box?
    d. What difficulties of the students were not addressed even after submitting it through speak-out box by many students? How best these concerns can be addressed?
    e. What can be done so that more number of students share their concerns or problems through speak-out box?

3. Now we shall speak about the wall magazine activity. Every month a theme has been announced by the TSM/SM (Name) at the assembly as well as on the notice board. You are requested to submit material like poems, articles, newspaper cuttings, posters, etc. to post on the wall magazine.
    a. What all topics were covered through wall magazine in your school?

b. What topic was the most useful? Why?
c. What topic was the least useful? Why?
d. What new topics do you want to suggest for the wall magazine? Why?
e. How did you help in the development of wall magazine?
f. What challenges did you face in the development of wall magazine?
g. How these challenges can be addressed?
h. How did the TSM/SM support you in developing material for wall magazine? What more support do you require from the TSM/SM to develop the monthly magazine?
i. How can we involve more number of students from your school in this activity?
j. What can be done to make the monthly wall magazine interesting and informative for the students?

1. Now let's talk about the monthly competitions organised in your school.
    a. What kinds of competitions were organised in your school in this academic year?
    b. What could be the reasons for organising these competitions?
    c. How useful were these competitions for the students? Why?
    d. What kinds of difficulties were faced by the students to participate in these competitions? Suggestions to address these difficulties?
    e. How can we involve more number of boys and girls from your school in monthly competitions?
    f. How can we make monthly competitions interesting and useful to the students?
2. Now, will speak about the anti-bullying policy that is being implemented in your school.
    a. Can you tell me about the health policy being implemented in your school?
    b. How have you got information about this policy?
    c. What is this policy about?
    d. Who do you can approach to if you are being bullied by someone in the school campus?
    e. How useful is this policy for the students? Why?
    f. What change have you observed in school due to this policy?
    g. What other policies should be there for the students? Why?
3. Now we shall discuss about the peer groups that is formed in your school.
    a. How many peer groups are formed in your school?
    b. How many members does the peer group have? (if more than one ask number for each group)
    c. Why is this peer group formed?
    d. What is the role of peer group members?

e. How many times did the peer group meet in a month?
f. How many members mostly attend the peer group meetings?
g. How many times the group should meet in a month?
h. What does the group discuss in the monthly meeting? (Name topics, issues)
i. How useful were these activities for you? Why?
j. What kinds of difficulties were faced by the peer group members? (Attending meetings, conducting activities- collecting information, any other).
k. What more activities the peer group can conduct? Why?
l. What kind of support the peer group would require conducting these activities?

4. Now we will speak about the counselling service that has been offered by TSM/SM (name) in your school.
    a. Who all can avail counselling services? For what kinds of problems?
    b. When can the students approach TSM/SM (Name) for counselling service?
    c. What kind of difficulties students face in approaching TSM/SM (name) to seek help? What can be done to address these difficulties?
    d. If you have some personal problem, how would you feel to share it with TSM/SM (Name) and take his/her help?
    e. How much faith do you have that the information or problem shared by any student will be kept confidential by TSM/SM (Name)? Why?
5. Let's talk about overall SHERE programme.
    a. What are the problems and difficulties of the students in this school?
    b. How should SEHER programme help you in addressing these problems and difficulties?
    c. What more activities the SEHER programme should conduct for the students? Why?
    d. What suggestions do you have to make the SEHER programme more useful for the students?

Topic guide for semi -structured interview with principal

(Teacher as SEHER *Mitra* / SEHER *Mitra* arm)

Objectives

- To understand the principals' views about the SEHER programme
- To explore the perception of the principals about the impact of the SEHER intervention on the students' health and academic attainment
- To understand the challenges faced in implementing the programme and ways to address them

Guiding questions

1. I would like to discuss the SEHER programme that is being implemented in your school. Can you tell me something about this programme?
    - What is the main purpose of the SEHER programme?
    - What are the activities conducted under the SEHER programme?
    - As a principal, what is your role in the programme?
    - When do the TSM/SM consult you?
2. What do you think about the usefulness of the SEHER programme?
    a. To whom the programme helps?
    b. How does it help?
    c. What would suggest making the SEHER programme more appropriate and useful?
    d. What changes have you seen among the students due to this programme?
    e. What changes have you observed regarding the school environment since the implementation of the SEHER programme?
        - Relationship between students and teachers?
        - Discipline in the school?
        - Bullying among students?
        - Student attendance?
3. Now, let us talk about a few SEHER activities in detail. We will begin our discussion with speak-out box. Can you please tell me more about this activity?
    a. How are the problems or concerns shared by students solved?
    b. What role do you play in solving the students' concern?
    c. In our observation, most of the student demand action regarding two concerns: - infrastructure in the school and, educational issues like less number of teachers, schedule being not maintained, etc.
    d. What have been done to address these kinds of concerns?

e. What can be done to address these concerns?
f. What help or support do you require from SEHER programme to address these concerns?

4. Now we shall speak about the wall magazine activity.
    a. What do you think about the wall magazine activity?
    b. How relevant are the topics of the wall magazine to the students?
    c. Currently there are a very few selective students who participate in the development of the wall magazine or reading it. What can be done so that more number of students will participate in the development and reading of the wall magazine topics?
    d. Similarly, the involvement of other teachers is limited in the wall magazine development, what can be done in this regard?
5. Let's talk about the various competitions being organised in the school under the SEHER programme?
    a. What kind of competitions were organised in your school in this academic year?
    b. How were these various competitions organised in your school?
    c. What was your role in organising these competitions?
    d. How useful are these competitions for the students? Why?
    e. How did other teachers support the TSM/SM to organise these competitions?
    f. What types of competitions should be organised by the SEHER programme? Why?
6. Now, we will speak about School Health Promotion Committee (SHPC) formed in your school.
    a. How was the SHPC formed in your school?
    b. What are the reasons for forming the SHPC?
    c. How many times the meeting of the committee was organised?
    d. What issues were discussed during the meetings of this committee?
    e. What can be done to involve more parents in the SHPC?
    f. What more roles can be assigned to this committee?
    g. What should be your role as the chairperson of this committee?

7. Now, we will speak about the health policy being implemented in your school.
    a. Which health policies are being implemented in your school?
    b. How is the information about this policy provided to the students / teachers?
    c. How useful is the policy for enhancing the school environment? Why? (probe for each policy)

d. What change have you observed in students/teachers' behaviour due to this policy?
e. What other policy can be implemented in your school? Why?

8. Now we will speak about the counselling service that has been provided by the TSM/SM in your school.
    a. What are your views about the counselling service provided by the TSM/SM in your school?
    b. How easy is it for the students to meet the TSM/SM?
        - Space?
        - Availability of time?
    a. What could be done to improve referral by the teachers/self-referrals?
    b. What could be the difficulties / barriers faced by the students in availing the counselling service provided by the TSM/SM in the school?
        - Suggestion to overcome these difficulties /barriers
9. There are couple of more programmes which are being implemented in your school. For example, TARANG Adolescence Education Programme and Going to School. What can be done to develop a synergy between all these programmes?
    a. What common activities can be organised by all these programmes to gain more results for the students?

Topic guide for semi-structured interview with teacher

Objectives

3. To understand the teacher's views about the SEHER programme
- To explore the teacher's perception about the impact of the SEHER intervention on the students' health and academic attainment
- To understand the challenges faced in implementing the programme and ways to address them

Guiding questions

1. I would like to discuss the SEHER programme that is being implemented in your school. Can you tell me something about this programme?
    a. What is the main purpose of the SEHER programme?
    b. What are the activities conducted under the SEHER programme?
    c. As a teacher, what is your role in the programme?
    d. How do other teachers support SEHER programme activities?
    e. What would you suggest enhancing the support and involvement of the school stakeholders (Principal, teachers and other staff in the school)
2. What do you think about the usefulness of the SEHER programme?
    a. To whom the programme helps?
    b. How does it help?
    c. What would you suggest making the SEHER programme more appropriate and useful?
    d. What changes have you seen among the students' due to this programme?
    e. What changes have you observed regarding the school environment since the implementation of the SEHER programme?
        - Discipline in the school?
        - Relationship between students and teachers?
        - Bullying among students?
        - Student attendance?
3. Now, let us talk about a few components of the SEHER programme delivered by the XYZ TSM/SM in your school. We will begin our talk with the awareness generation.
    a. What were the activities conducted to generate awareness about the SEHER programme? (– during assembly, classroom, staff meeting, School Health Promotion Committee, any other)
    b. How helpful were these activities? Why?

c. What are your suggestions to increase awareness of health and health related issues among the students and the teachers?

4. Now we will talk in detail about the speak-out box. The speak-out box is an iron box hanged in the XXX area in your school. Can you please tell me more about this activity?
    a. How are the problems or concerns shared by students solved?
    b. What is the usefulness of such box in the school?
    c. What kinds of difficulties are faced by the students in submitting their issues anonymously in the speak-out box?
    d. How these difficulties could be addressed?
    e. What are your suggestions to increase participation of students in the speak-out box activity?
5. Now we shall speak about the wall magazine activity.
    a. What do you think about the wall magazine activity?
    b. How relevant are the topics of the wall magazine to the students?
    c. What new topics do you want to suggest for the wall magazine? Why?
    d. Currently there are a very few selective students who participate in the development of the wall magazine or reading it. What can be done so that more number of students will participate in the development and reading of the wall magazine topics?
    e. Similarly, the involvement of other teachers is limited in the wall magazine development, what can be done in this regard?
    f. Suggestions to improve the wall magazine to make it more interesting and useful to the students.
6. Let's talk about the various competitions being organised in the school under the SEHER programme?
    a. What kind of competitions were organised in your school in this academic year?
    b. How were these various competitions organised in your school?
    c. How useful are these competitions for the students? Why?
    d. How did other teachers support the TSM/SM to organise these competitions?
    e. What types of competitions should be organised by the SEHER programme? Why?
    f. What are the difficulties of organizing competitions in your school?
    g. How these difficulties could be addressed?
    h. How can we involve more number of boys /girls from your school in this activity?

i. Suggestions to make monthly competitions more interesting and useful to the students?

7. Now, we will speak about School Health Promotion Committee (SHPC) formed in your school. *(Ask if the teacher has attended any of the SHPC meeting)*
    a. How was the SHPC formed in your school?
    b. What are the reasons for forming the SHPC?
    c. How many times the meeting of the committee was organised?
    d. What issues were discussed during the meetings of this committee?
    e. What can be done to involve more parents in the SHPC?
    f. What more roles can be assigned to this committee?
    g. Suggestion to improve the functioning of SHPC committee.
8. Now, we will speak about the health policy being implemented in your school.
    a. Which health policies are being implemented in your school?
    b. How is the information about this policy provided to the students / teachers?
    c. How useful is the policy for enhancing the school environment? Why? (probe for each policy)
    d. What change have you observed in students/teachers' behaviour due to this policy?
    e. What other policy can be implemented in your school? Why?
    f. What are your suggestions to increase awareness about the health policy among the students and teachers?
9. Now we shall discuss about the peer group component of the programme.
    a. What kind of role do you play for this component?
    b. What activities were carried out by the peer group members in this school?
    c. On what occasions the SM/TSM approached you for help regarding this component?
    d. On what occasions the peer group members approached you for help?
    e. What do you think about teachers' involvement in peer group activities?
    f. How can we strengthen peer group activities in your school?
    g. What other activities the peer groups should conduct in your school?
10. Now we will speak about the counselling service that has been provided by the TSM/SM in your school.
    a. What are your views about the counselling service provided by the TSM/SM in your school?
    b. How easy is it for the students to meet the TSM/SM?
        - Space?
        - Availability of time?

c. What is the response of other teachers to counselling component of the programme?
d. How was the response from the TSM/SM to the referrals you made?
e. What could be done to improve referral by the teachers/self-referrals?
f. What could be the difficulties / barriers faced by the students in availing the counselling service provided by the TSM/SM in the school?
    - Suggestion to overcome these difficulties /barriers.

NOTE: Section only for TARANG teacher

11. Now we will discuss the TARANG programme that you are implementing in your school. Can you tell me something about this programme?
    a. What are the topics taught by you in this academic year?
    b. How relevant were these topics to the students?
    c. How many TARANG classes have you taken during this academic year?
    d. What are the difficulties / barriers experienced by you to implement this programme?
        - Suggestion to overcome these difficulties /barriers.

Topic guide for semi-structured interview with student who used counselling service

Objectives

- Understand the counselling experience of the student
- Understand the enablers and barriers to accessing services from her/his point of view
- Elicit feedback and suggestions from the students on the programme and services

Guiding questions

Introduction

We are here to learn about the SEHER programme in your school – how far it has been helpful and where it needs to improve. We would like to speak to you about your experience of this programme.

1. Let us first get to know your school.
    a. Please tell us something about your school, anything you feel is important
    b. What do you like about your school?
    c. What else would you like to have here, what would you like to do or happen differently?
2. Let us talk about the students in the school.
    a. Who are your friends? What do you do with them?
    b. Can you talk about what your friends and/or other students want here? What makes them happy, and what makes them sad? What are their wishes?
    c. What kind of problems do they face? Probe for health complaints, interpersonal problems with fellow students (not having friends, fights) as well as teachers, and difficulties in studies. (Ask for examples as much as possible)
3. Let us try to understand how your school supports you to address the problems.
    a. What do you when you have a problem?
    b. Who do you usually go to?
    c. How are these problems addressed? *(Probe for each problem or example)*
4. Now we will talk about your experience of availing counselling service from the TSM/ SM.
    a. Did someone ask you to undertake counselling? If not, how did you come to the XYZ TSM/SM?
    b. If you have been asked to come for counselling, who asked you? What did the person say? Did you have any questions or discussions regarding it? Please narrate.
    c. If you came for counselling yourself, what made you decide? How did you know to come to the TSM/SM?

5. We would now like to know about your experience of counselling
    a. How many sessions have you attended so far?
    b. How do you feel talking to the TSM/SM? How do you feel after the session?
    c. What was helpful? How did it help you?
    d. What did you find uncomfortable or unhelpful?
    e. How were appointments fixed?
6. ONLY TO DROPPED OUT STUDENTS: What made you or inhibited you from continuing with the sessions?
7. We would like to know some of the challenges that you faced with regard to counselling.
    a. What are your concerns regarding counselling?
    b. Have you been told whether or not your discussions will be kept confidential? Do you have any concern about it? What are they?
    c. Who knows about your seeking counselling? How do they react? Do you have any concern about it? What are they?
8. We would like to ask you for your feedback and suggestions on the SEHER programme.
    a. What are challenges to seeking help/advice from your TSM/SM? Is it easy for you to meet your TSM/SM any time you need, is s/he accessible / available any time in the school?
    b. What are the difficulties / barriers faced in attending counselling sessions? (Probe for examples)
    c. How can these difficulties/constraints in attending counselling sessions be tackled and overcome?
    d. What could be done to improve the help/advice you receive from your SNTSM/SM?
    e. What can be other ways of helping students with these problems?
    f. Do you have any other suggestions regarding help / support that you receive?