Changing family structures and their implications for support and health of the older population in India, with a focus on Tamil Nadu

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Abstract

India's demographic transition has the potential to pressure its largely family-focused system of support for dependent older people, which may have negative implications for the availability of support for the older population. This thesis aimed to develop a nuanced understanding of the potential impact of India's demographic transition for social support to (and subsequent health of) older people, considering variation across populations, and to recommend solutions to ensure support for India's older generations, considering preferences of the population.

To achieve these aims, I used a mixed-methods approach. I combined analyses of secondary quantitative data (2011 census data and National Sample Survey Organisation (NSSO) surveys (1995-96-2014)) with the collection and analysis of primary qualitative data in Tamil Nadu, a southern state that has relatively low fertility across socioeconomic strata. The sample consisted of a socioeconomically diverse group of N=113 adults (aged 20-64) with varying experiences of supporting older relatives.

Chapter five described family sizes (number of children, sons, daughters) at the subnational level (by state, urban/rural residence and socioeconomic status) for ever married women aged 60-plus in 2011. This highlighted large state and socioeconomic differences in family sizes. In many states, women with the least education had smaller family sizes than those with some education, contrary to what might be expected from fertility trends. Chapter six described family structure trends (number of children, sons, daughters, and marital status) for older people (aged 60-plus) at the national level between 1995-96 and 2014

and examined the relationship between family structure and self-rated health. This indicated that, for the national average, family structures have not changed to a degree that might impact support (i.e., having zero children or sons remained rare in 2014) and that support was associated with positive health outcomes. Chapter seven used the primary qualitative data to understand how older people are supported in Tamil Nadu, which demonstrated some similarities in support between socioeconomic groups (for instance the responsibility tended to fall on the closest child-spousal unit) and some differences (e.g., the use of formal care, daughters' support). Chapter eight used the qualitative data to explore attitudes around varying support arrangements and preferences for own (future) support, which indicated that people highly valued the co-resident family-focused arrangement for the provision of both tangible support as well as demonstration of love and care. Nevertheless, they were consistently pessimistic about the availability of support from their children in the future. Finally, chapter nine used the qualitative data to understand the challenges that family members experience when supporting their older relatives and the ways in which they cope, which identified a range of stressors (some related to Tamil Nadu's demographic transition) and differences in the coping strategies available to varying socioeconomic groups.

Based on these combined findings, I have concluded that fertility decline will reduce the support available to dependent older individuals that lack the resources to adapt (i.e., those of lower socioeconomic status and/or rural) with negative implications for their health, as it (a) will increase the chance of being sonless (and to a lesser extent, childless) and (b) will reduce the pool of children who are both willing and able to support. The timing of these effects

will vary greatly between regional and socioeconomic groups, many lower socioeconomic status older individuals already receive limited support due to socioeconomic pressures that restrict the support their children can provide them. Given the high value assigned to the family system of support, I have proposed that policy should (a) primarily aim to reduce the difficulties experienced by family carers for their own wellbeing as well as to promote the family-based support available to (and health of) older dependent individuals, as well as (b) provide financial and practical support for older individuals for whom family-based support is unappealing or unavailable in a culturally acceptable manner , and (c) improve people's ability to remain financially and physically independent in their later years. I have suggested strategies for achieving these three aims, of which universal health coverage is a key component

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Table of abbreviations

ADL	Activity of daily living
ESRC	Economic and Social Research Council
FGD	Focus group discussion
GDP	Gross domestic product
HIC	High income countries
IADL	Instrumental activity of daily living
IHDS	India Human Development Survey
IGNOAPS	Indira Gandhi National Old Age Pension Scheme
IITM	Indian Institute of Technology, Madras
LASI	Longitudinal Aging Study in India
LSHTM	London School of Hygiene and Tropical Medicine
LMIC	Low- and middle-income countries
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MOSJE	Ministry of Social Justice and Empowerment
NFHS	National Family and Health Survey
NGO	Non-Governmental organisation
NITI	National Institution for Transforming India
NSSO	National Sample Survey Organisation
NPOP	National Policy for Older Persons
TFR	Total fertility rate
PM-JAY	Pradhan Mantri - Jan Arogya Yojana
RSBY	Rashtriya Swasthya Bima Yojana
SES	Socioeconomic status

UK	United Kingdom
UN	United Nations
WHO	World Health Organisation

1. Chapter 1: Introduction

> "But with growing urbanization and dependency on the availability of jobs, children are increasingly opting out of the extended family setup, leaving behind an 'empty nest' and establishing their own nuclear families. In the coming years, the elderly population will grow phenomenally in number, while the family size will reduce. In the absence of traditional caregivers, given the disintegration of the joint family and women moving out of the household, the elderly are already a vulnerable group in need of care and attention."(Help Age India, 2015)

This quote is taken from a HelpAge India report, a major Non-Governmental Organisation (NGO) that enacts government policy and advocates for older people in India (Help Age India, 2015; Sawhney, 2003; UNFPA, 2017). As a result of the strong link between age and disability (Ferrucci et al., 1996), the high reliance on family members at older ages and limited alternatives (e.g., formal care) for most older Indians, there are concerns in both policy and research circles as to how the growing (potentially dependent) older population can be supported (D. Dey, 2020; Government of India, 1999; Lamb, 2006). The above quote is typical of the academic, popular and policy discourse around aging in India, and mentions some the key issues that are thought to pose a risk to the older population (Ruddock, 2009). These include shrinking family sizes (because of fertility decline), household nuclearization, women's participation in the labour force, ideational change (leading children to "opt out" of supporting their parents), and the impact of rural-to-urban (and other) migration on family structures and dynamics. I focused on demographic

changes for this thesis, though I will briefly outline my rationale for not examining the other supposed influences on support.

Evidence for the other influences is less clear and, in some cases, has been strongly critiqued as relevant only to the minority of urban middle-class Indians (L. Cohen, 1992, 1998; Shah, 1998; Vera-Sanso, 2012). For example, though household nuclearization is often mentioned in academic and popular discourse as a cause of declining family bonds and subsequent declines in support to older people, joint or extended families have historically been more common in wealthier and upper-caste families who could afford to keep their families together. These groups have also shaped the predominant discourse around Indian family life and aging (L. Cohen, 1992; D'Cruz & Bharat, 2001; Ruddock, 2009). Historically, nuclear households (at least for considerable periods of the household cycle) were the norm for much of the Indian population and thus household nuclearization does not represent a *rising* influence on lives of most the older population (Breton, 2019; D'Cruz & Bharat, 2001). Further, whether nuclearization is relevant for support of older people is also unclear. Support can both occur outside of households and lack within households.

At the national level, women's participation in the labour force is relatively low in India and does not demonstrate a consistent rising trend (Bhalla & Kaur, 2010; Pande, Namy, & Malhotra, 2020). Similar to 'household nuclearization', the concept of women's rising participation in the labour force is also more relevant to the middle-classes, as working-class women have always participated in the labour market out of necessity. As such, participation rates

and trends vary greatly across groups (Chatterjee, Murgai, & Rama, 2015; Pande et al., 2020).

While often mentioned, there is very little evidence that that children are decreasingly motivated to look after their parents or that attitudes towards old-age support have changed. In fact attitudes appear to favour family-based support (though any research on this topic is vulnerable to the expression of ideals rather than personal preferences, due to strong social expectations around support in India) (Togonu-Bickersteth & Akinnawo, 1990; UNFPA, 2012). The emphasis on declining motivations to support parents is also linked to the old-age support discourse in India which has been shaped by Western gerontological theories and the aforementioned emphasis on the historical experiences of middle-class and upper-caste families (L. Cohen, 1992).

While migration will affect family structures, evidence on migration trends also does not demonstrate clear rises in mobility with time (Bhagat, 2016). Also, of the existing evidence on support provision to older people, several studies have examined the impact of migration (Ahlin & Sen, 2020; Miltiades, 2002; Ugargol & Bailey, 2018, 2020). Finally, interestingly, one issue not mentioned in the above quote is the impact of socioeconomic pressures on families that may limit the support family members are able to provide each other.

In contrast to the trends mentioned, there is strong evidence that fertility and mortality have declined universally across India, though to varying degrees and with varying underlying influences for different groups (e.g., socioeconomic, urban/rural, caste, religious, regional) and time-periods (Guilmoto, 2016; Nagaraj, 1999; Saikia, 2016). As such, this thesis focused on India's

demographic transition to assess the potential implications of changing family structures for the social support available to (and subsequent health) of older Indians.

1.1. Research goal and aims

1.1.1. Goal

The overarching goal is to ensure support for India's (growing) dependent older population in a sustainable and intergenerationally equitable manner (in line with the World Health Organisation's (WHO) Global Strategy and Action Plan on Ageing and Health (World Health Organization, 2017)). By "sustainable", I mean considering the long-term resources of various stakeholders, including the older individual, their families, and policy makers. By "equitable", I mean considering the needs and wants across generations. I have explored the assumptions that underlie the idea of "intergenerational equity" in final the discussion.

1.1.2. Aims

To achieve this, this thesis has two aims:

1. To develop a nuanced understanding of the potential impact of India's demographic transition (fertility decline in particular) for social support to (and subsequent health of) older people, considering variation across populations.
2. To recommend solutions to ensure support for India's older generations, considering preferences of the population.

As such, this thesis aimed to fill two gaps that I perceived in the existing literature. First, an emphasis on the macro-level economic impact of changing

population age structures, and secondly, a lack of clarity regarding the potential mechanisms and consequences of changing family structures for support of the older population.

As children are key sources of support in India (UNFPA, 2012), the premise that fertility decline will reduce the availability of support to older people (with negative health impacts) appears feasible. Nevertheless, macro-level trends are not straightforwardly linked to change at the individual level (Herlofson & Hagestad, 2011). This premise is itself based on assumptions around the relationship between support and health, the degree of family structure change and how families interact to provide support, and the availability of support from the immediate family and other sources. I have assessed these assumptions using different methods and have expanded upon the existing evidence for each in the background chapter.

1.1.2.1. Assumption 1: Support from immediate family members positively effects health outcomes

While a positive link between social support receipt and health might appear to be common-sense, family ties can have complex relationships with health. Studies from other (largely high income) settings demonstrate mixed evidence for the relationship between receipt of informal support and health (Thoits, 2011) (expanded in section 3.8.).

1.1.2.2. Assumption 2: Family structures have changed sufficiently to affect support receipt

While fertility has declined, nationwide fertility has not reached very low levels (Total Fertility Rate (TFR) is currently 2.2 (International Institute for

Population Sciences (IIPS) and ICF, 2017a)). Typical period measures of fertility (e.g., TFR) do not translate to family sizes for successive generations. Family structures at older ages are also affected by mortality which has declined, potentially increasing the probability of having a spouse or children at later ages.

Further, family-based support is affected not only by the number of different relations but how they interact to provide support. For instance, the net amount of family-based support might not differ between people with one or three children if all the responsibility falls on one child (or child and spouse unit). On the other hand, if siblings take on the main role if the primary carer is unavailable, help occasionally to alleviate support related strains for the primary carer, or equally share all support tasks, having fewer children may leave people more vulnerable to net losses in support.

1.1.2.3. Assumption 3: Support is available from the immediate family and unavailable from other sources

The premise that fertility decline could reduce support for older people also assumes that the immediate family provide support when it is needed (despite a wealth of evidence that support is not always readily available (Jothikaran, Meershoek, Ashok, & Krumeich, 2020; Lamb, 2000a; Vera-Sanso, 2004)) and that support is unavailable from other sources (e.g., from extended family, formal care).

1.2. Research design

This thesis combined the analysis of secondary quantitative (government survey and census) data with the collection and analysis of qualitative data

(table 1). Chapter four describes the rationale for using these varying data-sources and the positives and negatives of their separate and combined use. The quantitative analyses describe past family structure trends, compare family structures across varied populations (by state, urban/rural and socioeconomic status), and examine the relationship between family structure and self-rated health. The qualitative methods focus on the southern state of Tamil Nadu and explore current support practices, support related challenges, and attitudes and preferences for (future) support arrangements in a socioeconomically diverse groups of adults (aged 20-64) with varied experiences of supporting older relatives. In sum, this thesis explores how families currently support their elders and the alternatives available outside of this system, how demographic trends have affected family structures so far, and combines the two findings to shed light on the potential impact of demographic (largely fertility) trends on support (and health) (limitations to this explored in the discussion).

I narrowed my focus to Tamil Nadu because I deemed the research questions to suit qualitative methods which are not conducive to large and widespread samples (expanded upon in chapter 4), and because Tamil Nadu has relatively low fertility across socioeconomic groups. Potential issues with the generalisability of these results for the rest of India have been expanded upon in the discussion.

India is a hugely diverse country. I have largely focused on socioeconomic (rural/urban and socioeconomic status) differences for this thesis. The demographic transition will likely affect these groups differently because of varying demographic rates (as well as other influences, outlined in the

conceptual framework), and suitable recommendations will also vary. The potential drawbacks of the focus on these characteristics (versus others such as gender or caste) have been expanded upon in the discussion.

1.3. Study objectives and data

Table one outlines the various study objectives, datasets, and samples, and outlines how each objective fit with the two thesis aims.

Table 1: Summary of study objectives, data sources, samples, and relevant thesis aim for each analysis

Objective	Thesis aim	Data source	Sample
Quantitative			
Objective 1: To assess whether changing family structures (1995-96 – 2014) have had an adverse effect on older Indians' health, using nationally representative data: • To describe trends in family structure (number of children, sons, daughters, and marital status) for India's older population • To determine the relationship between older people' family structure and their health. • To assess the relationship between family structure and health by survey year and gender.	Aim 1 Assumption 1: Support from family members positively effects health outcomes. Assumption 2: Family structures have changed sufficiently to affect support provision.	National Sample Survey Office (NSSO) Social Consumption – Health surveys; 1995-96, 2004, 2014	Indian population (national-level) (aged 60-plus)

Objective 2: To describe family sizes of the older population by state and socioeconomic background (2011)	Aim 1 Assumption 2 (as above); variation across populations.	2011 India census cross-tabulations	Ever-married women aged 60-plus in the 17 most populous states (2011)
Qualitative			
Objective 3: To explore how families of varying socioeconomic backgrounds support their aging relatives (i.e., who provides what support and why) in Tamil Nadu	Aim 1 Assumption 2: Family structures have changed sufficiently to affect support provision. Assumption 3: Support is available from the immediate family and unavailable from other sources	Primary data collected in urban and rural Tamil Nadu	Adults (aged 20-64) of varying socioeconomic backgrounds (urban/rural and socioeconomic status)

Objective 4: To explore the attitudes towards and preferences for (future) support arrangements of adults in Tamil Nadu, comparing the co-resident family-based model with more novel arrangements (independent residence, old-age homes, formal care services, day care centers).	Aim 2: Understand preferences of the population.		
Objective 5: To explore the challenges that adults of varying socioeconomic backgrounds in Tamil Nadu experience when supporting older relatives and understand the ways in which they cope with these challenges.	Aim 2: Identify potential solutions to promote family-based support.		

1.4. Thesis structure

The preceding sections of **chapter one** gave a brief overview of the thesis rationale and outlined the overarching goal, aims, and research objectives of the thesis. The rest of the thesis is structured as follows. **Chapter two** outlines the conceptual framework which describes the theoretical link between each of the constructs (family structure, social support, and health) and connects each component of the thesis, and which guided my research questions and conclusions in the discussion. **Chapter four** describes the results of a literature review on family structures of India's older population, the relationship between family structure and health outcomes, support practices and attitudes, and support related challenges (across India and with a focus on Tamil Nadu), and highlights potential demographic, sociocultural and policy influences on support. **Chapter four** describes the varying data sources, the rationale for their use and their limitations, and provides detail on the fieldwork methods. **Chapter five** includes the first analysis of this thesis, which uses 2011 census data to describe sub-national (state, socioeconomic status, urban/rural) differences in family sizes (numbers of children, sons, daughters) for ever married women aged 60-plus. **Chapter six** uses repeated nationally representative quantitative surveys (1995-96-2014) to describe family structure and health trends at the national level and to examine the relationship between family structure and health. **Chapter seven** uses the primary qualitative data to explore the ways that families of varying socioeconomic backgrounds support their older relatives in Tamil Nadu. **Chapter eight** uses the qualitative data to explore the attitudes towards and preferences for (future) support arrangements of adults in Tamil Nadu, comparing the co-

resident family-based model with independent residence, old-age homes, formal care services, and day care centers. **Chapter nine** explores the challenges that adults of varying socioeconomic backgrounds in Tamil Nadu experience when supporting older relatives and the ways in which they cope with these challenges. Finally, **chapter ten** summarises my final conclusions and the potential implications of my findings, and outlines my policy and research recommendations, the thesis limitations and final summary. The bulk of the literature review and the data collection and analytical methods are covered in chapters four and five, additional information specific to each research question is also included in the separate chapters. Each of the analysis chapters includes a short discussion relevant to the specific research question, I explore the implications of the results for the overall thesis aims in the final discussion.

1.5. Ethical clearance

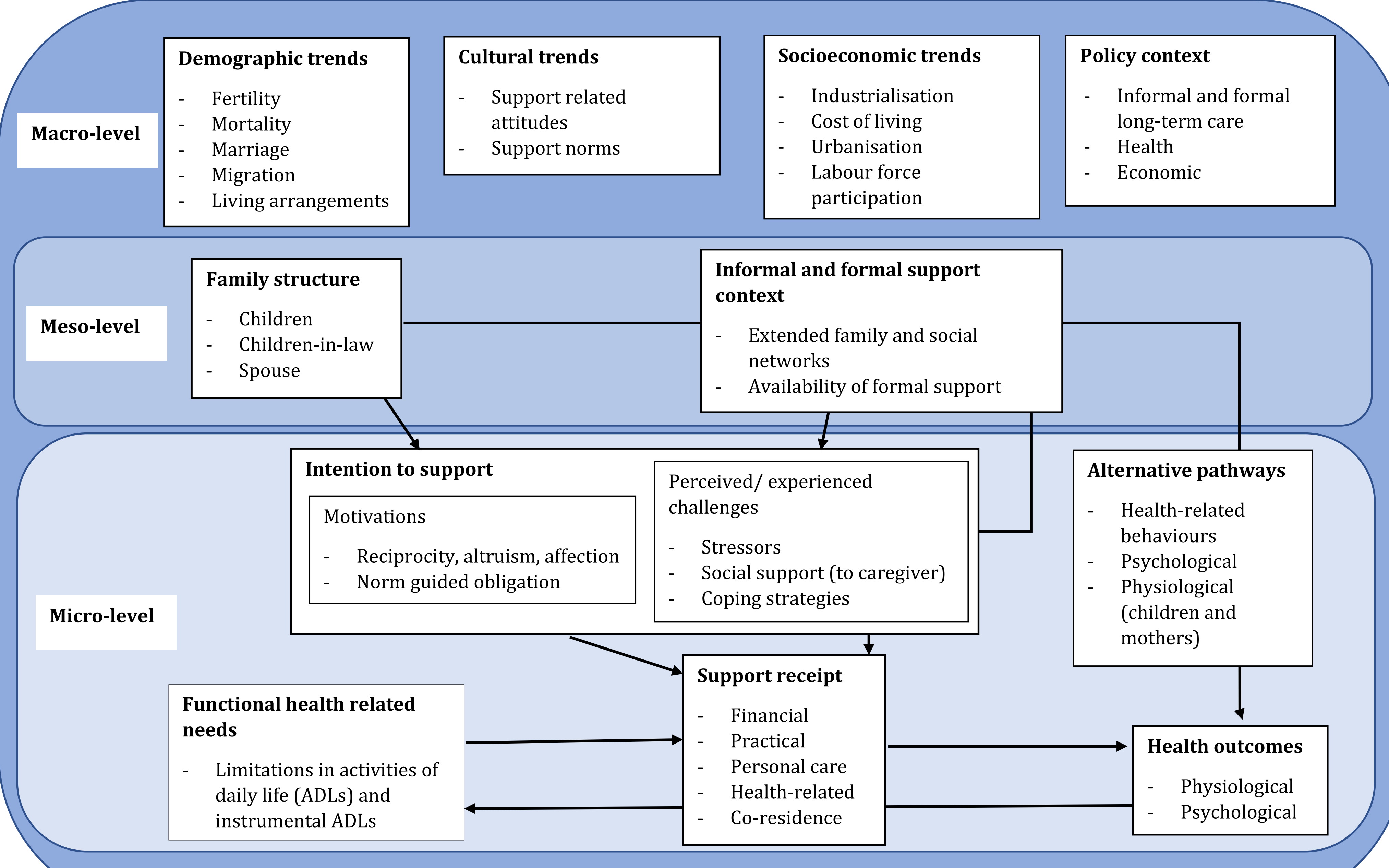
Ethical clearance for the secondary data analysis was granted by the London School of Hygiene and Tropical Medicine (LSHTM) ethics committee (reference: 14490, appendix A). Ethical clearance for the primary data collection was granted by the Indian Institute of Technology Madras (reference: IEC/2018/01/BT/15, appendix A) and the LSHTM ethics committee (reference: 14583, appendix A).

1.6. Funding

I was awarded a three year Economic and Social Research Council (ESRC) studentship that covered my research degree fees, provided an annual stipend, and covered the costs of training, conferences, and corresponding travel. The

ESRC also funded language training in Tamil and granted an extension to the overall PhD period to cover the corresponding time spent on learning Tamil, funded a three-month policy placement at the Northern Ireland Assembly and granted an additional extension to cover this period, and finally also granted a two-month COVID-19 related extension. Grants from the ESRC and LSHTM covered the costs of fieldwork (expanded upon in chapter 4).

Figure 1: Conceptual framework linking family structures, social support, and health



2. Chapter 2: Conceptual framework

2.1. Chapter aim

Figure one describes the proposed pathways between the constructs of interest (family structure, social support, and health) which I used to conceptualise the research question. It highlights the influence of macro-trends (I have largely focused on fertility and mortality decline) on the receipt of support at the individual level. The conceptual framework is loosely based on the Informal Care Model, a framework (itself guided by Azjen's Theory of Planned Behaviour) which aims to define the mechanisms that drive an informal social tie (i.e., an unpaid person such as a friend or family member) to provide support, and which can be influenced by macro-level social and policy changes (Ajzen, 1991; Broese van Groenou & de Boer, 2016). The Informal Care Model has been adapted to make it more relevant to this thesis:

1. The Informal Care Model assessed support from any informal social tie (including friends), my adapted framework is restricted to spouse and children because (a) they are the key sources of support for dependent older individuals in India (UNFPA, 2012), and (b) because I have focused on the potential impact of fertility (and to a lesser extent, mortality) decline.
2. The outcome of the Informal Care Model is the provision of support (from the perspective of the provider). I have substituted this for the receipt of support (of the dependent older individual) and added a further pathway between support and health (as well as other potential pathways between family ties and health).

3. The Informal Care Model describes the mechanisms that drive an informal tie to commence support provision, I have extended this to commencing and continuing support provision by also focusing on "experienced challenges" (rather than only "perceived").

2.2. Micro and meso-level pathways

2.2.1. Family structure

My conceptual framework starts at an older person's family structure. I have defined family structure as the parent-child unit (otherwise known as the "nuclear," "immediate," or "conjugal" family), as related by marriage, birth, consanguinity (i.e., a marital couple who are also from the same birth family) or adoption (Burch, 1979). This definition is not reliant on marital status or degree of contact as encompassed by other definitions of family (Sonawat, 2001), and covers married and unmarried children, children-in-law, non-co-resident children, and currently unmarried (e.g., widowed) parents. "Structure" encompasses both size and composition of the family, i.e., gender and relationship (e.g., child versus child-in-law). While I am conscious that family members outside of this unit (as well as other informal sources of support) may be important sources of support, my primary focus is on the immediate family unit because spouses and children (including children-in-law) are expected to, and do, provide most support for dependent older Indians (UNFPA, 2012; Vatuk, 1990). Further, while research on family structures in other countries is increasingly focused on relationships outside of this unit (for instance divorced partners, partners living apart but together, co-resident non-marital partnerships) (L. Balachandran & Jean Yeung, 2020; Carr & Utz, 2020; Merril

Silverstein & Giarusso, 2010), these are not relevant for the majority of the Indian population as marriage remains almost universal and divorce is rare (Chakravorty, Goli, & James, 2021; Ministry of Statistics and Programme Implementation, 2016a)).

2.2.2. Social support

I have defined social support as the "provision or exchange of emotional, informational, or instrumental resources in response to the perception that others are in need of such aid" (S. Cohen, Underwood, & Gottlieb, 2000). Having access to social support is contingent on access to social ties (family structure in this case). Emotional support involves demonstrations of caring, sympathy and encouragement, while informational support refers to the provision of advice and information which may help people handle potential stressors (Thoits, 2011).

2.2.2.1. Tangible support

I primarily focused on the last category of tangible "instrumental" support, which encompasses material assistance (for instance buying food or giving money) and help with practical tasks (for instance cooking and providing food), including personal care (for instance helping with bathing or toileting). I have focused on these tangible forms of support (a) with the rationale that a lack of these support forms (in contrast to emotional or informational support) would have the largest effect on health of the older population, and (b) because this thesis aims to provide practical recommendations for ensuring support (and health) of the older population, which is more suited to tangible support. I include health-related support (e.g., helping with medications) as well as co-

residence (as shelter) under tangible support (Li & Song, 2019). Nevertheless, while co-residence is often used as a proxy for support provision, I am conscious that it can be underscored by multiple factors. It could be a form of support for the older individual (for instance by reducing their housing and living costs), a mechanism for providing in-person practical support to the older individual, a mechanism for the older person to provide support to younger generations (for instance grandchild care) or be unrelated to support (outside of typical exchanges between family members, for instance if a child is unmarried and has not moved out the household). In practice, co-residence can mean all these things at varying degrees and at different periods across the family lifecourse. I nevertheless include it in my definition of support as there is evidence from India that living arrangements are linked to support receipt. Results of a national survey indicated that living with children increased chances of having support for varying needs (e.g., to attend during hospitalisation or help with mobility issues) versus living alone or with a spouse only (Ugargol, Hutter, James, & Bailey, 2016). Another study in Tamil Nadu slums demonstrated that individuals living alone were less likely to receive support (for instance to be escorted to a health facility, receive financial or in person help) in comparison to those living with others (particularly children) (Balagopol, 2017), while a study in Uttar Pradesh demonstrated that unmet needs for help with activities of daily living (ADLs, described below) were greater in individuals who lived alone (A. Singh, Bairwa, Goel, Bypareddy, & Mithra, 2016). Nevertheless, it should be noted that these results are based on reports by older individuals on the support they receive. As co-residence with sons is normatively expected in India, dissatisfaction with current

arrangements may have influenced the way the respondents viewed the degree of support they received. For instance, in an ethnographic study in a rural Bengali village (1989-1990), an older woman complained of not being looked after by her family and discounted a new sari as support because of the (seemingly uncaring) manner it was provided (Lamb, 2000a). Thus, reports of a lack of help may result more from dissatisfaction with the living arrangement.

While I did not initially focus on emotional support, it was an issue raised by participants during the primary data collection and was increasingly incorporated into the methods and focus. Potential limitations to this conceptualisation of tangible support needs have been expanded upon in the discussion.

2.2.2.2. "Long-term care" versus "support"

Another term often used for support provision to dependent individuals (particularly older people) is "long-term care" (D. A. Singh, 2010), which the WHO Global Strategy defined as "the activities undertaken by others to ensure that people with, or at risk of, a significant ongoing loss of intrinsic capacity can maintain a level of functional ability consistent with their basic rights, fundamental freedoms and human dignity" (World Health Organization, 2017). I have largely used the term "support" instead because (a) long-term care tends to cover a broad range of services (e.g., both informal (i.e., unpaid) and formal (i.e., paid)) while I have primarily focused on support from one informal source (immediate family), and (b) because I examine the link between support and health, and this literature tends to focus on the concept of "social support". Nevertheless, in chapter 8 I use the term "long-term care" as this is assessing

attitudes towards a range of arrangements (both formal and informal) and is thus more fitting.

2.2.2.3. Functional health and need for support

Exchanges of support are a normal component of relationships. Nevertheless, health declines at late adulthood (though there is great variation within this and declines are not necessarily linear) (Christensen, Doblhammer, Rau, & Vaupel, 2009). Health conditions can interact with contextual factors, both environmental, for instance physical surroundings, and personal, for instance gender (i.e., the same objective level of health can impact people differently) to lead to problems in body functions ('impairments'), difficulties in executing activities ('activity limitations'), and coping in life situations ('participation restrictions') (World Health Organization, 2002). I conceptualise an individual as being in need of support (i.e., being "dependent") if they have functional impairments that restrict their ability to undertake activities that are essential for everyday life, and thus require regular assistance that goes beyond what is "customarily required by a healthy adult" (Harwood, Sayer, & Hirschfeld, 2004). For instance, a person may become less able to undertake tasks that they were previously able to do (e.g., working for hours in a manual job or getting up safely from a chair).

This is a functional health-based definition of dependence and I expand upon the drawbacks of this in the discussion. In line with the WHO's Global Ageing and Health strategy, this covers activities that are necessary for living (e.g., eating) as well as for "having a life" (e.g., participating in social activities) (World Health Organization, 2017). I term these needs "practical", which

includes instrumental activities of daily living (IADLS, i.e., shopping, doing domestic tasks, using public transport) (Nagarkar, Gadhave, & Kulkarni, 2014). A subset of practical help is assistance with personal care, i.e., "activities of daily living" which includes toileting, bathing, dressing, eating, and arising from a chair/bed. I conceptualise that limitations in these activities would generally correspond to an inability to be employed (thus resulting in financial needs).

Support needs tend to develop over time (and not necessarily in a linear direction i.e., an individual can adapt and no longer need support) and typically follow a continuum of loss, with need for help with ADLs developing after need for help with IADLs (Morris, Fries, & Morris, 1999; Njegovan, Man-Son-Hing, Mitchell, & Molnar, 2001). Within ADLs, an individual typically loses the ability to dress and wash first, followed by toileting and transferring, and finally eating (ibid). Despite these broad patterns, support for older individuals contrasts with that for children, which typically reduces with time and is more predictable in terms of its timing, duration, intensity, and needs (Ehrlich, Möhring, & Drobnič, 2020). In sum, "support needs" can cover a broad range of experiences, for instance from needing help catching a bus to being confined to bed and requiring help to eat.

2.2.3. Social support and health

There is a wealth of evidence that social ties are associated with positive health and wellbeing outcomes (Del-Pino-Casado, Frías-Osuna, Palomino-Moral, Ruzafa-Martínez, & Ramos-Morcillo, 2018; Holt-Lunstad, Smith, & Layton, 2010; Kelly et al., 2017; Manzoli, Villari, M Pirone, & Boccia, 2007; Shor, Roelfs, & Yogev, 2013). Nevertheless, the social support literature tends to indicate that

receipt of tangible material and practical assistance has inconsistent relationships with health (Thoits, 2011; Uchino, 2006). For instance, while measures of social networks (i.e., number of social ties) and perceived support (i.e., an assessment of whether support would be available/adequate if needed) are consistently associated with positive health outcomes, received support demonstrates smaller positive effects, no effects, and negative effects on health (S. Cohen et al., 2000; Thoits, 2011; Uchino, 2006).

Despite this (counterintuitive) evidence, I propose that receipt of support from family members will benefit older individuals' health in India. First, the perceived negative effects of received support may result from methodological issues, as an individual is likely to receive help when they are in need (in comparison to perceived support) and thus potentially experiencing poor health outcomes already (Snopkowski & Sear, 2015). Second, theories of reciprocity and equity propose that receiving support (if unable to reciprocate) makes people feel indebted and overly dependent, which can result in negative psychological effects (Cooney & Dykstra, 2015). Nevertheless, the vast majority of the evidence on support receipt is based on Western populations where independence is highly valued. In contrast, a recent longitudinal study from China (where, similarly to India, a degree of dependence on children is both expected and revered) demonstrated that receiving informal care had protective effects on functional health in older parents (Hu & Li, 2020). Thus, the potential negative psychological effect of receiving support may be less prominent in India due to the positive value that Indian society place on receiving support from children at older ages. Third, the lack of social protection in India may mean that the consequences of not receiving family-

based support are greater in comparison to other populations (particularly European welfare states). Finally, when conceptualised and measured as its complement, a lack of received help ("unmet needs;" which is typically measured as number of ADLs that an individual cannot perform alone but does not receive help with (J. Williams, Lyons, & Rowland, 1997)), there is evidence that support is associated with better mental and physical health outcomes across cultures (Depalma et al., 2013; Hass, DePalma, Craig, Xu, & Sands, 2015; S. He et al., 2015; Hu & Wang, 2019; Sands et al., 2006; Zhen, Feng, & Gu, 2015).

The unmet needs literature points to the direct and potentially adverse outcomes of not receiving assistance with a task. For example, being unable to feed oneself when hungry may impact nutritional health, being unable to get up from a chair or move around may result in a fall, while being unable to get out the house and participate in social events or visit family and friends may impact psychological health. The social support literature highlights the direct effects of support as well as the qualitative importance of receiving help from a social tie, which could improve an individual's sense of mattering and is thought to act as a buffer for physiological stress responses (Thoits, 2011). I propose that, due to lack of a strong social security net and the high value placed on old-age support from family, both these pathways will shape the relationship between family structure, support, and health of India's older population. Nevertheless, while I have focused on social support, there are other potential pathways through which family structure could be associated with older people's health, which I outline briefly now.

2.2.3.1. *Family ties and health*

2.2.3.1.1. Social ties and health

In addition to the receipt of varying forms of support, social (in this case, family) ties are thought to influence health outcomes through health-related behaviours, psychological mechanisms, as well as support provision. Social ties are proposed to influence behaviours (e.g., diet, smoking, physical activity, healthcare seeking behaviours and medicine adherence) by allowing the comparison of one's behaviours (and adjustment to) others in the social group as well as through explicit pressures (Berkman & Kawashi, 2000; Thoits, 2011). Social ties are also thought to influence psychosocial outcomes (such as self-esteem) through companionship and socialisation, as well as by allowing an individual to fulfil their role obligations (e.g., as a parent or friend) which provides a sense of purpose, value and belonging (Berkman, Glass, Brissette, & Seeman, 2000; Thoits, 2011). Conversely, the loss of a close social tie (particularly a spouse) can result in great emotional distress and impact mental and physical health outcomes (Perkins et al., 2016). Further, in the context of close family relationships, there is evidence that children improve parents' sense of wellbeing due the social value placed on children and the fulfilment of pronatalist social expectations (Suppes, 2020; Tanaka & Johnson, 2014).

2.2.3.1.2. Children and mothers' health

Children can also have a direct physiological influence (as well as social) on women's health because of pregnancy, childbirth, and breastfeeding. Large hormonal fluctuations are proposed to reduce the incidence of several related cancers, for instance breast cancer rates are higher in childless women (Ewertz

et al., 1990). On the other hand, there is some evidence that high parity is associated with higher risk of diabetes and cardiovascular disease (Fowler-Brown et al., 2010; Lv, Wu, Yin, Qian, & Ge, 2015; Nicholson et al., 2006). Evolutionary theory purports a trade-off between fertility and women's physical condition, as their energy is channelled into reproduction rather than somatic maintenance (Kirkwood & Rose, 1991). In addition to high parity, other components of fertility such as early first births and short births intervals are also associated with poor health at older ages (Barclay, Keenan, Grundy, Kolk, & Myrskylä, 2016; Doblhammer & Oeppen, 2003; Grundy & Tomassini, 2007).

2.2.3.1.3. Selection effects

When it comes to close family ties (rather than any informal tie), selection can play a part in shaping the relationship with health (Doblhammer & Oeppen, 2003; Manzoli et al., 2007). For instance, there is evidence that healthier people are selected into marriage, as they are more likely to marry, remain married, and remarry (though this will be less relevant in India where marriage is almost universal and divorce (and remarriage for women) is rare (Manzoli et al., 2007; UNFPA, 2012)). The relationship between children and mothers' health is also vulnerable to selection effects as a woman in better health is more able to have one or several children (the "healthy pregnant woman effect"). To illustrate, there is evidence that mortality from non-maternal causes is lower in pregnant women (Ronmans, Khalt, Ba, de Bernis, & Etard, 2001). This effect is strongest in natural fertility populations where fertility is not consciously restricted, i.e., with contraception, and thus differences in parity are more likely linked to variations in health.

2.2.3.1.4. Negative influences

While I have mostly highlighted positive pathways, social ties can also negatively influence health. Not all social interactions are positive; conflict, abuse and poor-quality relationships (particularly with individuals with whom one is 'expected' to have good relationships (i.e., close family members)) can lead to stress, poor wellbeing and mental health outcomes (Carr & Utz, 2020; Holt-Lunstad, Birmingham, & Jones, 2008). In fact, there is considerable evidence that conflict and ambivalence (i.e., the co-occurrence of close feelings and tension) are integral to family relationships, particularly those that are motivated by strong social norms or by a lack of other available relatives (Cooney & Dykstra, 2015). Bengtson's influential model of intergenerational solidarity and conflict outlines the importance of affection, normative expectations, support, interaction, common values, family structures, and conflict in shaping intergenerational relationships (Bengtson, Giarrusso, Mabry, & Silverstein, 2002). Finally, rather than one-way flows, support is typically exchanged (particularly within families), though these exchanges are complex, involving different amounts and types of support and at varying periods. There is mixed evidence for the effect of support provision on health at older ages, for instance some studies indicate that grandparents providing grandchild care has a positive health effects, while others indicate the opposite (Carr & Utz, 2020; Umberson, Pudrovska, & Reczek, 2010; H. Xu, 2019). Studies on the association between children and parents' health indicate a J-shaped curve, the negative effects of having multiple children is typically hypothesised to result from the stress and efforts that go into raising and supporting children (Högnäs, Shor, Reece, Roelfs, & Moore, 2017; Umberson et al., 2010).

2.2.4. Intention to support

So far, I have outlined the primary pathway of interest for this thesis, i.e., the flow of support from close family ties to dependent older individuals, and the potential influence on their health. Nevertheless, this assumes that the existence of a family member will correspond to the provision of support. This may not be true, as the receipt of support is dependent on both the existence of a family tie and their willingness to provide care. In line with the Informal Care Model (and the Theory of Planned Behaviour), I have conceptualised this as an "intention to care", which is proposed to result from an individuals' motivations to care in combination with the perceived and experienced challenges of support provision (Ajzen, 1991; Broese van Groenou & de Boer, 2016). Thus, declines in the availability of family-based support could result from the lack of a family tie, declining motivations and/or increasing barriers/difficulties. I conceptualise motivations as being general (i.e., those that motivate a family member to provide some help) or specific (support norms that motivate a certain party to provide a certain type of support).

2.2.4.1. General motivations

Three major motivations underlie support provision in families (and more broadly): reciprocity, altruism, and attachment (Brown & Brown, 2014; Cooney & Dykstra, 2015; Kunemund & Rein, 1999). Reciprocity (in its simplest terms) refers to the human need to 'balance the books' of support to avoid feeling indebted. The support exchanged should be perceived as broadly equivalent - though not necessarily the same - for the exchange to be balanced (Kunemund & Rein, 1999). Reciprocal support exchanges can be 'direct' (i.e., concurrent) or 'delayed' (i.e., at a later period, which is of particular importance for the parent-

child relationship), and can involve people outside of the dyadic relationship (for instance demonstration theory proposes that adult children support their own parents as an example to their own children) (Cooney & Dykstra, 2015). Economic (social exchange) theories propose that support provision (a 'cost' to the provider) is a conscious strategy that aims to initiate an implicit reciprocal contract and subsequent benefits (Cooney & Dykstra, 2015; Lowenstein, Katz, & Gur-Yaish, 2007). In line with this thinking, supporting older individuals (particularly parents) has been suggested as a strategy for incentivising a transfer of assets or future inheritance (Arrondel & Masson, 2006). In contrast, altruistic motivations to support are not linked to self-interest, and instead result from feelings of generosity and beneficence, combined with perceived need of the (potential) care recipient. People with altruistic motivations would perceive supporting someone in need as natural (altruism is thought to have evolutionary foundations (Brown & Brown, 2014)). In comparison to altruism (which is general and could hypothetically motivate someone to help a stranger on the street), affectional and associational solidarity are relationship specific and related to feelings of affection and degree of interaction. People with affectionate/associational motivations would support someone (a parent for instance) because they have close relationships and care for their wellbeing (Bengtson et al., 2002; Broese van Groenou & de Boer, 2016).

In sum, supporting an informal tie (an older dependent relative in this case) can be motivated by previous, current, and (hope for) future support received from them, their perceived need, and affection, which are shaped by individual and family characteristics and wider social influences. Hypothetically, these motivations could be influenced by India's demographic transition. For

instance, there is cross-sectional evidence that smaller family sizes are associated with higher investments in children (A. M. Basu & Desai, 2016), which could impact the reciprocal support expected later. Nevertheless, there is a second set of motivations - “support norms” – which are also key for understanding the link between family structure and support.

2.2.4.2. Support norms

2.2.4.2.1. Defining support norms

Support provision (i.e., who does what) is highly patterned. For example, worldwide, women perform 71% of global hours of informal care for people with dementia (Wimo, Gauthier, & Prince, 2018). Rossi and Rossi define (what I broadly term) support norms as "culturally defined rights and duties that specify the ways in which any pair of kin-related persons is expected to behave toward each other” (Cong & Silverstein, 2012; Rossi & Rossi, 1990). Support norms can also be known as familial obligations, filial obligations (or filial piety in East Asia) when referring to children, or normative solidarity (Ganong & Coleman, 2005).

Support norms vary both qualitatively (for instance the expected types (e.g., co-residence, financial aid) and sources of support (e.g., son versus daughter)) and quantitatively (e.g., the degree of importance subscribed to them). They can also involve stigma around what certain people should not do, for instance, there is evidence of stigma around cross-gender provision of personal care (e.g., bathing, dressing) across cultures (Schröder-Butterfill & Fithry, 2014; Wong, 2005). Support norms can also go beyond tangible forms of support. In East Asian cultures, the Confucius concept of filial piety includes the demonstration

of service, reverence, and obedience (Qi, 2015). While these norms typically vary across cultures, gender norms that posit women as natural caregivers largely result in women being expected to provide more practical forms of support across cultures (Brewer, 2001).

2.2.4.2.2. Social norms and behaviours

Social norms are typically defined as beliefs around patterns of behaviour within one's social group (i.e., how people act) and beliefs around what social groups expect from oneself (i.e., how people expect you to act). A recent review of reviews (on social norms and behaviours) proposed that norms influence behaviours through three (inter-related) pathways: by providing value-neutral information, by creating external obligations, and by becoming internal obligations (Legros & Cislaghi, 2020). By providing information, norms help people understand practical ways of doing something, for instance an adult son may observe how his neighbours share support tasks between family members and assume that to be the most effective way. External obligations on the other hand apply value-laden pressures through the anticipation of social (dis)approval (for instance the threat of gossip), direct encouragement and pressures from social ties, and through role modelling (i.e., wishing to be in line with people with perceived high status). For instance, an adult son may co-reside with his dependent mother (despite them having a poor relationship) because his other family members tell him to and because he is worried about the impact on his reputation if he does not. Internal obligations on the other hand are a result of the process of "internalisation" whereby norms shape an individual's beliefs about how they should act. An individual is thought to internalise norms if (a) they believe the norm is in line with their values, (b)

because it builds their sense of identity, and (c) because there are few alternatives and therefore they cannot fathom doing it another way (Legros & Cislaghi, 2020). For instance, a daughter-in-law may be motivated to care for her in-laws because she feels that is her role and is the right thing to do, rather than because she is concerned about others' beliefs.

2.2.4.2.3. Support norm related obligation

While support norms are general (i.e., not specific to one's own relationships and can be held by anyone), they tend to be closely correlated with people's expectations from their own families (Ganong & Coleman, 2005; Peek, Coward, Peek, & Lee, 1998). They can thus motivate an individual to care by influencing the degree to which they feel obliged fulfil the proposed role, as well as through influencing the expectations of other family members (who can apply pressure), in particular, the older (potential) care recipient. Cantor's hierarchal compensatory model – a key theory which aims to explain the patterning of support (i.e., who provides what) – proposes that expectations of the older individual (in addition to the availability of potential sources) are the driving force behind the structure of support systems (Cantor, 1979). Longitudinal evidence from the US appears to corroborate this, and demonstrates that parents' expectations predict who provides care (Leopold, Raab, & Engelhardt, 2014; Pillemer & Suitor, 2014). Nevertheless, several studies indicate a relatively weak association between norms and support provision in comparison to other motivations (Katz, Gur-Yaish, & Lowenstein, 2010; Stuifbergen, van Delden, & Dykstra, 2008).

2.2.4.2.4. Inter and intrapersonal differences

While social norms are culturally defined, the degree to which people subscribe to the qualitative and quantitative aspects of support norms can be influenced by life stage, cohort and external (such as education) and relationship specific influences (such as parents' need) (de Valk & Schans, 2008). A key factor that negatively affects strength of obligations (and expectations) is distance to parent/child (Cong & Silverstein, 2012, 2014; G. Lee, Netzer, & Coward, 1994; Leopold et al., 2014), which has been explained with Festinger's theory of cognitive dissonance (Festinger, 1957; Gans & Silverstein, 2006). In this situation, Festinger's theory suggests that, if an (adult) child is unable to fulfil their own expectations, they will constrain their obligations in an effort to limit the dissonance resulting from their inability to satisfy them (ibid). In other words, if someone is aware that they may struggle to look after their relative because they live far away, they may reduce the degree to which they agree that children should support their parents (thus avoiding guilt and discomfort when they do not).

2.2.4.3. Summary of motivations

So, in addition to more general motivations to care, support norms mean certain parties feel obliged to provide certain types of support (and vice-versa, certain parties do not feel obliged). The varying strength and importance of each motivation will influence the degree to which sociodemographic change could impact family members' motivations to care. For instance norms are potentially "less stable" than the more general motivations and may be more affected by social change (Brown & Brown, 2014; Kunemund & Rein, 1999). Nevertheless, the focus of this thesis was not to quantify the importance of these motivations,

which I propose would be very difficult to measure in practice as they can be inter-related, unconscious, and involve post-rationalisation (M Silverstein, Parrott, & Bengtson, 1995).

Rather than the patterning of support relying only on motivations, the capacity of varying sources to support is also key. Varying capacities may occur within families (i.e., typically members of similar social strata) and across social strata. In contrast to the hierarchal compensatory model (which proposes that older people's expectations shape support systems), Litwak's task-specific model proposes that the practical fit of each potential source is the main driver of shaping support systems (e.g., a co-resident spouse can more easily help with common tasks (such as daily cooking) while a nearby child may be more helpful for occasional physical help (for instance during illness) (Messeri, Silverstein, & Litwak, 1993)).

2.2.4.4. Perceived and experienced challenges

2.2.4.4.1. Perceived challenges

Intention to care is further shaped by the potential support providers' perception of their ability to care (i.e., perceived challenges) (Broese van Groenou & de Boer, 2016). For example, a son may not attempt to provide daily in-person support to his parents if he lives in another city and feels he does not have the time to travel. Distance is a key barrier for providing informal support, though it also demonstrates endogeneity with care needs (i.e., family members stay/move closer together in anticipation of rising support needs) (Bailey, Hallad, & James, 2018; Kõu, Mulder, & Bailey, 2017; Rainer & Siedler, 2012). Other potential barriers include time and financial resources, caregiver's own

health, and caregiving experience, though the evidence on these is more mixed than that for distance (Cooney & Dykstra, 2011; Heitmueller, 2007; Hu & Ma, 2016; Leopold et al., 2014). Perceived barriers can hypothetically inhibit support provision completely as well as delay support provision.

2.2.4.4.2. Experienced challenges

While supporting a family member can be a positive experience and have beneficial outcomes (for instance strengthening relationship quality), there is a wealth of evidence that providing support can also be challenging (Pinquart & So, 2003; Roth, Fredman, & Haley, 2015; J. van der Lee, Bakker, Duivenvoorden, & Dröes, 2014). This is important for two reasons. One, because there is evidence that these difficulties can lead to negative outcomes for the primary caregiver (i.e., the individual that takes on the bulk of day-to-day practical help) and the wider family (Bauer & Sousa-Poza, 2015; Del-Pino-Casado, Cardosa, López-Martínez, & Orgeta, 2019; Heitmueller, 2007; Thrush & Hyder, 2014). This is key as, in line with the WHO's Strategy on Ageing and Health (World Health Organization, 2017), systems of support for the older population should aim to be equitable across generations, meaning that that the perspective, experiences and needs of younger generations (in their role as potential support providers) should also be considered (limitations to this premise expanded upon in the discussion).

The potential negative impact of support provision is also important because these difficulties are associated with retraction, as well as decreasing quality, of informal support. For instance, there is evidence that individuals who are supported by caregivers who feel 'burdened' by their experience are more likely

to have unmet support needs and to be institutionalised (Liu, Chang, & Huang, 2012; Luppa, Luck, Brähler, König, & Riedel-Heller, 2008; J. van der Lee et al., 2014). Literature on the difficulties of caregiving largely focuses on the concept of "caregiver burden" which can be defined as the "physical, psychological, emotional, social and financial stresses that individuals experience due to providing care" (George & Gwyther, 1986). There is a great deal of evidence that similar objective experiences (for instance hours spent caregiving) can lead to varying outcomes across individuals. Stress and coping theories have been used to understand these disparate outcomes. They propose that the final outcome of support provision results from (a) the potential stressor ("conditions, activities, and experiences that are problematic for people"), (b) appraisal of the stressor, and (c) the use of mediators to handle potential stressors, namely social support and coping strategies (Ghosh, Capistrant, & Friedemann-Sánchez, 2016; Knight & Sayegh, 2010; Lazarus & Folkman, 1984; Pearlin, Mullan, Semple, & Skaff, 1990). Stressors can be directly related to the care recipient (for instance problematic dementia related behaviours) as well as indirectly related (for instance conflict with other roles, e.g., employment) (Pearlin et al., 1990; J. van der Lee et al., 2014). In short, social support (for the caregiver) can include perceived or received emotional support or assistance with caregiving from informal ties (e.g., family and friends) and formal services to lessen the load, or as occasional respite (Pearlin et al., 1990). Coping strategies are typically divided into emotion-focused (which aim to limit the emotional impact of a potential stressor, e.g., emphasising the positives) and problem-focused (which aim to amend the stressful situation (Lazarus & Folkman, 1984). The choice of strategy is proposed to result from the resources an individual has available to

them. For instance, an individual is proposed to use emotion-focused strategies if they feel they do not have the resources (e.g., money or self-esteem) to manage a potential stressor, and vice-versa (ibid). Thus, it is not only the stressors that can affect the support provider's (potentially negative) outcomes (and thus the availability and quality of support), but the way in which they are able to manage them.

Reviews of the caregiving literature reveal that stressors that commonly result in negative outcomes for the caregiver and/or institutionalisation for the care recipient include: severity of care recipients' support needs (particularly activity limitations and dementia), length of time spent caring, relationship to the recipient, degree of unmet care needs of the recipient, health problems of the caregiver (particularly depression and disability), lower socioeconomic status, less use of in-home formal care services, and low perceived availability of social support (Del-Pino-Casado et al., 2018; Lambert et al., 2017; Luppa et al., 2008; J. van der Lee et al., 2014). Nevertheless, the vast majority of research on the caregiving (and the difficulties surrounding it) has been conducted in high-income (largely Western) populations (Lloyd-Sherlock, 2014; Thrush & Hyder, 2014). Support provision varies greatly across contexts, as such, it is likely that specific stressors will also vary. Quantitative evidence from Low and Middle Income Countries (LMICs) demonstrates broadly similar stressors (with variation across countries (Lambert et al., 2017)), while qualitative evidence from LMIC settings demonstrates some differences, particularly struggles with financial support (Streid et al., 2014; Thrush & Hyder, 2014). In addition to stressors, there is also evidence that the way that family carers appraise and cope with the support situation varies across cultures, for instance this is

thought to underlie differences in support related outcomes between ethnic groups in the US (Knight & Sayegh, 2010; Parveen, Morrison, & Robinson, 2011; Pinquart & Sörensen, 2005)).

2.2.5. Support context

The broader (outside of the immediate family) informal and formal support context can influence the receipt of support by older dependent individuals.

2.2.5.1. Informal support

Outside of the immediate family unit, an older individual's family (e.g., siblings, nieces, nephews) and social network (e.g., friends and neighbours) may also influence their receipt of social support. First, these ties can also support dependent older individuals. I conceptualise informal ties (outside of the immediate family) as acting as a substitute for close family members if they take on the bulk of support responsibilities (for instance if immediate family are unavailable). Second, these ties can also ease the difficulties that primary carers' experience when providing support (as outlined above as social support). This can be both by sharing tasks with the primary support provider, by taking on the primary role intermittently as respite care (i.e., care that gives the primary carer a break from their responsibilities (World Health Organization, 2011)), or by providing support (e.g., emotional) directly to the primary support providers. There is consistent evidence that social support (directed both to the support provider and recipient) is associated with fewer negative outcomes of support provision and less chance of institutionalisation for the older individual (Luppa et al., 2008; Tolkacheva, Broese van Groenou, de Boer, & van Tilburg, 2011; J. van der Lee et al., 2014). Third, these ties can motivate others to

support the dependent older individual by applying normative pressures. Conversely, in some cases, pressure from family members and a lack of recognition of challenges can negatively impact primary caregivers (Shaji, Smitha, Praveen Lal, & Prince, 2003; Streid et al., 2014; Ugargol & Bailey, 2018).

2.2.5.2. Formal support

Formal support covers the same tangible forms of support as informal (e.g., financial assistance, shelter, assistance with ADLs, IADLs, and health needs) and is typically provided by the government or private enterprises via public or private pensions (financial assistance), home-based care, community-based care (e.g., day-care centers with trained staff) or residential care (e.g., in the form of assisted living, residential or nursing homes). Just as characteristics of informal ties (for instance distance) may act as a barrier to support provision, characteristics of formal support can also inhibit their use. Typical barriers include: lack of knowledge of available, or need for, services (e.g., the benefit of respite care for caregivers, the signs of dementia), general attitudes towards the efficacy or acceptability of services, and prior experiences (Bieber, Nguyen, Meyer, & Stephan, 2019; Radhakrishnan, Saxena, Jillapalli, Jang, & Kim, 2017).

The UN report on World Population Ageing (2019) categorises countries according to how older people fund their consumption, for instance there are countries where consumption is largely funded by public transfers (as in Latin America and Europe), largely dependent on income from own assets (as in South and South-East Asia), or a mixture of the above sources alongside transfers from family or other informal sources (as in the UK and Australia) and labour income (as in East Asia) (United Nations, 2019). The report thus

concluded that “In countries where public transfers are high…population ageing will increase the fiscal pressure on public transfer systems, especially if current patterns of taxation and benefits remain unchanged. In countries where public transfers are relatively low, such as in many countries of South Asia and South-East Asia, individuals and families are under pressure to find means of financing consumption at older ages” (ibid).

Formal support can act as a complement to family (or another informal) based support or as an alternative. The probability of each of these pathways (and the potential impact of formal support availability on family members’ motivations to care) is a contentious issue. The idea that increasing availability of formal support will reduce (“crowd out”) motivations to care and family-based support assumes that people primarily look after their elders due to obligation and a lack of alternatives. There is some evidence for this, for instance a study in Japan demonstrated a decline in the agreement with support norms following the introduction of a long-term care insurance system (Tsutsui, Muramatsu, & Higashino, 2014). In contrast, the “complementary approach” predicts that informal and formal support complement each other (i.e., formal care will “crowd in” family support), because the difficulties of caregiving will be lessened for family members thus making them more willing to provide support (“family support theory”) and/or because formal care will allow allocation of support tasks, meaning families can focus more on emotional support as formal carers undertake practical tasks (“family specialisation theory”) (Lowenstein & Katz, 2010). There is evidence for both substitution and complementary effects of formal care. For example, following the introduction of a public transfer scheme to older people in Mexico, monetary transfers from family members

declined to such a degree that older people received net losses (Amuedo-Dorantes & Juarez, 2013). On the other hand, evidence from a cross European study demonstrated high rates of support receipt from children in Germany (a strong welfare state) in comparison to the US (a weak welfare state), suggesting that public provisions do not inhibit support exchanges (Kunemund & Rein, 1999). On the whole, complementary combinations of formal and informal support tend to be more common (Cooney & Dykstra, 2015; Daatland & Lowenstein, 2005; Jiménez-Martín & Prieto, 2012; Kunemund & Rein, 1999).

2.3. Macro-level pathways

So far, I have outlined the individual level processes that link family structure, social support, and health. I shall now describe the macro-level trends that may influence this pathway. This thesis focuses on the impact of demographic trends (primarily fertility decline, but also mortality decline), though I outline additional potential sociocultural, socioeconomic and policy influences to develop a holistic understanding of my proposed pathways.

2.3.1. Demographic

The three key demographic processes (fertility, mortality, and migration), as well as living arrangements and marriage trends can all impact the receipt of family-based support by (a) shaping family structures, and (b) influencing intention to care. Fertility affects the numbers of children (family sizes) at later ages. I am using the demographic definition of fertility – i.e., the bearing of live children - rather than the clinical definition (i.e., the ability to bear children ("fecundity)") (UNFPA, 2020). Family structures of older people are further affected by mortality rates that impact the probability of a spouse or child

surviving to the point at which an individual has rising support needs. Both fertility and mortality also shape wider family networks, thus affecting the availability of support from extended family members, influencing challenges experienced (e.g., by sharing support tasks or providing emotional support to primary carers) and potentially through motivations (e.g., through normative pressures). Migration of family members can make support provision more difficult (though financial and emotional support can now be hypothetically provided from afar with technology (Ahlin & Sen, 2020; Bailey et al., 2018; Kõu et al., 2017)), thus also impacting intention to support via perceived challenges. In line with distance acting as a barrier, living arrangements can affect the availability of support through influencing the time and effort it takes to provide in-person help. There is evidence that unmet needs for care are higher in older individuals that live alone (though as stated earlier, these findings are likely influenced by the older individual's satisfaction with their arrangement and perception of support received) (Liu et al., 2012; A. Singh et al., 2016; Teerawichitchainan & Knodel, 2018). Living arrangements trends could also hypothetically influence motivations to care, for instance if declines in contact leads to reduced affection or reciprocal exchanges over the lifecourse. Trends in marriage (for instance rates of marriage, divorce, and remarriage, and age differences between spouses (in combination with sex specific mortality rates for heterosexual couples)) also affect the likelihood of having a spouse at older ages, affect fertility timings, and can affect relationships between children and parents (L. Balachandran & Jean Yeung, 2020).

2.3.1.1. Population ageing

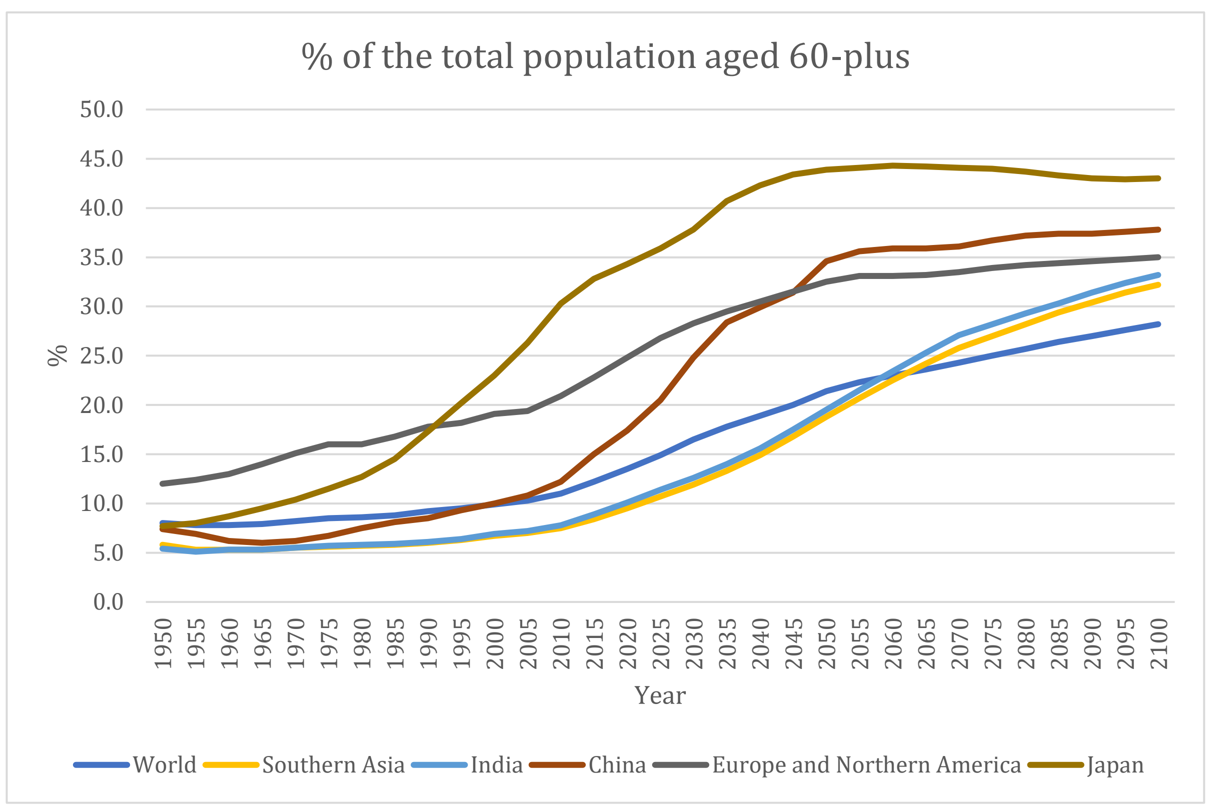
Demographic changes (largely fertility decline, but also mortality decline) influence population structures as well as family structures. Population ageing is one of the four population "megatrends" (alongside population growth, international migration, and urbanisation) that are currently shaping the world population (United Nations, 2019). The term refers to the rising share of older individuals (typically defined as aged 60- or 65-plus) in the total population, though the degree of ageing can also be measured with other indicators such as median age, and ratios of the older population to the "working age" population (typically defined as 20 to 59 or 64, though this is most relevant to HICs with defined ages at retirement).

Shifting age distributions are a result of declines in mortality across the lifecourse (meaning larger cohorts reach older ages, and older people live longer) and subsequent declines in fertility (meaning smaller birth cohorts are added to the population, the driving force of population ageing) that have occurred globally. While variable across populations, these trends resulted from a combination of socioeconomic development, improvements in public health and sanitation, and increased availability and promotion of modern contraception, and are termed the "demographic transition" (Dyson, 2010; Notestein, 1945). Ageing of the population has occurred in almost every country and is projected to result in over one in five of the global population being aged 60-plus by 2050, in comparison to one in thirteen in 1950 (United Nations Population Division, 2020b).

Globally, life expectancy at birth (i.e., the number of years an individual is expected to live according to the mortality rates at that time period) has increased from 50 in 1950 to 73 years in 2020 (and is projected to rise to 77 in 2050), life expectancy at age 60 (i.e., the number of additional years an individual who reaches age 60 is expected to live according to the mortality rates at that time period) has increased from 14 in 1950 to 21 years in 2020 (projected to rise to 23 in 2050), and the total fertility rate had dropped from 5.0 in 1950 to 2.4 in 2020 (projected to drop to 2.2 in 2050) (United Nations Population Division, 2020b). These trends have occurred at different times and at different rates across world populations, for instance, as figure one demonstrates, high income Western populations (when combined) have the most 'aged populations' and have done so for the past few decades. This is because their demographic transitions started earlier, in the late 19th century. Nevertheless, the most 'aged' country (Japan) is in Asia. Japan (alongside other high-income Asian countries such as Korea and Singapore) underwent population ageing far quicker than European countries. For instance, Sweden is estimated to have taken ninety years for the share of the population aged 60 and above to double to 20 percent, Japan experienced this in twenty-five years (United Nations Population Division, 2020a). This rapid rate of population ageing has also been observed in other countries at lower levels of socioeconomic development (most notably China as a result of its rapid fertility declines), which has led to concerns around the ability of countries to adapt to the changing characteristics of their population (figure two). At the other end of the spectrum lie countries in sub-Saharan Africa, which remain relatively young (for instance median age in the region is 19 (United Nations Population

Division, 2020b)) and have relatively low shares of older people, though numbers of older people are rising rapidly. The number of older people is expected to increase by 218 percent in sub-Saharan Africa between 2019 and 2050 (United Nations, 2019), in comparison to 120 percent worldwide.

Figure 2: Share of the population aged 60-plus for select countries and regions, 1950 to 2100 (UN World Population Prospects 2019)



The older population itself is also 'ageing', in that the share of people aged 80 plus ("oldest old") within the older population is rising. Life expectancy at older ages is increasing in most countries, global life expectancy at 80 increased from 5.2 in 1950 to 8.4 years in 2020 (and is projected to rise to almost ten years in 2050) (United Nations Population Division, 2020a). In fact, the oldest old population are the fasting growing age category in the world (though it currently accounts for two percent of the global population, which will double by 2050) (Christensen et al., 2009). Women tend to live longer than men and global life expectancy at birth is estimated to be almost five years higher for

women (United Nations Population Division, 2020a). As such, women typically outnumber men at older ages (termed the "feminisation of ageing"). On average, there are around 80 men to every 100 women aged 60 and above, which declines to almost 60 men at ages 80 plus (United Nations, 2019). These gender differentials in mortality also mean that older women are less likely to have a spouse than men, a key source of support at older ages.

2.3.2. Sociocultural

While support norms are enacted at the individual level, they are formed at the cultural and broader societal level as a result of kinship, religious, and legislative structures, and vary greatly across settings. For instance, in patrilocal and patrilineal societies such as China and Japan (and India), support is socially expected from sons and daughters-in-law before daughters and sons-in-law (Cong & Silverstein, 2012). In contrast, the suggested hierarchy of preferences for support in Western cultures is spouse, other co-resident family members, daughter, daughter-in-law, son, other relatives and informal sources, and finally formal care (Cantor, 1979; Finch & Mason, 1990). One issue that is similar across cultures is the importance of gender. Almost universally, providing practical in-personal support and personal care is viewed as a woman's role as women are perceived as more naturally caring (Brewer, 2001; Fine & Glendinning, 2005). While social norms (in general) have been described as "unwritten rules" (Legros & Cislaghi, 2020), support norms often develop and are maintained through religious teachings and legislation, and are thus more 'written rules' (Serrano, Saltmana, & Yeha, 2017).

Cultural attitudes around care can shape the way support is provided, in particular, the balance between informal and formal care (Lowenstein & Katz, 2010). Attitudes can inhibit the use of formal care services (Bieber et al., 2019). In the US, ethnic minority groups tend to have less favourable attitudes towards (and lower usage rates of) formal care services in comparison to the white majority, which has been partly ascribed to the perceived taboo of non-family focused care (Pinquart & Sörensen, 2005). Attitudes towards varying arrangements are also important because they can impact health outcomes, for instance there is evidence that a mismatch between care preferences and experiences can result in negative wellbeing outcomes for older individuals (T. Chen, 2019; Q. Xu, Wang, & Qi, 2019).

Nevertheless, this concept of culture (as a coherent set of values, attitudes, beliefs, and norms) has been critiqued for assuming that culture works as an ordered and uniform whole, guiding and confining people's actions. This misses the agency that people have and the typical contradictions between what people say and what they do (Abramson, 2012; Bachrach, 2014). Other definitions of culture have described it as shared meanings within a group (i.e., affecting the way people interpret varying stimuli or behaviours) and/or as a frame of possible routes or a "toolkit" that people can use flexibly to inform or justify their behaviours (Bachrach, 2014; Engelke, 2017; Swidler, 1986; Vaisey, 2009). Culture is not bound in place or fixed in time and is malleable to changing characteristics of a society (Engelke, 2017). For example, a study of trends in Japanese filial obligations demonstrated a halving of the proportion of women who felt that children caring for their parents was a 'good custom' over a thirty-year period, which was proposed to result from Japan's rapid

demographic and socioeconomic transformation, and the resulting discourse and policy changes (Ogawa & Retherford, 1993).

2.3.3. Socioeconomic

Key socioeconomic influences on family structures and the availability of social support include: industrialisation (i.e., the move from agrarian economies based on the family as a productive unit to market economies where wages are paid to the individual), urbanisation (i.e., the increasing share of the population living in urban areas), large-scale economic policies (e.g., liberalisation), labour market policies, trends in prosperity/the cost of living and labour market participation (particularly women), including ages at retirement (Cherlin, 2012). Though highly contested, the theory of modernisation and ageing has been a driving force behind policy, academic and public discourse on the implication of socioeconomic development for intergenerational relationships and support for older generations. The underlying tenet of the modernisation and ageing theory (formally put forward by Cowgill in the early 1970s but based on several preceding theories) is that "the status of the aged in the community is inversely proportional to the degree of modernization of the society", and that a loss of "status" would lead to declines in family-based support (both financial and practical) (De Tavernier, Naegele, & Hess, 2019; Lowenstein & Katz, 2010). Other key sociodemographic theories (for instance Caldwell's Wealth Flows theory and Goode's world revolution and family patterns theory) have also supposed that industrialisation leads to the breakdown of family solidarity (Cherlin, 2012; Goode, 1963; John C. Caldwell, 2005). These theories are based on the premise that children in non-industrialised societies support their parents out of obligation (rather than

choice) and in an attempt to avoid repercussions (for instance the loss of inheritance). “Modernisation” (through industrialisation, urbanisation, and the rise of formal education) is supposed to limit parental control by causing a decline of the extended family as a productive unit, increasing geographical separation (as a result of migration), making older people’s jobs, roles and expertise obsolete, and resulting in children who are more educated and increasingly financially independent of their parents (Aboderin, 2004b). Thus, declines in support from children result from decreasing motivations. The theory of modernisation and ageing has been widely critiqued and largely refuted on the basis of (a) its assumption of a universal and linear trajectory of socioeconomic development that follows that of historical Europe, (b) its focus on Western perceptions of aging, (c) the fact that families provide considerable degrees of support in several industrialised countries, (d) a lack of evidence that family and household structures of LMICs are converging towards a nuclear norm (older parents co-residence with children remains very common in many LMICs) (Aboderin, 2004b; L. Cohen, 1992; De Tavernier et al., 2019; Ruggles & Heggeness, 2008).

Alternative “material constraints” theories put forward that, instead of socioeconomic development resulting in rising prosperity, it has instead been linked to “rising un- and under-employment, increasing costs of living and more pervasive poverty, through which young adults are increasingly unable to provide adequately for their own, their children’s or their parents’ needs” for much of the populations of LMICs (Aboderin, 2004b). Thus, declines in material support from children result from increasing barriers/difficulties, rather than declining motivations.

In addition to the influence of socioeconomic development on motivations and/or ability to support older relatives, the availability of support can be additionally impacted by (a) rates of participation in the labour force (particularly women), and (b) ages at retirement. Women are almost universally the normative caregivers (for in-person practical and personal tasks) and conduct much of caregiving hours worldwide (Brewer, 2001; Prince, Prina, & Guerchet, 2013). Women's participation in the labour market thus has the potential to reduce the degree of in-person support available to older individuals. Ages at retirement are related to the age of pension receipt (if available), which could reduce or increase the need for financial aid from informal sources, as well as affecting the practical availability of older caregivers at later ages.

2.3.4. Policy

Long-term care policy varies greatly across countries and can influence the degree (and sources) of support that dependent older individuals receive (Kraus, Czypionka, Reidel, Mot, & Willemé, 2011; Rodrigues, Huber, & Lamura, 2012; Saraceno, 2016; Saraceno & Keck, 2010; Serrano et al., 2017). Long-term care policy can shape the balance between informal and formal care by influencing both the formal care context (e.g., by providing public pensions or publicly funded formal care services) as well as the informal care context (for instance by setting the normative discourse on care by formalising support norms in legislation, obliging family members to support through legislation, providing services for caregivers (e.g., tax breaks, respite care services) to make the support experience easier) (Dykstra & Hagestad, 2017; Serrano et al., 2017).

The predominance of informal care worldwide saves a great deal of public funds (Wimo et al., 2018).

Saraceno's framework describes the way social policies and legislation result in key patterns of intergenerational support: "familial by default" patterns occur when there are no publicly provided alternatives to, or financial support for, family care (which can be both implicit or explicitly defined by law), "supported familism" occurs when policies support family members (typically financially, through tax breaks or paid leave) to financially and practically support their relatives, and "defamilisation" occurs when needs are addressed through public provisions which reduces family dependencies and responsibilities (Cooney & Dykstra, 2015; Saraceno & Keck, 2010). To illustrate, within Europe, Scandinavian countries tend to demonstrate low use of informal care (despite considerable governmental support for carers) due to the availability (and preference for) formal care services. At the other end of the spectrum, countries such as Italy and Hungary use greater degrees of informal care, despite carers receiving little governmental support for carers (as a result of lower formal care availability) (Kraus et al., 2011). The availability and use of formal care services in LMICs tends to be even lower, for instance only 1% of people with dementia in South Asia are estimated to live in care homes, versus 45% in Western Europe (Wimo et al., 2018).

Health policy is also highly relevant for older individuals, for instance public health measures can impact lifecourse health and support needs at older ages (e.g., time spent needing support, degree of need), while healthcare policy (e.g., through the funding model, availability, and accessibility of services) can impact

needs through affecting health and need for financial support to cover healthcare costs.

Finally, economic policy is also important for support in later life, for instance influencing labour opportunities (for the individual and their family members) over the lifecourse (e.g., availability and type of job (with corresponding work-related health risks) and need for mobility for employment), with implications for mortality and later life health of individuals and their relatives, and wages, living costs, and opportunities for saving.

2.4. Chapter summary

- Chapter two outlined my theorised link between family structure, the provision of social support, and health of older individuals.
- My conceptual framework proposes that older people increasingly require support (e.g., financial and practical help, personal care, health related support and shelter) when their needs increase because of age-related declines in health.
- The support available is a result of family structures, the intention of family members to provide support (itself a result of their motivations and the perceived/experienced challenges), and the availability of support from other informal and formal sources.
- I propose that family-based support positively affects recipients' health by preventing them going without a key resource (e.g., a nutritional meal when hungry) and by having positive psychological effects because of the value attached to family-based care.

3. Chapter 3: Demographic trends and support needs, systems, attitudes, challenges, and policy, for India's older population

3.1. Chapter aim

The following chapter aims to describe the demographic trends that I propose may impact family structures, support, and health of the older population, as well as existing support needs of the older Indian population. The chapter also aims to examine the existing evidence on (1) family structures (numbers of children and marital status) at older ages, (2) the relationship between family-based support and health in older Indians, (3) current support practices, (4) attitudes and preferences around old-age support, and (5) support related challenges and coping strategies. It also aims to summarise key policies related to support of India's older population, potential limitations of these policies are expanded upon in the final discussion.

3.2. Defining the older population

Though much policy, research, and popular discourse typically defines "old" as being over a certain chronological age (which typically correlates with age at retirement), there is increasing emphasis on the relative arbitrariness of chronological cut-offs, the heterogeneity within 'older' age groups, the impact of ageist attitudes on the concept of "old" people, and the subjectivity and social construction of old-age (Dannefer & Phillipson, 2010). As such, classifying an 'old' person is complex.

This is complicated further in India by a lack of retirement for most of the population (and therefore 'retirement age'), and a lack of knowledge on chronological age for much of the older population who lack birth records and

who work/worked in the informal sector where chronological age is relatively unimportant. In India, old-age can be defined by both chronological age, life-stage, and functional health (Bhat & Dhruvarajan, 2002; Vatuk, 1990; Vera-Sanso, 2006). Age 60 tends to be the chronological age used by the Indian government in surveys of the older population, and for the old-age pension (Bhat & Dhruvarajan, 2002; Ministry of Statistics and Programme Implementation, 2016b; UNFPA, 2017). Culturally, the progression to "old-age" is signified by marriage of one's children, particularly an oldest son. At this point a daughter-in-law enters the household, parents roles begin to shift, and responsibilities are increasingly handed to younger generations (Bhat & Dhruvarajan, 2002; de Jong, 2011; Vatuk, 1990). Once children are married and settled, a persons' key responsibilities have been achieved and one's needs are perceived to decline. This is in line with the third life-stage as described by ancient Hindu scriptures, at which point people are expected to withdraw from activities within and outside the household and renounce sensual (e.g., food) in favour of spiritual pleasures (Samanta & Gangopadhyay, 2017; Vatuk, 1990). The functional definition of old-age on the other hand relates to health-related limitations in activities (which is the definition I have used). Ethnographic evidence from Tamil Nadu indicates that these definitions of old-age - which are variable and influenced by socioeconomic circumstances, gender and caste - can contrast with each other and confuse the normative expectations of both older and younger generations, particularly which direction support should flow (Vera-Sanso, 2006).

In contrast to the view of older people as the "dependent" population, evidence demonstrates that older people participate greatly in Indian society and play a

key role in their families. For example, 40% of men aged 60-plus are currently working in India (with working defined as 'jobs for which individuals are paid in cash or kind…activities such as selling general use items, having a small business, working on a family farm or in a family business, including seasonal work and excluding housework'), 40% of older people contribute to household financial matters (20% of older women versus 67% of older men) (broadly defined as payment of bills as well as participating in discussion and advice on household financial matters), and over half care for their grandchildren (UNFPA, 2012; A. Visaria & Dommaraju, 2018). Nevertheless, these estimates (at the India-level) likely hide a great deal of variation. While I note the subjective nature and the heterogeneity of older ages, it is necessary to have an "old-age" cut-off for quantitative analyses. Health-related alternatives to chronological age have been suggested for defining "old-age," for instance the age at which a person has a remaining life expectancy of 15 years or less (United Nations, 2019). This thesis has focused on support, therefore for the following sections, I have used 60-plus as the cut-off. This is primarily based on the results of a study that created a multidimensional measure to define an old-age threshold in India (and other countries), which incorporated multiple health related measures of aging, including remaining life expectancy, cognition, and functional abilities, and defined the final threshold at 63.7 years (A. Balachandran & James, 2019). I round this down to 60 to correspond with the definition used by the Indian government and available government data sources (Bhat & Dhruvarajan, 2002; Ministry of Statistics and Programme Implementation, 2016b).

3.3. Socioeconomic development

India is a culturally, geographically, socioeconomically, linguistically, politically, and religiously diverse nation (Tenhunen & Säävälä, 2012), which has experienced rapid and heterogenous socioeconomic changes since the latter half of the 1900s. India is currently classed as a lower middle-income country by the World Bank (World Bank, 2020a). The Indian population remains largely rural, though the population living in urban areas has risen from less than one-fifth in 1960 to around one-third in 2019 (World Bank, 2020a). This varies greatly between states, from a high of over 60% urban in Goa, to around 10% in Himachal Pradesh and Bihar (Government of India, 2020b). Tamil Nadu is the most urbanised of the larger states with around 50% of the population living in urban areas (ibid). Levels of education have also risen rapidly, for instance around 95% of boys and girls under 14 in India are currently literate versus around 60% of men aged 60-plus and around 30% of older women (2017-18) (International Institute for Population Sciences (IIPS), 2020). Levels of education vary across states (see chapter 5).

India has experienced rapid economic growth and estimates indicate that the share of the population living under the poverty line has declined while the size of the middle-class population has grown, though estimates are sensitive to the definitions used (S. Chen & Ravallion, 2008; Chun, 2010). Using 2011-12 national survey data, a recent study that used a composite definition of class including income, education, housing, assets and social networks, estimated that approximately 35% of the Indian population (at the national level) fall into the manual labouring class (agricultural and non-agricultural manual wage workers, higher in rural areas), another 35% fall into the lower-class (for whom

manual labouring is not the primary income source), another 30% comprise the middle class, and a small remainder (<1%) comprise the upper-class (Aslany, 2019). Socioeconomic development has been uneven (with various drivers (Tenhunen & Säävälä, 2012)) and there are large inequalities across regions and states, and within states. For instance, states in the South and North-West (as well as West Bengal) have experienced higher levels of economic growth and have lower shares of the population living in poverty, on the other hand, the Government of India has defined a group of 'Empowered Action Group states' of largely northern and central states that have experienced slower growth and demonstrate poor social indicators (Ministry of Health and Family Welfare, 2014; World Bank Group, 2017). Tamil Nadu is a relatively socioeconomically developed state, in terms of education, per capita income, and life expectancy, and has a relatively low share of the population living under the poverty line (around 12% in 2012 versus 40% in Chhattisgarh (the state with the largest share of people living in poverty)) (Suryanarayana, Agrawal, & Prabhu, 2011; World Bank Group, 2017). Nevertheless, Tamil Nadu has higher than average consumption inequality and the share of the population living in poverty varies between and within districts (World Bank Group, 2017). For instance, in Chennai (the state capital which demonstrates high levels of socioeconomic development (e.g., literacy rates)), roughly 30% of the population lives in slums (Census of India, 2019).

The vast majority of the Indian population (80%) work in the informal sector and thus do not have private pensions available to them or official ages at retirement (International Labour Office, 2018). A recent nationally representative survey demonstrates the key role of agriculture in the rural

(majority) population, three-quarters and over-half of women and men (who usually work) worked in agriculture respectively in 2017-18 (though this has decreased from over 80% in the late 1970s) (Government of India, 2019a). Women's labour force participation rates are low (among the lowest in the world), rates are particularly low in urban areas (around 20%) and decline with household income (Chatterjee et al., 2015). Women's participation in the labour force in Tamil Nadu is higher than the national average, though similar to the national trend, participation declines with rising socioeconomic status (Pande et al., 2020).

3.4. Population ageing

At the last census (2011), the Indian population was estimated at 1.2 billion (the second largest in the world) which was spread across 28 states and seven union territories (though the number of states and union territories varies with time as some are divided and others combined by the Government of India) (Census of India, 2019). The south-eastern state of Tamil Nadu has the seventh largest population in India (and the largest in the South), with a total population of over 72 million at the 2011 census (Census of India, 2019).

In 2011, 8.6% of India's population were aged 60 and above which corresponded to over 100 million individuals (the world's second largest population of older people, after China) (Ministry of Statistics and Programme Implementation, 2016a). UN projections estimate that the share of older people at the national level will double from 10.1% in 2020 to 19.5% in 2050 (rising further to 33.2% in 2100). The proportion of 60-plus in the population is predicted to surpass that of young people (aged 0-15) around 2050 (A. B. Dey,

2016). Ageing has occurred relatively fast and at lower levels of socioeconomic development in comparison to other countries, for instance, it is projected to take 25 years for the share of the older population to double to 14% (similar to China) in contrast with 110 and 80 years for France and Sweden respectively (Goli, Bheemeshwar Reddy, James, & Srinivasan, 2019). This has led to concerns regarding India's ability to adapt to the impact of population ageing, for instance the potential economic impact of a changing workforce or the need for strong healthcare systems to manage chronic health conditions (Government of India, 2019b). India's demographic dividend – i.e., when the share of "working age" (though many older people are employed in India) population is largest in comparison to young and older population – is predicted to peak around 2041 (ibid).

Population ageing has occurred to varying degrees across Indian states because of differences in fertility (primarily) and mortality. Of the major states, the southern states as well as Punjab, Himachal Pradesh, West Bengal, and Maharashtra all experienced early declines in fertility and have above average shares of over 60s (12.6% in Kerala, 10.4% in Tamil Nadu and Punjab at the 2011 census). At the other end of the demographic spectrum lies the (largely central and northern) states Bihar, Uttar Pradesh, Jharkhand, Chhattisgarh, Rajasthan, Madya Pradesh and Assam, where population ageing is below average (6.7% in Assam and 7.2% in Jharkhand in 2011) (Government of India, 2019b). Nevertheless, numbers of the older population contradict these patterns, as the younger states are typically larger (because of higher fertility and growth rates); in 2011 Uttar Pradesh was home to the largest older population (over 15 million) though only 7.7% of its total population were aged

60-plus. In contrast, and in despite of their more aged populations, Kerala and Tamil Nadu were home to approximately four million and 7.5 million people aged 60-plus respectively (Ministry of Statistics and Programme Implementation, 2016a). While India's population growth has slowed, it is expected to reach a population of approximately 1.64 billion in 2050, which corresponds to roughly 320 million individuals aged 60-plus (United Nations Population Division, 2020b). In 2050, it is estimated that 15% of the world's 60-plus population will live in India (ibid). The share of older people in the population is projected to double between 2011 and 2041 in many states, including relatively 'aged' states such as Kerala and Tamil Nadu and 'young' states such as Assam (to 14.4% in 2041) (ibid). By 2041, Bihar and Uttar Pradesh are projected to have the youngest populations in India (with age structures similar to the more aged states in 2011; 11.6% and 12.0% aged 60-plus respectively), and Kerala and Tamil Nadu are projected to have the oldest populations in India (23.9% and 22.6% respectively in 2041). This corresponds to over double the share of older people in the most versus least aged states. Nevertheless, as a result of the steep differences in overall population size, Bihar and Uttar Pradesh will be home to roughly 32 and 18 million older people in 2041, versus nine and 18 million in Kerala and Tamil Nadu respectively (ibid). In contrast to the typical overrepresentation of women at older ages due to lower mortality, women have only outnumbered men at older ages since 2000; there is estimated to be 97 men per 100 women at ages 60-plus in India, which drops to around 80 men at ages 80-plus (Subaiya & Bansod, 2014).

3.5. Fertility decline

As I have focused on older people's family structures, there is a lag between change in fertility behaviours and family structures. For instance, decreased fertility of a cohort of women in their 20s in the 1960s will impact family structures of the older population at the end of the century. As well as being the driving force behind population aging, fertility decline is transforming Indian family structures. While fertility in India demonstrated slow and uneven decline from the early 1900s, nationwide fertility began its decline in earnest in the 1960s, dropping from a TFR of around 5.9 in 1950-55 to a TFR of 2.2 in 2015-16 (though with regional variation as to the onset and degree of decline) (M Das Gupta, 1995; Guilmoto, 2016). The TFR is defined as the number of children a woman would have if she lived from age 15 to 50 and experienced the age-specific fertility rates of the period in question (UNFPA, 2020). This refers to a fictional cohort of women as in reality, fertility rates typically change with time. To understand the number of children a true cohort of women have, it is necessary to wait for a woman to reach the end of her fertility period (around 50) to understand "completed family size" (i.e., the average number of children a woman from a specific cohort had). This measure tends to be less readily available as a result of this lag.

The rate of fertility decline was almost constant over the period (apart from some variations due to major events related to India's fertility policies in the 1970s-1980s), in contrast to a slow-fast-slow rate as observed in other Asian countries (Guilmoto, 2016). There is great variation in fertility rates between populations (International Institute for Population Sciences (IIPS) and ICF, 2017b). Fertility is consistently higher in rural women and women of lower

socioeconomic status. At the India-wide level, women with no schooling have on average 3.1 children in comparison to women who have 12 or more years of schooling, who have on average 1.7 children. Women who live in rural areas have on average 2.4 children versus women who live in urban areas, who have on average 1.8 children. As per, fertility also varies greatly across regions and states. Of the major states, the southern states as well as Punjab, Himachal Pradesh, Maharashtra, and West Bengal have the lowest fertility. In 2015-16, women in Kerala and Punjab on average gave birth to 1.6 children (fertility rates similar to high-income countries (HIC) such as Australia and Denmark, as well as China) (World Bank, 2020b). In contrast, women in Bihar and Uttar Pradesh gave birth to (on average) 3.4 and 2.7 children respectively (rates more similar to LMIC countries such as Pakistan or Egypt) (ibid).

Since comparable data has been available (1970s), Tamil Nadu has had lower fertility than the national average (L. Visaria, 2012). While the national TFR remained above replacement at the 2011 census, Tamil Nadu reached replacement level fertility (TFR=2.1) in 1996. Tamil Nadu (and Kerala) underwent rapid fertility declines between the 1980s and mid-1990s, which widened the gap between them and the other states (including those in the South), but since reaching replacement, the rate of decline decreased and TFR appears to have plateaued around 1.6 (Registrar General and Census Commissioner, 2020b; L. Visaria, 2012). Interestingly, Tamil Nadu's fertility declined at relatively low levels of socioeconomic development and high infant mortality (Nagaraj, 1999). Proposed drivers include: social reforms which were underway from the late 1800s and promoted women's rights (e.g., higher age at marriage) and increased aspirations (e.g., education), the relatively high level of

income poverty which (in combination with high aspirations for children) reduced preferred family sizes, implementation and strong government support for family planning programmes, and strong rural-urban linkages and media which allowed family planning promotion (Nagaraj, 1999; Pande et al., 2020; L. Visaria, 2012). Current fertility differentials between socioeconomic groups are small; fertility is low in rural areas (TFR=1.9 versus 1.5 in urban) and less educated women (TFR=1.9 versus TFR=1.7 in most educated) (International Institute for Population Sciences (IIPS) and ICF, 2017b).

Fertility decline in European and North American countries occurred alongside postponement of childbearing (for instance women born in Denmark in the 1950s had their first child at age 23.9 years on average, which rose to 27.4 years for those born in the late 60s (Frejka & Sardon, 2006)). In India, age at marriage and at first birth have risen to smaller degrees, for instance, over a two-decade period (where TFR dropped from 3.4 to 2.2), the median age at first birth (of women aged 25-49) rose from 19.4 to 21.0 years (International Institute for Population Sciences (IIPS), 1995; International Institute for Population Sciences (IIPS) and ICF, 2017b). This again demonstrates variability, for instance rural women tend to have their first birth on average one year earlier than urban women, and women with no schooling have their first birth on average five years earlier than those with 12 or more years schooling (ibid). Fertility has dropped across all age-groups though the overall patterning remains the same (i.e., fertility is highest in ages 20-25). In Tamil Nadu, as in the rest of India, much of fertility decline has occurred at ages 25 and above (L. Visaria, 2012). Median age at marriage has risen (from 18 to 20 years over the past two decades for women), and the age gap between spouses has dropped to 6.5 years

for those married after 1990 (a decline of roughly one year in comparison to those married before 1970) (K. Das & Das, 2013; International Institute for Population Sciences (IIPS) and ICF, 2017a).

3.5.1. Son preference

The phenomenon of "son preference" has impacted fertility trends and consequently, population and family structures in India. "Son preference" refers to "the attitude that sons are more important and more valuable than daughters" (Clark, 2000). In India, this is enacted through differential care and resource provision during early life and childhood, differential stopping behaviour (i.e., couples are more likely to not have more children if they have a son (or sons)) and increasingly, through sex-selective abortions (Clark, 2000; Jha et al., 2011). Use of sex-selective abortions is strongly linked to birth order and sex of firstborns and ultrasound use rose rapidly (from 24 to 61% of pregnancies) over a ten-year period (International Institute for Population Sciences (IIPS) and ICF, 2017a; Jha et al., 2011). Son preference is evidenced by India's unequal sex ratios at birth (i.e., the ratio of live male to female births) and early life. The sex ratio at birth started rising in the mid-1970s in India and is currently estimated at 1.10 (a sex ratio at birth indicating a lack of son preference is around 1.05) (Chao & Yadav, 2019). While son preference was typically greater in the northern (particularly north-western) states, there is evidence that the practice has spread to southern India (including Tamil Nadu) (Diamond-Smith, Luke, & McGarvey, 2008; Jha et al., 2011; Sekher & Hatti, 2010).

India's largely patrilineal structure plays a part in son preference. Sons have the normative responsibility to support parents (particularly financially) at older

ages (which I expand upon below), which places importance on having a son for future wellbeing (Burholt, Maruthakutti, & Maddock, 2020; C. Vlassoff, 1990). Daughters on the other hand have no normative responsibility to their parents' care. The value of sons is further cemented in Hindu traditions, as sons are expected to perform rituals and light the funeral pyre on their parents' death (Klaus & Tipandjan, 2015; Lamb, 2000c). The patrilocal structure of much of Indian society also means that sons can benefit the household financially through continued co-residence and pooling income, and by bringing a daughter-in-law and corresponding dowry (the transfer of goods and services from a woman's natal family to her husband and husband's family on marriage) into the household. Having a daughter conversely corresponds to the parents need to provide dowry. While dowry was originally a north Indian and upper caste tradition, it is now practiced across the country and within all sectors of society, and is linked to the spread of son preference (Caldwell, Reddy, & Caldwell, 1982; Diamond-Smith et al., 2008; Klaus & Tipandjan, 2015; Mari Bhat & Halli, 2017; Sekher & Hatti, 2010).

In Tamil Nadu, though families used to practice bride price (the husband's family giving money to the wife's), this has reversed to the practice of dowry (though it is smaller than northern dowry expenses) (Desai, 2010; Diamond-Smith et al., 2008; Sekher & Hatti, 2010). Sex ratio at birth has also risen (Chao & Yadav, 2019). Potential reasons for these shifts include: non-Brahmanical castes emulating Brahmin cultural practices (similar to those of north Indian kin structures) as a route to social mobility, and changing family sizes and investments into children (Diamond-Smith et al., 2008; Pande et al., 2020).

3.6. Mortality decline

Trends in mortality will affect the probability of an individual reaching older ages, as well as the probability of their family members living until they reach an age at which they need support. Mortality decline predated fertility decline (resulting in India's rapid population growth) and is estimated to have begun around the 1920s (though reliable nationwide evidence is only available from the 1970s (Saikia, 2016)). National life expectancy has reached 69 years in India (2013-17), increasing steeply from 49.7 years in 1970-75 (Registrar General and Census Commissioner, 2019). The bulk of improvements in mortality have come from under-5 mortality, for instance life expectancy at age 60 only rose roughly four years between 1970-75 and 2013-17 (ibid). Mortality decreased at a faster rate for women. In 1970-75, life expectancy was higher for men at the national level (though not in the southern states), but by 2013-17, life expectancy was higher for women in all states but Bihar and Jharkhand (ibid).

National life expectancy estimates mask large differences in mortality across regions, gender, and socioeconomic backgrounds. For example, in 2013-17, rural men in the state of Madhya Pradesh had the lowest life expectancy of 62.8 years, in contrast to rural women in Kerala who had a life expectancy of 78.1 years (over 15-years difference) (Registrar General and Census Commissioner, 2019). Mortality tends to be lower in urban areas, though the rural-urban differential in life expectancy has decreased with time (from over ten years in the 1970s to less than five years in 2013-17 (ibid). A recent study estimated that, at the national level in 2011-15, life expectancy at birth for people in the richest quintile in India was 72.7, and 65.1 for those in the poorest quintile (7.6

years difference) (Asaria et al., 2019)). This reached a difference of nine years for urban men (ibid).

In the 1970s, life expectancy in Tamil Nadu was similar to the national average but began to fall away in the 1980s (first for women, then men), and is now higher than the national average (Saikia, Jasilionis, Ram, & Shkolnikov, 2009). Nevertheless, though life expectancy at birth in Tamil Nadu is 2.7 years higher than that at the national level, this difference gradually decreases with age, resulting in a gap of only 0.5 years at age 60 (Registrar General and Census Commissioner, 2019). Women's life expectancy has been equal to (or longer than) men's since the early 1970s, at which point the reverse was true for most states (Registrar General and Census Commissioner, 2019). Life expectancy has risen from 49.6 years in 1970-75 to 71.7 and 69.9 years in 2013-17 for men and women respectively (ibid). Life expectancy at age 60 stands at 18.7 years for men and 17.9 years for women, and the life expectancy in rural areas is three years lower than urban areas (ibid).

3.7. Family structure

3.7.1. Children

Fertility decline has likely reduced the number of children in older people's families. Nevertheless, family structures are also influenced by mortality trends. We can glean information on the influence of fertility and mortality decline in changing family sizes from the National Family and Health Surveys (NFHS) which have been conducted over the past two decades with women (and men) of reproductive ages (15-49). Childbearing is uncommon after age 40, therefore the age-group 40-49 can shed light on roughly how family structures have

changed at older ages (International Institute for Population Sciences (IIPS) and ICF, 2017b).

3.7.1.1. Influence of mortality

To illustrate the impact of mortality on family structures at later ages, in 2015-16, women in India aged 45-49 had given birth to 3.3 children on average but had 3.0 children alive when surveyed (International Institute for Population Sciences (IIPS) and ICF, 2017b). Two decades prior, women aged 45-49 had given birth to 5.1 children on average but had 4.1 children alive at the point of survey (International Institute for Population Sciences (IIPS), 1995). Table two demonstrates that completed family sizes at ages 45-49 have decreased less than fertility. The difference between fertility levels and numbers of living children is greater in higher mortality populations (which also tend to be higher fertility populations), for instance in 1992-93, illiterate women (age standardised) in India had 3.5 children on average but 2.9 living children, while women with high school education or above had 1.9 children on average with 1.8 children still living (ibid). A 2011 survey of people aged 60-plus in seven states (across India's regions) revealed an average of 3.5 living children in comparison to an average of 4.0 children ever born (UNFPA, 2012). This varied by state, from a high of 4.0 living children (and 4.6 ever born) in West Bengal, to 2.7 children (and 2.9 ever born) in Tamil Nadu. Only 5% of individuals surveyed had no living children (ibid).

Table 2: Difference in children ever born and number of living children to women aged 45-49, India, 1992-93 to 2015-16 (NFHS)(International Institute for Population Sciences (IIPS), 1995; International Institute for Population Sciences (IIPS) and ICF, 2017a).

Women aged 45-49, India	**1992-93**	**1998-99**	**2005-06**	**2015-16**	**% change 1992-93 – 2015-16**
Children ever born	5.07	4.62	4.14	3.34	34
No. of living children	4.05	3.79	3.48	3.02	25

3.7.1.2. Influence of son preference

A recent study used NFHS data to examine the composition of sons and daughters of Indian women aged 40-49 (Allendorf, 2019). It demonstrated that, for all India, the proportion of families composed of only sons (i.e., daughterless) increased from 13 to 22% between 1992-93 and 2015-16. The proportion of families composed of only daughters (i.e., sonless) on the other hand only increased from eight to 10% (ibid). This varied greatly across states. In 2015-16, 21% of mothers in Kerala did not have a son (and 18% in Tamil Nadu), versus 3% in Haryana. In contrast, 30% of mothers in Kerala and Tamil Nadu did not have a daughter respectively, versus a low of 14% in Uttar Pradesh (and 27% in Haryana) (ibid). Nevertheless, these estimates were not stratified by socioeconomic status which will influence both fertility and mortality (to different degrees across states) and thus family sizes. In sum, these estimates illustrate the combined effect of fertility decline and son preference practices on family structures at later ages.

3.7.2. Spouse

Marital status at later ages is affected by gender differentials in mortality (for heterosexual couples) as well as differences in ages between spouses. As a result, marital status at older ages tends to vary greatly between men and women in India. It is also therefore less straightforward to estimate how these trends have influenced marital status. Women typically marry older men in India (less than 1% of Indian women are married to a man younger than them (Lin, Desai, & Chen, 2020)), though the average age gap between spouses has declined from seven years (for those married in the late 1950s) to just under five years (for those married in the late 2000s) (K. Das & Das, 2013). While mortality has declined for both men and women in India, the rate of decline has been faster in women. By 2013-17, men aged 20 (i.e., approximately the age at marriage) were expected to live on average 51.5 years while women were expected to live 54.6 years (Registrar General and Census Commissioner, 2019). Census reports indicate that 82% of men aged 60-plus were married in 2011, in comparison to 50% of women (which showed little change from 2001 (82 and 47% respectively) (Census of India, 2011a; Subaiya & Bansod, 2014).

3.7.3. Gap in the literature

While I can gauge some information of family structures of the older population from various data sources, there remains a gap in our understanding of exactly how demographic trends have shaped family structures of the older population. For one, there are no descriptions of change in numbers of children across different populations over time (affected by both fertility and mortality), which would be useful in assessing how the availability of child-based support may have changed so far. Further, and importantly, the existing evidence of the older

population tends to group sons and daughters. Sons and daughters (and correspondingly daughters-in-law and sons-in-law) have specific support roles, therefore changes in the composition of children is also important for potential changes in support.

3.8. Family-based support and health

The evidence that I outline below has assessed the relationship between family/household structures and health, with support as a potential mechanism between the two. To the best of my knowledge, there is no evidence for the direct effects of support receipt on health outcomes of older Indians. This is fairly typical of the social support and health literature (Thoits, 2011).

3.8.1. Marital status

Evidence on the link between social support and health of India's population is limited. Of family-based support, the relationship between marital status and health of older individuals has been investigated most often (definitions of old vary from 40 to 60-plus). In line with evidence from other countries (Manzoli et al., 2007), studies in India tend to indicate that being currently married (versus being widowed typically) is inversely associated with negative health outcomes such as disability, mortality, short-term morbidity, poor self-rated health, depression and psychological distress (S. Basu & King, 2013; Hirve et al., 2012; Ladusingh & Ngangbam, 2016; Perkins et al., 2016; Samanta, Chen, & Vanneman, 2015; Sengupta & Agree, 2002; L. Singh, Singh, & Arokiasamy, 2016; Stewart Williams, Norström, & Ng, 2017; Sudha, Suchindran, Mutran, Rajan, & Sankara Sarma, 2007). There is some evidence that marital status is associated with better health for women in comparison to men (Perkins et al., 2016;

Stewart Williams et al., 2017; Sudha et al., 2007), though this is inconsistent (Hirve et al., 2012). On the other hand, other studies indicate no clear effect of marital status on health outcomes, though these tend to have smaller sample sizes (Banjare, Dwivedi, & Pradhan, 2015; Garin et al., 2016; Himanshu, Arokiasamy, & Talukdar, 2019; Jotheeswaran, Williams, & Prince, 2010; Vadrevu, Kumar, & Kanjilal, 2016).

3.8.2. Children

A handful of studies have examined the association between children and older parents' health in India. Evidence from a nationwide survey in the 1980s indicated that daughters were not associated with mobility difficulties, but sons were inversely associated with mobility difficulties (with a larger effect size of having three-plus sons versus one-two) (Sengupta & Agree, 2003). In a North-South comparison of the association between support and presence of visual and limb impairments, older people who were unmarried and did not have a co-resident son had worse health outcomes in comparison to those who were married and co-residing with a married son (though this only held true in the northern states) (Sengupta & Agree, 2002). In contrast, evidence from a survey conducted in South India in the 1990s indicated that having one-plus daughters was associated with better self-rated health for fathers (and not mothers), while sons had were not associated with either parents' health (Sudha et al., 2007). A small study on older women in urban Tamil Nadu revealed a non-linear pattern between number of sons and prevalence of chronic morbidity. Women with two-plus sons were most likely to have multiple chronic morbidities, followed by women with zero and then one sons (N. Singh, 2015), though I should note that morbidities were measured by self-reporting which can be biased towards

groups with higher access to healthcare (i.e., of higher socioeconomic status) (S. Basu & King, 2013; Srivastava & Gill, 2020; Vellakkal et al., 2015). This is hypothetically those with more family-based support.

3.8.3. Living arrangements

The living arrangements literature also sheds some light on the potential effects of family-based support on older Indians' health. Living arrangements tend to be used as a proxy for support, with co-residence with children and spouses hypothesised to correspond to 'support', and non-co-residence (for instance living alone or with a spouse only) to 'less support'. In keeping with this, there is evidence that living with family members (particularly adult children, spouse, and grandchildren) is associated with the best health outcomes versus other arrangements (Agrawal, 2012; Husain & Ghosh, 2011; Rudra, 2017; Samanta et al., 2015; L. Singh et al., 2016). On the other hand, other studies indicate no association with health outcomes such as mortality or life satisfaction (Jotheeswaran et al., 2010; Samanta, 2014). Co-residence can cover a range of situations, for instance positive relationships and receipt/exchanges of support versus strained relationships, conflict, and limited support (Jothikaran et al., 2020; Samanta, 2019). This, in addition to difficulties in defining a 'household' in quantitative data collection (Randall et al., 2015; Randall, Coast, & Leone, 2011), likely underlies these disparate outcomes.

3.8.4. Gap in the literature

Evidence on the relationship between family ties and older people's health in India is sparse and sometimes contradictory, though evidence from the living arrangements tends to indicate that family-based support is beneficial. While

having a spouse tends to be consistently associated with positive health outcomes for older adults, evidence on the relationship between number of children/sons/daughters and health is inconclusive (though this may result from the different health outcomes, populations, and time-periods of each of the studies). A better understanding of how family-based support affects health (alongside other potential pathways between family ties and health) will shed light on the potential health impact of changing family structures.

3.9. Support needs

My conceptualisation of tangible support needs is based on the premise that poor functional health can result in the need for practical support (including personal care) and financial support (if it limits a person's ability to work). India's older population tend to have poor health outcomes in comparison to other nations. It has been estimated that a 60-year old in India has the equivalent health status of the global average 65-year old (i.e., that the rate of physiological ageing is faster in India than the global average) (Chang, Skirbekk, Tyrovolas, Kassebaum, & Dieleman, 2019). A cross-LMIC comparison demonstrated that older Indians had the worst self-rated health and highest rates of ADL limitations (W. He, Muenchrath, & Kowal, 2012; Santosa, Schroders, Vaezghasemi, & Ng, 2016). Health outcomes worsen with rising age, for instance over 80% of women aged 75-79 in India had ADL limitations, versus around 50% of those in their fifties (and 40% of their Chinese counterparts aged 75-79) (Lau, Johnson, & Kamalanabhan, 2012; Santosa et al., 2016). Health outcomes are worse in those of lower socioeconomic status, for instance there is evidence of an inverse association between chronic disease prevalence and socioeconomic status and faster rates of physiological ageing in

lower socioeconomic status groups (Arokiasamy et al., 2016; S. Basu & King, 2013; Leone, 2019). Health outcomes also tend to be worse in women, despite (generally) lower mortality (Bora & Saikia, 2015; W. He et al., 2012). Of note, suicide rates at ages 70 and above rose between 1990 and 2016 (significantly so for the 80-plus population), at the same time that suicide rates declined in all younger age groups (R. Dandona et al., 2018).

India is undergoing an epidemiological transition, meaning the morbidity and mortality burden is transitioning from communicable, maternal, neonatal and nutritional diseases to non-communicable diseases (L. Dandona et al., 2017). Nevertheless, this varies greatly across the country, for instance the less economically developed states in Central, East and North India, as well as those in the North-East, tend to be earlier in their transition (ibid). Prevalence of chronic diseases (particularly diabetes and heart disease) is high and rising rapidly (ibid), and 50% of over 50s are estimated to have at least one chronic condition (S. Basu & King, 2013; L. Dandona et al., 2017; Siegel, Narayan, & Kinra, 2008). These chronic diseases are (by definition) long-term and require continuing treatment and management to manage symptoms and avoid declines in health and health events (e.g., hospitalisations or mortality). In the context of India's healthcare system (which is skewed towards tertiary and private care as a result of long-term underfunding of the public system (Bali & Ramesh, 2015)), this corresponds to ongoing and often large out-of-pocket spending (and/or avoidance of healthcare if deemed unaffordable). In other words, rising prevalence of chronic disease may mean rising financial support needs. This is further compounded by the high prevalence of multimorbidity (i.e., co-occurrence of chronic diseases), for instance 60% of those aged 60-69 are

estimated to have at least two chronic conditions (Garin et al., 2014). Multimorbidity complicates treatment and results in higher healthcare costs and mortality (Pati et al., 2014; K. Singh et al., 2018).

Chronic disease is also linked to disability (Sousa et al., 2009), consequently, the rise in chronic diseases could lead to a rise in disability and practical support needs. Nevertheless, a study using census disability data demonstrated varying trends in disability prevalence across the states and genders, with an overall increase at the national-level but small decline in Tamil Nadu between 2001 and 2011 for both men and women (Banerjee, Chanda, & Dwivedi, 2019). Nevertheless, the census defined disability using the biomedical model which tends to greatly underestimate disability, and the question wording varied over the two census rounds which may have affected the outcomes (Banerjee et al., 2019; Gudlavalleti, 2015). Other estimates of disability also indicate that prevalence is relatively lower in Tamil Nadu, for instance it is estimated that 6% of older people in Tamil Nadu need assistance with at least one ADL (versus a cross-state average of 8% and high of 12% in West Bengal), while 85% need help with at least one IADL (versus 88% cross-state estimate) (UNFPA, 2012). Prevalence of both locomotor and sensory impairments is also relatively low (ibid). It should be noted that this survey was conducted in states with more aged populations, which also tend to be more socioeconomically developed and have better health indicators, therefore functional support needs are likely even higher across the rest of India.

Of key importance to support for the older population, is the question of whether declining mortality is matched by improving health. The link between

the two will impact the time and extent a person spends their life with tangible support needs. Between 2005 and 2015, Global Burden of Disease estimates indicate that healthy life expectancy (i.e., number of years expected to live in good health) rose from roughly 55 to 60 years in women, and 54 to 57 years in men, though these increases were mirrored by declining mortality (i.e., the share of total life expectancy spent in good health was unchanging, at around 85 and 87% for women and men respectively) (Kassebaum et al., 2016). The difference between life expectancy and healthy life expectancy (i.e., years expected to live in poor health, thus potentially with support needs) was higher (and increased slightly) for women (9.6 years to 10.1 between 2005 and 2015) than for men (8.2 years roughly across both years) (ibid). Nevertheless, these estimates were only available at the national level which likely misses variation within the population. A study using census disability data indicates that men live for longer with a disability (1.9 years versus 1.5 years for women in 2011) and spend more of their life with disability (2.7% versus 2.3% for women at the national-level in 2011, and 1.9% and 1.5% for men and women respectively in Tamil Nadu) (Banerjee et al., 2019).

3.9. Sociocultural influences on support

Support provision to dependent older people in India is shaped by its sociocultural, religious, and legislative structures. Much of Indian society follows a patrilocal (meaning women live with their husband's family on marriage) and patrilineal (meaning family's assets are passed down through sons) kinship structure (Bhat & Dhruvarajan, 2002). Though not all of India follows these structures (for instance the matrilineal populations in Kerala and

the North-East), they are predominant for most of the population (including Tamil Nadu, which I focus on in detail as a case study).

In the patrilineal system, ancestral property and assets pass through the male line, which entrenches the importance and value of having a son (Dharmalingam, 1994; Jamuna, 2003; Kumar, 2020; Lamb, 2000c; Vatuk, 1990; Vera-Sanso, 2004; C. Vlassoff, 1990). The patrilocal system means that, after marriage, daughters are expected to co-reside with, and thought to 'belong' to, her husband's family. In practical terms, this means that her responsibilities lie with her marital family and she is particularly expected to care for her (marital) family members' needs and to have a son. Marriage of a son on the other hand results in the inverse and brings a daughter-in-law into the family as a key source of support. As a result of co-residence and in a rough return for a future inheritance, sons (and daughters-in-law) are socially expected to support parents in their older ages. These norms are explicitly defined, and there is evidence that parents openly express their wishes and expectations in return for the support they provide their children over the lifecourse (Vatuk, 1990). Daughters on the other hand have no normative responsibility to their own parents. In fact, receiving financial support or living with a daughter is stigmatised as her obligations lie with her in-laws. Nevertheless, if a son is unavailable, a daughter and son-in-law (or another male relation) can take on the son's support role if they are both willing and able (though there is no social obligation), likely in expectance of inheritance or some form of material gain (Cain, 1986; Vatuk, 1990). While daughters are not expected to provide tangible support, they are often stated as reliable sources of emotional support and love (Diamond-Smith et al., 2008; Lamb, 2000a; C. Vlassoff, 1990).

In addition to these more tangible forms of support, the concept of "seva" is also expected. Similar to filial piety in Confucian cultures, "seva" relates to respect and service from younger generations which aims to satisfy the elders' wishes. This covers providing tangible support in a caring way (for instance in a timely manner and with affection), as well as the demonstration of respect (for instance standing when elders enter the room), obedience (for instance following elders' guidance), and service (e.g., serving meals graciously and to elders first, or hair braiding) (Lamb, 2000c; Vatuk, 1990).

Kin structures vary within the country. For instance, the highest levels of consanguineous marriage occur in Tamil Nadu (30% in 2015-16 versus 7.5% for the national average and lows of <1% in North-East India and Himachal Pradesh) (primarily maternal uncle-niece or cousin-cousin) (N. Kumari, Bittles, & Saxena, 2019). Nevertheless, consanguineous marriage has declined (from 40% in the 1990s) (N. Kumari et al., 2019). Women in Tamil Nadu also tend to live relatively close to (86% versus 57% nationally), and maintain bonds with, their natal family (for instance 44% of surveyed women in 2004-05 had their last birth at their natal home, versus 21% nationally and lows of 1-2% in Assam and Uttarakhand (Desai, 2010)). These factors could have implications for the support available from daughters in later life.

The key role of children (and sons in particular) is further cemented by religious practices (Bhat & Dhruvarajan, 2002; Tanggok, 2018). For instance, Hindu scriptures state that parents should be viewed as Gods and that caring for parents is a sacred duty, neglect of which would have dearth consequences in the afterlife (Bhat & Dhruvarajan, 2002). Legislation has further

strengthened family-based support roles. Of particular importance is the Maintenance Act, which legislates that children have the responsibility to support their parents (Ministry of Social Justice and Empowerment India, 2007). Until 2005, sons' (rather than daughters') inheritance of ancestral property was also enshrined in legislation (the Hindu Succession Act (1956). This was amended at the country wide level in 2005 (the Hindu Succession (Amendment) Act (2005), where daughters were given equal inheritance rights (though this occurred in preceding decades in primarily southern states (Bhalotra, Brulé, & Roy, 2018; Kumar, 2020)).

The above social, religious, and legislative structures have led to considerable gender inequity in multiple areas of life. For instance, within families and households, there is evidence that boys and men's needs are prioritised over those of women and girls (for instance in access to food, education, and healthcare) (Brinda, Kowal, Attermann, & Enemark, 2015; Croll, 2000; Maharana & Ladusingh, 2014; Saikia, Moradhvaj, & Bora, 2016) and that women experience relatively less autonomy (for instance in terms of decision making or their movement), though this can vary greatly over the lifecourse and between regional, socioeconomic, religious, and other sub-populations (Desai, 2010; Desai & Temsah, 2014; Kaul, 2018; Lamb, 2000b; Luke, Xu, & Thampi, 2014).

In comparison to many other (particularly central and northern states), Tamil Nadu is relatively gender equitable. For instance, it has one of the highest rates of female literacy (three-quarters versus 65% nationally and lows of 50% in Bihar) and post-secondary schooling (22 versus 16% in those aged 20-29 nationally), and smallest gender gaps in educational attainment (Census of

India, 2019; Pande et al., 2020). Women in Tamil Nadu tend to have relatively high autonomy, particularly in contrast to some of the northern states. For instance, purdah is uncommon (10% versus over half of women nationally and highs of almost 100% in Rajasthan) and women are more likely to have control over spending or their own movement (Desai, 2010). Dyson and Moore famously proposed that Tamil Nadu's (or more broadly a "southern") kin structure is the underlying reason for better gender equity in South India, as it was theorised to result in closer bonds between daughters and their (nearby) natal family, giving them higher status and more protection in their affinal family's household, where a newly married woman was situated at the bottom of the gender and generational hierarchy (Dyson & Moore, 1983). Nevertheless, this has since been critiqued on the basis of minimal practical differences in patrilocal residence patterns between northern and southern states as well as the link between endogamous marriage and poor women's autonomy in other countries (Evans, 2020; L. Rahman & Rao, 2004; Vera-Sanso, 1999)). A key driver behind Tamil Nadu's relative gender equity is Tamil Nadu's long and significant history of civil society activism. Since the late 1800s, social movements have campaigned for Dravidian culture and against caste (particularly Dalit (i.e., "Scheduled Castes")) and gender discrimination and Hindu-centrism. These movements have been linked to high aspirations across social groups (Pande et al., 2020; Pandian, 1994; L. Visaria, 2012). Nevertheless, it should be noted that patriarchal norms still dominate in Tamil Nadu, for instance rates of domestic abuse are relatively high (which has been suggested to be linked to the relatively high rates of women's employment) and gender

norms dictate that women's primary role is as a mother (regardless of education) (Luke et al., 2014; Pande et al., 2020).

3.10. Current support practices

I have proposed that changing family structures could impact the support available to India's older population, with negative health implications. To shed light how family structure changes may impact support, it is necessary to understand how it is provided currently. This includes both primary sources of support, as well as potential alternatives to primary sources.

Survey data tends to indicate that support is provided along normative gendered lines; spouses and children are the main sources of tangible support, though the type of support provided varies by gender and relation of the recipient and provider (Balagopol, 2017; Help Age India, 2015; UNFPA, 2012). Nevertheless, while family members are key sources of support, this does not mean that all needs are met (particularly for lower socioeconomic status individuals) (A. Singh et al., 2016; Vera-Sanso, 2004), but rather that when support is available, it comes from the immediate family for much of the population.

3.10.1. Financial independence

Nationwide survey data from 2017-18 indicates that around two-thirds of older women (aged 60-plus) are completely dependent on others for their financial needs (versus one-quarter of older men), 10% are completely economically independent (half of men) and the rest partially dependent (Ranjan & R, 2020). Economic independency is slightly higher in urban areas (contrary to workforce participation rates, potentially due to higher salaried employment and thus

access to pensions), rises with socioeconomic status and declines with age (though these issues will intersect, particularly with gender) (Aslany, 2019; Ranjan & R, 2020; UNFPA, 2012). Being financially independent can have several meanings and is not necessarily a positive indicator, for instance 50% of older people with no children are financially independent, which could result from a lack of financial support in contrast to a choice resulting from own financial resources, in comparison to 30% of those with at least one child (Ranjan & R, 2020).

Though estimates vary across different data sources and degrees of disaggregation (particularly by urban/rural, age, sex, and socioeconomic status), existing evidence regarding work at later life demonstrates (a) that older Indians undertake a great deal of work in both paid and unpaid roles, and (b) that there are common patterns regarding older people's participation in the labour market. Workforce participation rates tend to decline with increasing socioeconomic status, which is likely underscored by a lack of a liveable pension for most the population working in the informal sector (though NSSO data from 2004-05 does not indicate a socioeconomic gradient for urban men (Selvaraj, Karan, & Madheswaran, 2014)). Though estimates vary, evidence typically indicates that (a) workforce participation declines with age (for instance dropping from over 80% of rural men aged 60-64 to 22% 80-plus), (b) workforce participation is consistently higher in rural versus urban areas, and (c) economic roles differ across the urban/rural divide, for instance salaried and family business work is more prevalent in urban areas while cultivation and animal care is more prevalent in rural areas (Barik, Agrawal, & Desai, 2015; Selvaraj et al., 2014). In Tamil Nadu, roughly one-quarter of older men are

working versus 15% of older women (higher in rural areas and of lower socioeconomic status), though this decreases linearly with age for both (UNFPA, 2013). Nevertheless, it should be noted that the bulk of the older Indian population work in the informal sector and casual work can be difficult to capture in quantitative surveys. Further, as older people's work in India tends to be marginalised, people may not define their productive activities (e.g., helping with a family business) as work (Selvaraj et al., 2014; Vera-Sanso et al., 2010).

3.10.2. Financial support

In line with higher employment rates of men and the normative expectations of men to act as financial providers, sons and husbands are the main sources of financial support for older individuals (women). A 2011 survey conducted in seven states indicated that, while a quarter of the 60-plus population did not rely on others' income to support their basic needs (15% of older women and 38% of older men), 50% relied on sons as their main source of financial support (similar between men and women) while 15% relied on spouses (22% of women and 7% of men) (UNFPA, 2012). Please note that these estimates of financial independence (from the UNFPA survey) are lower than those in the national-level NSSO estimates noted above (Ranjan & R, 2020). This may be because the 2011 survey was conducted in seven states with higher than average population ageing, that likely differ from other Indian states. There is evidence of the financial difficulties that widows face when losing their husbands, which can lead to increased reliance on children and need for employment (Mohindra, Haddad, & Narayana, 2012). More older individuals relied financially on "others" as their main source of financial support than

daughters (6 versus 4%) (ibid). Nevertheless, similar to the range of circumstances that a co-resident living arrangement can represent, a son being the primary source of financial support does not necessarily mean that this is readily available when required. These responses may also reflect social expectations around support if the respondent felt uncomfortable to reveal more stigmatised practices (e.g., considerable financial support from a daughter or lack of any help).

While these three sources (sons, financial independence, spouse) for financial support were most used, and support from daughters and 'other' least commonly used across the states assessed, the relative importance of each varied. For instance, financial independence was lowest in Kerala (16%) and highest in Himachal Pradesh (36%), while reliance on daughters was highest in Kerala and Tamil Nadu (8 and 7% respectively) in comparison to Punjab (0.5%) (ibid). Financial independence increased (and support from daughters decreased) with household wealth. The rise in the importance of daughters' financial support with decreasing household wealth may indicate that daughters provide more help when their parents are in more need.

Interestingly, when asked about any sources of financial support (rather than main sources, i.e., each source did not sum to 100%), one-quarter of people aged 80-plus in a cross-state survey stated they relied financially on their daughter and daughter-in-law (Help Age India, 2015). Daughter's financial support rose to 60 and 50% in Hyderabad (Telangana) and Chennai (Tamil Nadu) respectively, in comparison to 8% in Bhopal (Madhya Pradesh) and

Ahmedabad (Gujarat) (ibid). Therefore, while there appear to be some common trends in support practices across India, there is also clear variation.

3.10.3. Living arrangements

When it comes to living arrangements, the 2011 cross-state survey indicated that 70% of older people co-resided with children and grandchildren, while 16% lived with a spouse only, 8% with "others" and 6% alone (UNFPA, 2012). Women were more likely to live alone (10 versus 3% of men) and men to live with a spouse only (21 versus 11% of women) (ibid). Living arrangements were broadly similar by urban and rural (with a slightly higher proportion of people living with a spouse in rural areas), while living alone and with a spouse only decreased with increasing wealth (though living with a spouse was highest in the most educated, 22 versus 14% in least educated) (ibid). Living arrangements also varied greatly across the states. In particular, the living arrangements of older adults in Tamil Nadu stood out. 16% of older people lived alone and 28% with a spouse in Tamil Nadu (over one-quarter of women living alone (and 16% with a spouse only) and over two-fifths of men living with a spouse only (and around 5% alone)) (ibid). This contrasts to around 3% living alone in Odisha, Punjab and Kerala, and around 10% living with a spouse in West Bengal and Kerala (UNFPA, 2012). In Tamil Nadu, living alone is negatively associated with education and household wealth index (with little difference over urban/rural), while living with a spouse is most common the most educated (ibid).

Nevertheless, the 2011 survey estimates contrast to those of the 2014 NSSO nationwide survey, which indicated that 10% of older people in rural Tamil

Nadu lived alone and 30% lived with a spouse only, while 7% in urban Tamil Nadu lived alone and 20% with a spouse only (estimates not available by gender) (Ministry of Statistics and Programme Implementation, 2016b). Though the 2011 estimates have used survey weights, the Tamil Nadu sample size was relatively small (around N=1,500) and the sample may not have provided a representative estimate of living arrangements across the state. Nevertheless, though estimates of the overall share of older people living alone/with a spouse varies across the two data-sources, both data-sources indicate that these arrangements are more common in Tamil Nadu than most other states (particularly in rural areas) (Ministry of Statistics and Programme Implementation, 2016a; UNFPA, 2012).

While co-residence does not necessarily correspond to residential or other forms of support, a main stated reason for people living alone or with a spouse only in India was not having children or children being away (though for 40% in rural areas it was a preference to remain independent or resulted from family conflict) (UNFPA, 2012), which indicates that non-co-residence is often not a choice and may mean support (particularly in person practical help) is unavailable.

A survey of the 80-plus population demonstrated that the majority (71%) co-resided with a son, 10% with a daughter or alone, while 5% were living with a spouse only (Help Age India, 2015). Tamil Nadu stood out again with the lowest share of the 80-plus population in Chennai living with a son (38% versus highs of 87% in Delhi NCR) and similarly high shares living alone, with a spouse, or daughter (around 17%) (ibid). Nevertheless, this survey was conducted with a

sample of 100 older individuals in large cities in each state and likely does not represent the circumstances of those in rural areas or poorer districts. Further, 6% of those surveyed in Chennai also co-resided with ‘domestic help/caretaker’ which could indicate that it is a relatively higher socioeconomic status sample and not representative even of the Chennai population (for instance those living in slums or slum resettlement colonies) (ibid).

3.10.4. Practical support

When it comes to practical support, the above survey of people aged 80-plus indicated that daughters-in-law and sons were the main sources of help with instrumental activities (e.g., bringing medicines from the market, providing meals, washing clothes), followed by a spouse and a daughter (though these estimates will have the same limitations) (Help Age India, 2015). Other sources (for instance grandchildren or sons-in-law) were rarely (<2%) the main source of help (ibid). Nevertheless, this data was not categorised by activity and it is likely that the source of each task varied across gender lines due to norms around which household tasks men and women should undertake (Luke et al., 2014). Women (primarily wives and daughters-in-law) tend to act as primary caregivers; the proportion of women varies from 53% to 90% in samples of primary carers (10/66 Dementia Research Group, 2004; Ajay, Kasthuri, Kiran, & Malhotra, 2017; Brinda, Rajkumar, Enemark, Attermann, & Jacob, 2014; R. Gupta, 2009; Lambert et al., 2017) (though few of these studies defined what is meant by a primary caregiver and which tasks they help with). In a study of older people in Tamil Nadu slums, none of the surveyed women were cared for by their husband at home, and instead were looked after by their daughters and daughters-in-law (Balagopol, 2017). Support from daughters contrasts with

normative support roles and could result from a higher need in these lower socioeconomic status older adults or indicate that the stigma around support from daughters is more of a normative expression than practice.

3.10.5. Health-related support

When it comes to health related support (for instance financing healthcare costs, helping during illness, attending healthcare visits), costs (e.g., for hospitalisation) show similar patterns to financial support and are typically covered by children, the individual (for men) or a spouse (for women) (UNFPA, 2012). Other sources (including health insurance) were the source for less than 10% of hospital costs (ibid). A survey of the 80-plus population indicated that sons were the main source of help during ill health, followed by a spouse, daughter-in-law, and daughter. This appears to contradict the primary role of daughters-in-law as caregivers, though "help" was not defined, and it could perhaps include paying for healthcare costs. Sons also play a key role in accompanying elders during healthcare visits, for instance 50% of older people were accompanied by a son during their last episode of hospitalisation, followed by a quarter who were accompanied by a spouse (30% of men versus 15% of women), and a daughter (5% of men versus 13% of women) (ibid). There is evidence that parents particularly value the support their sons provide them (given the patrilocal and patrilineal nature of much of Indian society) (C. Vlassoff, 1990), which may also influence their responses to survey questions.

In sum, the evidence outlined above indicates that the immediate family unit tend to be the primary source of support in Tamil Nadu and other Indian states, though varying members tend to provide different types of support.

Nevertheless, the potential impact of family structure changes on support and health is reliant on (a) the way that these close family members interact to provide support (e.g., are tasks shared equally or does the responsibility fall on one person, in that case, do primary carers receive any help from others?), and (b) how available support is from the immediate family and other sources (e.g., formal care, extended family members) for older people.

3.10.6. Task sharing

When it comes to task sharing, a few studies have indicated that primary carers lacked respite care and felt un-helped by their family members, and instead felt that family members applied criticisms that made the experience more difficult (Danivas et al., 2016; Shaji et al., 2003; Ugargol & Bailey, 2018). Studies have indicated that only 10% of older caregivers in India received help from other family members (primarily financial) (though this seems fairly low and may result from the difficulties in defining support receipt when support exchanges within the family are normal and expected) and 60% of caregivers perceived the need for an additional caregiver (Brinda et al., 2014; Lambert et al., 2017). On the other hand, there is also evidence that help from family is the main coping strategy for handling support related strains (Brijnath, 2012; Shaji et al., 2003). Nevertheless, the focus of these studies was not to explore the degree of task sharing and the evidence remains unclear.

3.10.7. Availability of support from the immediate family

Both historical (i.e., late 1900s) and contemporary evidence indicates that support is not always readily available from the immediate family. Though there tends to be a nostalgic and rosy view of the 'past' within Indian society –

which is viewed as a simpler time when families were close, supportive, and respectful towards their elders – this image has been repeatedly critiqued (L. Cohen, 1998; D. Dey, 2016; Lamb, 2000a; Michaels, 2020; Vera-Sanso, 2017). For instance, as mentioned in chapter one, the joint family may not have been a predominant historical practice, as there is evidence for high prevalence of nuclear households in the early to mid-1900s when India remained largely agrarian. The image of the traditional joint Indian family may have been more of a normative ideal, which was practiced by higher caste higher-class families who were able to maintain the joint family, while lower caste lower class families were made to split into nuclear households as a result of competition for relatively fewer resources (Cohn, 1961; D'Cruz & Bharat, 2001; Vera-Sanso, 2007). This does not necessarily correspond to a wealth of adequate support to dependent family members, at least for much of the population.

Unfortunately, there are no datasets (outside of household structures) which allow us to examine the link between family structures and support to older dependent individuals over time. Nevertheless, a few (typically qualitative or small quantitative) studies conducted towards the beginning of India's fertility decline examined support for older people and may shed light on support provision prior to large changes in family structures.

Evidence from rural Maharashtra in the 1970s and 1980s revealed men often worked into later ages (i.e., past 60) to support themselves financially, over 10% of older people lived alone, people (particularly poorer and those without land) expressed concerns as to whether their sons would support them in their old-age (despite having around two sons on average), and widows were

sometimes not supported by their sons (e.g., via co-residence or material support) despite living in the same village (M. Vlassoff & Vlassoff, 1980). Evidence from 1970s North India demonstrated that, while older people felt pride when living with their children (and were unconcerned about a lack of direct reciprocity due to prior support provision), they were also very concerned about losing "working hands and feet," the support experience becoming increasingly difficult for their relatives and subsequently being withdrawn (though maintaining control of property was stressed as a mechanism for ensuring support) (Vatuk, 1990). Being alone at older ages was perceived as the worst fate and older people that had no sons were perceived as having the most destitute lives (ibid). Evidence from rural 1970s-80s India further indicated that co-residence with married sons was more common for wealthier ("less poor") older women, further demonstrating the disparate situations of people from varying socioeconomic groups (Cain, 1986).

More contemporary evidence from Tamil Nadu and elsewhere in India also demonstrates that support is not readily available from immediate family members when required. Ethnographic evidence from Tamil Nadu illustrates that rising aspirations and consumption (e.g., education) in younger generations, labour market changes, the cultural view of later life as a phase of decreasing needs, and the economic pressures on sons that limit their ability to support their own nuclear family, all restrict the support available to older individuals, particularly those without property to incentivise support (Vera-Sanso, 2004, 2007). A recent study with older people in Tamil Nadu and Andhra Pradesh demonstrated that support was not always readily available even when people co-resided with their children (Jothikaran et al., 2020). A small study in

Uttar Pradesh indicated that a third of older individuals had unmet needs with at least one ADL, which rose to 43% in unmarried individuals and 70% in those living alone (A. Singh et al., 2016). Unmet needs were also higher in women and those from lower socioeconomic groups, demonstrating the importance of other characteristics (e.g., gender, socioeconomic status) in addition to family and household structures (ibid).

While daughters are part of the immediate family (according to my broad definition as described in the conceptual framework), they are not the normative source of tangible support (e.g., co-residence, financial, practical). So, in addition to the other perceived/experienced challenges that can inhibit support from family members, the stigma around daughters' support may act as an additional barrier. In a survey of older people, roughly half felt that having one son was preferable for support in older ages (while just under a quarter felt that two sons was preferable) (UNFPA, 2012). On the other hand, though half also felt that having one daughter was preferable for support at older ages, almost two-fifths felt that having no daughter was preferable for the same (ibid). The stigma around daughters' care is clear from the responses of adults (aged 15-49) in the Indian Human Development Survey (IHDS). When asked if they expected to live with a son or daughter, 85% of adults surveyed expected to live with a son (and 9% with a daughter) and only 24% stated that they would consider living with a daughter if their son was unable (these numbers were similar for financial support) (Desai, 2010). This varied by population. Education was positively associated with the likelihood of considering living with a daughter (22% of illiterate women would consider it versus 31% of college graduates), though interestingly, it showed little association with wealth

quintile or urban/rural residence (ibid). It also demonstrated great regional variation, for instance, while people preferred to receive residential and financial support from a son in every state, over 40% of women in Kerala, Andhra Pradesh and the North-East would consider living with a daughter (which may be linked to the higher prevalence of matrilineal cultures), versus 3% in Punjab (ibid). A survey of expectations for support (from sons or daughters) across six cities in India demonstrated similar patterns (Kadoya & Khan, 2017). In Tamil Nadu, adults' expectations for support (co-residence and financial) from sons or daughters followed a similar trend to the national average (i.e., more open to daughters' care than north-western states such as Punjab, less open than other southern states and the North-East) (Desai, 2010).

Evidence from Kerala and Maharashtra indicates that parents chose not to co-reside with their married daughters, instead preferring to live alone or with their sons (despite their sons providing poor quality care) (Dhar, 2012; Ugargol & Bailey, 2018). A study of Keralan nurses (who had migrated internationally for employment) highlighted the discomfort felt by their parents, who felt they could not (and did not want to) expect financial support from their daughters, though they would have benefited greatly from additional financial help (Ahlin & Sen, 2020).

Nevertheless, people's subscription to these norms is malleable. A longitudinal study using the second wave of the IHDS demonstrated that not having a son impacted women's preferences for support at later ages. For instance, the proportion of childless women (at the first survey wave) who expected financial and residential support from a daughter rose from 0% to over 30% after having

a daughter by the second wave (Allendorf, 2019). There is similar qualitative evidence of older people adapting their expectations to their family circumstances. In Keralan families where sons had migrated internationally, older people spoke of hoping for help from their daughters, though with the caveat that they might struggle alongside their responsibilities to their in-laws (Ugargol & Bailey, 2020). This is in line with theories that propose that culture provides people with guidance on their potential actions which they can amend to their needs, rather than as a strict set of rules (Bachrach, 2014; Swidler, 1986).

In a moderately low fertility village in West Bengal, some participants stated that daughters were providing more support for their parents than in the past (though others reported the upkeep of son-focused norms) (Allendorf, 2012a). Studies of families in which a child (son) has migrated also demonstrate a larger and compensatory role of daughters (Miltiades, 2002; Ugargol & Bailey, 2018).

3.10.8. Availability of support from outside the immediate family

When it comes to the availability of support outside the immediate family (e.g., formal services), there is likely a great deal of variation by socioeconomic status. Estimates from the 2014 nationwide NSSO survey indicated that 0.2% of older people (60-plus) in urban areas and 0.3% of those in rural areas lived in an old-age home respectively (Ministry of Statistics and Programme Implementation, 2016b). Old-age homes can be categorised into free (largely setup by the government, NGOs, and religious groups) and private "pay-for-stay" institutions (Brijnath, 2012). There are large socioeconomic differences between people that use pay-and-stay and free homes, for instance a survey

demonstrated that 92% of those in free homes had a monthly income of 1,200 rupees or less, versus 3% of those in pay-and-stay homes (Samuel, Mclachlan, Mahadevan, & Isaac, 2016). Free homes are aimed at poor older adults who have no family-based support and are unable to support themselves. The burgeoning commercial market of old-age homes on the other hand is aimed at India's middle-classes, and can include a range of facilities (for instance covering basic food and shelter to spa like facilities) at a range of rates (Brijnath, 2012; Lamb, 2013; Mayer, 2020). In contrast to old-age homes in Western countries, older adults are expected to have a basic level of physical and cognitive health when staying in either type of home (Brijnath, 2012). If an individual begins to require high levels of care, homes typically request family members to take the older individual in or provide a private carer, or the home refers the individual to a hospital (ibid). Not having another potential source of support is a primary reason for using old-age homes (A. Gupta, Mohan, Tiwari, Singh, & Singh, 2014; Kalavar et al., 2008)

While there is no data on numbers of older people using in-home formal care services, private services are increasingly available in urban India for those who can afford them (Brijnath, 2012, 2020; Lamb, 2013). Domestic staff are commonly used by middle-class Indian families (for instance to cook or do household tasks) and commercial formal care services are also increasingly available in urban areas. A few studies have touched on the use of these services in older people with children who have migrated (Bailey, Hallad, & James, 2014; Miltiades, 2002). A Kolkata based study of older middle-class people with immigrant children demonstrated hierarchies of preferences, indicating that those who could turned to immediate relatives, for instance strengthening the

spousal unit or relying on non-immigrant children, and then extended family (Miltiades, 2002). Those without children or relatives turned to neighbours and domestic help, which allowed them to live securely independently (ibid). Support with practical help from outside the immediate family (e.g., extended family and friends) is higher in those living alone, demonstrating how people adapt to their circumstances (Ugargol et al., 2016).

3.10.9. Gap in the literature

In sum, the existing evidence demonstrates the importance of immediate family members (primarily sons, daughters-in-law, spouses, but also daughters in some cases) as primary sources of support, though support is not necessarily always readily available. Nevertheless, the alternatives available (particularly from extended family) and the degree to which support is shared within families is unclear. These are key issues for understanding how family structure changes may impact the existing status-quo of support.

3.11. Support related challenges: Stressors and coping strategies

Given the importance of the challenges experienced by support providers in restricting support and initiating relinquishment of the support role, it is important to understand the challenges that family members experience when supporting dependent older relatives in India, and the ways in which they cope.

Much of the evidence on the difficulties of support provision in India is based on quantitative studies (with typically small sample sizes) that examine the concept of "caregiver burden" using standardised instruments (Brinda et al., 2014; Dias et al., 2004; R. Gupta, 2009). These demonstrate that supporting dependent older individuals in India can be associated with negative outcomes

for primary caregivers as well as households, for instance resulting in high time, financial, and psychological burdens (10/66 Dementia Research Group, 2004; Ajay et al., 2017; Brinda et al., 2014; Dias et al., 2004; R. Gupta, 2009; R. Gupta, Pillai, & Levy, 2012; Jacob, Kundapur, & Ramachandra, 2019; Lambert et al., 2017; Prasad & Rani, 2007). Almost half of caregivers for older people in Tamil Nadu reported financial difficulties due to caregiving) (Brinda et al., 2014). A small study indicated that caregiving related strains are associated with desire for institutionalisation (Sinha, Yohannan, Thirumoorthy, & Sivakumar, 2017). Key stressors include: high financial strains (particularly due to healthcare costs), health of the recipient (particularly dementia, urinary incontinence, and number of impairments), being of lower socioeconomic status, age (in older people), and being a woman (10/66 Dementia Research Group, 2004; Ajay et al., 2017; Brinda et al., 2014; Dias et al., 2004; R. Gupta, 2009; R. Gupta et al., 2012; Lambert et al., 2017).

While the described evidence demonstrates the potential impact on family members and highlights some broad stressors, the results of quantitative studies are dependent on the questions asked, the assumptions made, and the instruments used. The vast majority of the current evidence on caregiving related stressors is based on high-income settings in the West or East Asia (Lloyd-Sherlock, 2014; Thrush & Hyder, 2014). Therefore, there may be some stressors more prevalent in the Indian context that have not been identified with this approach. Further, while a quantitative approach can identify correlates with "caregiver burden" – for instance being a woman – it does not elucidate how and why these characteristics are linked, which is necessary if we

wish to develop solutions to lessen caregiving related challenges. These issues are thus more suitable to a qualitative approach.

Qualitative studies of caregivers for older people in India have largely focused on specific populations, particularly carers for individuals with dementia (Brijnath, 2012; Danivas et al., 2016; Narayan et al., 2015; Patel & Prince, 2001; Shaji et al., 2003) and emigrant households (Miltiades, 2002; Ugargol & Bailey, 2018, 2020), though one was conducted in the general population (Dhar, 2012). Studies on carers for people with dementia reveal that both direct healthcare expenditure and declines in employment (of both primary and secondary carers) impact the household's finances, which can lead to resentment (particular if children feel they are "shouldering more than their fair share") (Brijnath, 2012; Danivas et al., 2016; Narayan et al., 2015; Patel & Prince, 2001). Dementia specific stressors were key (particularly wandering and violent behaviours), which were worsened by a lack of dementia knowledge as behaviours were attributed to purposeful misbehaviour. Lack of support, either from family members or community services, also made the caregiving experience more difficult (Narayan et al., 2015; Patel & Prince, 2001; Shaji et al., 2003). The emotional impact (for instance feelings of stress and isolation) was sizeable; a few studies identified cases of suicide (and suicide attempts) and abuse of the care recipient (Narayan et al., 2015; Shaji et al., 2003). In households where sons had emigrated internationally, daughters-in-law were left to fulfil additional roles, had little autonomy in comparison to older generations and men in the household, and expressed resentment after quitting their jobs and perceiving a lack of reciprocal help (for instance with childcare) (Ugargol & Bailey, 2018). More general stressors included helping with

personal care tasks and incontinence, fears for the elder's wellbeing and safety, role conflict, as well as family dynamics (for instance the quality of the relationship prior to the transition to caregiving, conflict, and criticism from family members) (Brijnath, 2012; Dhar, 2012; Patel & Prince, 2001; Shaji et al., 2003).

When it comes to coping strategies, the evidence is mixed. Some studies have demonstrated that carers primarily use informal support to cope with the support related stresses (Brijnath, 2012; Shaji et al., 2003) (which is in line with a systematic review of the burden experienced by carers for people with dementia that indicated that smaller support networks are associated with higher strains (J. van der Lee et al., 2014)). Nevertheless, a study in rural Tamil Nadu indicated that the availability of an additional caregiver was not associated with caregiver burden of primary carers (Brinda et al., 2014) while in Allahabad, number of the older person's children (hypothetically the number of potential sources of support) was not associated with caregiver burden in (R. Gupta, 2009).

3.11.1. Impact on the support recipient

There is some evidence that support related strains in turn affect the care recipient in India, for instance support related strains are associated with caregiver's desire to institutionalise (for carers of dementia patients) and caregiver burden is associated with health-related quality of life for stroke patients (Isaac, Stewart, & Krishnamoorthy, 2011; Sinha et al., 2017). While not directly associated with caregiver burden, care recipient's support needs (as

measured by ADLs and IADLs) are associated with elder abuse (Sathya & Premkumar, 2020).

3.11.2. Gap in the literature

Existing evidence has largely assessed the challenges of support provision using quantitative methods, which does not highlight the exact stressors that can result in feelings of burden. The existing qualitative studies largely focused on specific issues (e.g., for instance stressors related to dementia or migration) which meant they did not explore other (e.g., socioeconomic) influences on the challenges of support in the general population. There is also limited evidence from Tamil Nadu and inconclusive evidence on the coping strategies that families use, as studies indicate both a reliance on relatives for helping with support related strains and common perceptions of a lack of help from others by primary carers. A better understanding of coping strategies would be beneficial for developing strategies to support families.

3.12. Attitudes towards support arrangements

It is important to understand how people want the system of support to work for older populations. In 2011 over half of people aged 60-plus stated that children should be the main source of support at old age, in comparison to 25% who felt that adults should be independent and the remaining who felt that the government should support older people (UNFPA, 2012). These preferences varied greatly across states, for instance in Tamil Nadu only 38% stated that it was children's responsibility to support older individuals (similar to the share that felt people should be independent in their later years), versus over 80% who stated the same in Kerala (ibid). Nevertheless, what these different

concepts (e.g., being "independent") mean to different people is not clear. People may amend their preferences based on their own circumstances (as proposed by Festinger's theory of cognitive dissonance (Festinger, 1957)), which could underlie the relatively high share of older people in Tamil Nadu stating they preferred independence (as older individuals living independently were potentially overrepresented in the 2011 survey).

Ethnographic evidence from West Bengal demonstrates that the family is idealised as the best source of support, not only for practical reasons for the older individual, but also to "uphold core Indian forms of morality, identity, and sociality" (Lamb, 2013). Caregivers of (a small study with) individuals with dementia in rural Tamil Nadu largely felt that it was part of Indian culture to provide care within the home and that it was what the care recipients preferred (Gurukartick, Dongre, & Shah, 2016).

When asked about preferred living arrangements, half of older people surveyed preferred to live with a son, just under a third preferred to live with their spouse only (more common in men), less than 5% preferred to live with a daughter) (UNFPA, 2012). In contrast, in Tamil Nadu older people were similarly likely to prefer living alone or with a spouse as they were to prefer living with a son (in contrast to all the six other states surveyed) (UNFPA, 2012). A recent study with older people (living alone or with children) in Tamil Nadu and Andhra Pradesh indicated a complex perception of the two arrangements, for instance people both expressed concerns about loneliness as well as highlighted the benefits of privacy and autonomy (Jothikaran et al., 2020).

In line with the positive perception of family (son)-based support, residential care is highly stigmatised. Survey evidence indicates that less than 0.5% of older people preferred to live in an "old-age home" (as they are typically referred) (Ministry of Social Justice and Empowerment India, 1999; UNFPA, 2012). There is evidence that old-age homes are viewed as Western, as forms of abandonment and immoral (Brijnath, 2012; Lamb, 2006, 2013). The Indian Government's National Policy for Older Persons itself defines "institutional care as the last resort when personal circumstances are such that stay in old age homes becomes absolutely necessary" (Ministry of Social Justice and Empowerment India, 1999).

Similar to expectation of support from sons and daughters, a survey of living arrangement preferences of older people in Orissa (which demonstrated the majority preferred co-residence) also indicated that number and composition of children was associated with preferences (Panigrahi, 2010). Studies of Indian people who have migrated internationally (i.e., into other dominant cultures) also demonstrate the potential flexibility of attitudes towards and preferences for care (Sharma & Kemp, 2012; Sudha, 2014). Nevertheless, a study of Indian migrants in the US indicated that the concept of filial piety was a barrier in engaging end of life care (Radhakrishnan et al., 2017).

3.12.1. Gap in the literature

Evidence on attitudes towards varying support arrangements of the older population tends to indicate that the preferred arrangement for old-age support remains the co-resident son-based model, with old-age homes remaining highly stigmatised. There may be some ideational differences between Tamil Nadu and

other states. Nevertheless, the views of the younger population (as future generations of older people who will have smaller families) have not been explored, which is imperative for planning appropriate policy and services. Also, the evidence on alternative models of support (e.g., formal care services, independent residence) is limited.

3.13. Policy influences on support

India is federal nation and develops policy at national and state level, with a complex system of implementation (Vera-Sanso, 2016). The Constitution of India states that "The state shall, within the limits of its economic capacity and development, make effective provision for securing the right to public assistance in cases of old age" (Government of India, 2020a). Right to equality and quality of life are also guaranteed as fundamental rights in the Constitution (ibid). Social security is the responsibility of both central and state governments (ibid). The Indian Government are signatory to several international conventions including the Madrid International Plan of Action on Ageing, which follows a human rights approach and does not assume that families are able to provide sufficient support for elder family members (Vera-Sanso, 2016). Below I have highlighted key policies and legislation relevant to my research question.

3.13.1. National Policy for Older Persons (1999)

The key policy relevant to wellbeing and support of India's older generations is the National Policy for Older Persons (NPOP) which was formed in 1999 by the Ministry of Social Justice and Empowerment (MOSJE) (Government of India, 1999; UNFPA, 2017). The policy aims to improve the wellbeing of older persons, and focuses particularly on the areas of financial security, health care, shelter

and welfare, and protection against abuse and exploitation. When considering the role of varying stakeholders, the policy states “it is neither feasible nor desirable for the State alone to attain the objectives of the National Policy. Individuals, families, communities and institutions of civil society have to join hands as partners”(Government of India, 1999). The policy places key emphasis on the role of the family (“as the most cherished institution in India”) and “the NGO sector as a very important institutional mechanism to provide user friendly affordable services to complement the endeavours of the State.”

Regarding financial security, the policy recommends social pensions for all older people below the poverty line, revisions of the pension amount to prevent loss of purchasing power, tax exemptions for healthcare, transport and support services for older people or their co-resident sons or daughters, and the promotion of saving schemes, among others. Healthcare recommendations include strengthening the primary health care system to meet the needs of older people, preventative public health and restorative/rehabilitative strategies for maintaining health, health insurance packages suitable for people of varying socioeconomic backgrounds, and increased training in geriatric medicine, among others. Shelter recommendations include earmarking 10% of housing schemes for the poor for older people and encouraging group housing (e.g., flats with communal services).

When it comes to welfare, the policy states the following: “The main thrust of welfare will be to identify the more vulnerable among the older persons such as the poor, the disabled, the infirm, the chronically sick and those without family support, and provide welfare services to them on a priority basis. The policy

will be to consider institutional care as the last resort when personal circumstances are such that stay in old age homes becomes absolutely necessary." It recommends non-institutional services to strengthen the capacity of older people and their families in the community, assistance to voluntary organisations for the development of old-age homes, and encouragement of "services such as day care, multi-service citizen's centres, reach-out services, supply of disability related aids and appliances, assistance to old persons to learn to use them, short term stay services and friendly home visits by social workers. For old couples of persons living on their own, helpline, telephone assurance services, help in maintaining contacts with friends, relatives and neighbours and escorting older persons to hospitals, shopping complexes and other places will be promoted for which assistance will be given to voluntary organizations. Older persons will be encouraged to form informal groups of their own in the neighbourhood which satisfy the needs for social interaction, recreation, and other activities. For a group of neighbourhoods/ villages, the formation of senior citizen's forums will be encouraged."

Finally, when it comes to the role of the family, the policy is clear. "It is important that the familial support system continues to be functional and the ability of the family to discharge its caring responsibilities is strengthened through support services. Programmes will be developed to promote family values, sensitise the young on the necessity and desirability of intergenerational bonding and continuity and the desirability of meeting filial obligations. Values of caring and sharing need to be reinforced. Society will need to be sensitized to accept the role of married daughters in sharing the responsibility of supporting older parents in the light of changing context where parents have only one or

two children, in some situations only daughter. This would require some adjustment and changes in perceptions of in-laws in regard to sharing of caring responsibilities by sons and daughters as a corollary to equal rights of inheritance and the greater emotional attachment that daughters have with their parents. State policies will encourage children to co-reside with their parents by providing tax relief, allowing rebates for medical expenses and giving preference in the allotment of houses, persons will be encouraged to go in for long term savings instruments and health insurance during their earning days so that financial load on families can be eased. NGOs will be encouraged and assisted to provide services which reach out to older persons in the home or in the community. Short term stay in facilities for older persons will be supported so that families can get some relief when they go out. Counselling services will be strengthened to resolve interfamilial stresses."

In sum, the policy expects children to provide support for their parents and perceives the role of the state to primarily support those that lack this support. Through the recommendation of short-term stays, tax relief and medical rebates, the policy indicates some consideration of the material constraints theory of support (i.e., that support is restricted by the ability of families to look after their elders). On the other hand, the emphasis on promoting family values and intergenerational bonding also demonstrates a view that limited support is a result of ideational change (as indicated by the modernisation and ageing theory). Figure three provides examples of intergenerational promotion materials used by the Ministry of Social Justice and Empowerment.

Figure 3: A selection of Ministry of Social Justice and Empowerment promotions encouraging inter-generational support

Both the content and implementation of NPOP have been criticised. Criticisms include: poor coordination between varying stakeholders, poor social security recommendations for the rural and urban poor, lack of focus on women's difficulties which result from patriarchal norms, and unclear financial allocations and implications (Rajan & Mishra, 2011; Vera-Sanso, 2016). The Tamil Nadu state government does not have its own policy for older people (The Hindu, 2019; UNFPA, 2013).

3.13.2. Draft National Policy for Senior Citizens (2011)

A decade after it was developed, a committee of experts was formed to evaluate NPOP. This led to development of the Draft National Policy for Senior Citizens (2011), which in summary, recommended an increased focus on older women and the rural poor, increase of the pension rate, additional pension for oldest old and those with disability, who had lost adult children, and had responsibilities for grandchildren and women (Giri, 2011). Nevertheless, the policy was not approved or officially adopted by the cabinet (UNFPA, 2017).

3.13.3. Draft National Action Plan for Welfare of Senior Citizens (2020)

A new draft policy has recently been released by MOSJE (Government of India, 2020a). It covers similar issues as NPOP and the previous draft, covering financial security, shelter, and welfare. The action plan includes a sub-scheme for the provision of residential care (with recommendations of minimum standards) for "indigent senior citizens" (ibid). There is also a state action plan which includes the development of volunteering schemes and self-help groups, increased access to geriatric care and day care centers. Other policies include promotion of the "silver economy" (i.e., goods (e.g., assistive devices) and services aimed at improving older people's wellbeing), and media initiatives and advocacy for improving attitudes towards older people and intergenerational relationships, including better awareness of existing schemes and legislation.

3.13.4. The Maintenance and Welfare of Parents and Senior Citizens Act (2007)

In 2007, the Government of India enacted 'The Maintenance and Welfare of Parents and Senior Citizens Act' (hereon referred to as the Maintenance Act) (Ministry of Social Justice and Empowerment India, 2007). The Maintenance Act legislates to place the responsibility of supporting "senior citizens" (aged 60-plus) on children (or relatives in the case of potential heirs to property of childless individuals, that are deemed to have "sufficient means"). Children includes sons, daughters, and grandchildren, but not minors. The support ("maintenance") expected is defined as food, clothing, residence, and medical attendance and treatment, but "sufficient means" of relatives is not defined. The Maintenance Act states that children or relatives are obligated to support the senior citizen so they can lead a "normal life", though "normal life" is also not

defined. The act provides for a tribunal for older people to bring their complaints, through which they can demand "maintenance" up to a maximum of 10,000 rupees per month. Not providing maintenance can result in a fine of up to 5,000 rupees, imprisonment for up to three months, or both. The Maintenance Act also allows for parents to claim their property back if the conditions of maintenance are not satisfied. The act provides for old-age homes in each district, which are the responsibility of state governments (UNFPA, 2017). Nevertheless, implementation of the Maintenance Act has been critiqued, for instance few tribunals have taken place as individuals are either unaware of the act or are unwilling to share their issues publicly (Ministry of Social Justice and Empowerment India, 2019), while quality and coverage of old-age homes is poor (A. B. Dey, 2016; UNFPA, 2017).

3.13.4.1. The Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill (2019)

In 2019 a bill was introduced to the Lok Sabha to strengthen the Maintenance Act (Ministry of Social Justice and Empowerment India, 2019). It extends the definition of children to include children in law, stepchildren, adoptive children, and legal guardians of minor children. "Maintenance" has been amended to "provision for food, clothing, housing, safety and security, medical attendance, healthcare and treatment necessary to lead a life of dignity." It also removes the maximum 10,000-rupee limit of maintenance (and states that tribunals should consider the standard of living and earnings of both the older individual and their children/relative) and extends the punishment to a potential 6-months imprisonment and fine of up to 10,000-rupees. The bill also states that the central government will establish minimum standards for old-age homes, and

that institutions providing homecare services need to have staff that are trained and certified. The bill is awaiting the report of the standing committee.

3.13.5. Social pensions

In 1995 the National Old Age Pension Scheme was commenced for the population aged 65-plus and below the poverty line, with no means of support, surviving sons and not begging, which covered a central contribution of 75 rupees per month which could be topped up by state governments (UNFPA, 2017; Vera-Sanso, 2016). In 2000 the Annapurna Yojana scheme was added, which provided free grains to individuals who met the requirements of the pension scheme but did not receive a pension. In 2007 the pension was renamed the Indira Gandhi National Old Age Pension Scheme (IGNOAPS), the son restriction was removed to cover all older people below the poverty line, and the central contribution was increased to 200 rupees per month. In 2011 the age-limit was dropped to 60 and the central contribution for over 80s was increased to 500 rupees. While NPOP recommends continuous renewal of the amount to account for inflation, this has not happened (UNFPA, 2017; Vera-Sanso, 2016).

There are wide differences across states in terms of contributions, ranging from 0% to 88%, thus pensions range from 200-rupees in several states (including major states such as Assam and Karnataka) to 2,000 and 1,600-rupees in Puducherry and Haryana respectively (Goli et al., 2019). The Tamil Nadu government provides a total of 1,000-rupees for the IGNOAPS (including the central contribution), which is relatively high in comparison to other states (Help Age India, 2016; UNFPA, 2013). Age eligibility also varies, for instance

several states require beneficiaries to be over 65 in contrast to the national limit of 60 (ibid). These eligibility criteria result in varying numbers of potential beneficiaries, for instance more than half the older population are potential beneficiaries in only six states, while 14 states have fewer than a quarter who are eligible (ibid). In 2009 the Indira Gandhi National Widow Pension Scheme and the Indira Gandhi National Disability Pension Scheme were both commenced for widows aged 40-64 and persons with severe or multiple disabilities aged 18-64 living below the poverty line respectively (UNFPA, 2017). In 2011 the age-limits were expanded up to age 79 years for both, and the amount increased to 300 rupees per month (ibid). States also provide their own additional social security schemes, for instance Tamil Nadu has schemes aimed at landless labourers and has initiated other schemes, such as integrated homes for older people and "destitute children," day care centers, midday meals and grain schemes (in addition to Annapurna) (Government of Tamil Nadu, 2020a, 2020b; Krishnan & Sagarwal, 2020; UNFPA, 2013).

Awareness of the old-age and widows pension is fairly high (around 70% of those below poverty line), though awareness of the Annapurna scheme is much lower at around 30% of those below poverty line (UNFPA, 2012). Utilisation is even lower, for instance with less than a fifth of older people below the poverty line getting the old-age pension, less than 5% using the Annapurna scheme, and about a quarter of older widowed women availing the widow's pensions (ibid). This varies greatly across states. Only around 50% of older people below the poverty line in Tamil Nadu are aware of the widows pension and (and 4% are aware of Annapurna) (ibid) (UNFPA, 2013). Less than 5% of older people below

the poverty line avail the old-age pension in Maharashtra (and 10% in Tamil Nadu) in contrast to over 50% in Punjab (ibid).

3.13.6. Health policy

Health is a state issue within India's federal structure; on average, two thirds of healthcare spending comes from the state budget (L. Dandona et al., 2017). Government spending on healthcare is low in terms of both total public spending and of GDP, and less than 10% of the population have access to healthcare via private health insurance or employer's services (A. B. Dey, 2016; OECD, 2021). Less than 30% of households have a household member who is covered under any health insurance scheme (International Institute for Population Sciences (IIPS) and ICF, 2017a). Over two-thirds of healthcare is provided by (sometimes unregulated) private services and directly funded by individuals and households "out-of-pocket" (which is estimated to account for over 60% of total expenditure on healthcare) (Chalkidou, Jain, Cluzeau, & Glassman, 2019; World Health Organization, 2020). Untreated morbidity is high in India, particularly in those below the poverty line, as is catastrophic healthcare expenditure (which is rising) (Pandey, Ploubidis, Clarke, & Dandona, 2018; Srivastava & Gill, 2020).

The National Programme for Health Care of the Elderly was launched in 2011 and was specifically targeted at older people, and aimed "to provide easy access to health services through community based primary health care; to identify health problems and manage them; to provide referral services to district hospitals and regional geriatric centres; to build the capacity of medical and

paramedical professionals as well as caretakers within the family and to coordinate services" (A. B. Dey, 2016).

The Rashtriya Swasthya Bima Yojana (RSBY) is a centrally funded health insurance scheme launched in 2008 for households (for a maximum of five members) below the poverty line, which reimbursed public and private healthcare facilities for care up to 30,000-rupees annually (Chalkidou et al., 2019; UNFPA, 2012). Nevertheless, RSBY does not cover primary healthcare costs (Chalkidou et al., 2019). In 2018, the Indian government launched the Ayushman Bharat programme, aiming to cover primary, secondary, and tertiary care (ibid). The scheme has two arms: the establishment of Health and Wellness Centers (to supplement existing primary care facilities), and the Pradhan Mantri – Jan Arogya Yojana (PM-JAY) insurance (also termed "Modicare"), to cover (an estimated 107.4 million) families classed as poor and vulnerable as per the Socio-Economic Caste Census data (ibid). PM-JAY covers almost all hospitalisations and day surgeries, while the Health and Wellness Centers cover most outpatient surgeries. Some state governments have expanded the scheme (for instance incorporating existing state schemes), and some states have made it universal (ibid).

Tamil Nadu commenced a state health insurance scheme in 2009 (currently named the "Chief Minister's Comprehensive Health Insurance Scheme"). The policy targeted families with an annual income below 72,000-rupees (classed as 'poor, near-poor, and vulnerable' individuals) or members of varying welfare boards and covered inpatient benefits (Chhabra et al., 2019). Estimates of coverage vary greatly between data sources (though this may result in part

from the time-periods of the estimates), for instance while survey data (2011) estimated that only around 1% of adults aged 60-plus were covered by the state scheme, NSSO data (2014) estimated 17.8% of adults were covered by a publicly funded insurance scheme, NFHS data (2015-16) estimated that around 40% of adults aged 15-54 were covered by any scheme (around 90% of these by the state scheme), and administrative data (2018) estimated over half the state population were enrolled (Chhabra et al., 2019; International Institute for Population Sciences (IIPS) and ICF, 2017b; UNFPA, 2013). The state health insurance scheme is currently being integrated into Ayushman Bharat (Government of India, 2020c).

3.14. Chapter summary

- Fertility and mortality decline have resulted in rapidly population ageing in India as well as shrinking family sizes. Nevertheless, family sizes at later ages are also influenced by mortality decline therefore it is unclear exactly how family sizes have been affected (particularly in groups that have experienced different rates of fertility and mortality decline).
- Existing evidence indicates that immediate family members (largely spouses, sons, daughters-in-law, and in some cases daughters) are the primary sources for varying types of support for older people, though this does not equate to support always being readily available. The degree to which families share tasks and the alternatives available outside of these primary sources (particularly to different groups of older people) remains unclear.

- Evidence on attitudes towards support tend to indicate that the patrilocal arrangement of support is preferred by most older people (though potentially with some ideational change in Tamil Nadu), and that old-age homes remain highly stigmatised. Nevertheless, there is little evidence on views on other arrangements (e.g., in-home formal care services) or of younger generations, which is necessary for planning policy and services.
- There is little evidence on the coping strategies that families use to manage support related stressors (which could be intervened on and promoted to reduce support-related challenges and promote family-based support for older people), or on the stressors experienced by family carers in Tamil Nadu, which is a relatively distinct state with a relatively aged population.
- Existing policies largely aim to maintain the responsibility of support within the family.

4. Chapter 4: Data and fieldwork

4.1. Chapter aim

I analysed three datasets for this thesis, two secondary quantitative datasets (census and nationwide government surveys) and one primary qualitative dataset, generated by myself in Tamil Nadu in 2018. The following chapter describes the rationale for using each of these datasets, the datasets themselves (including the qualitative study design, fieldwork, and analysis) and their limitations. Implications of these limitations are outlined in the respective analysis chapters in relation to the research question assessed, alongside a more detailed description of analysis methods. Finally, I explain the rationale for, and implications of, the mixed methods approach.

4.2. Dataset 1: India census (2011)

4.2.1. Overview and rational for use

Demographic rates vary across regional and social groups in India, therefore family structures will also vary. To describe these differences at the sub-national level, a dataset with a large sample size is required.

The Indian census is well suited as it aims to collect data on every person residing in in every state and union territory within a reference period (i.e., total sample size of 1.2 billion in 2011) (Census of India, 2019). Tabulations of aggregate data are publicly available on the census website for the past three censuses (1991, 2001, 2011) (Registrar General and Census Commissioner, 2020a). Imperatively for this analysis, the census collects data on number of surviving children (by child's sex) for ever married women of all ages (i.e., it is not restricted to women of reproductive age as in the NFHS) and provides

aggregate data by varying characteristics (e.g., state, 5-year age-group, urban/rural, education).

4.2.2. Description

For the above reasons, I used aggregate data on ever married women from India's 2011 census, collected by the Office of the Registrar General & Census Commissioner, Government of India. The census was conducted in two phases, a house-listing phase in late 2010 which aimed to map all buildings and census houses within established blocks, and a population enumeration phase in February 2011 (reference period 9th February to 28th February inclusive), which aimed to enumerate and collect sociodemographics of all persons within the block (Registrar General and Census Commissioner, 2011a).

The census enumeration phase aimed to identify persons within "normal households" (defined as "a group of persons who normally live together and take their meals from a common kitchen unless the exigencies of work prevent any of them from doing so" and who did not live in an institution), "institutional households" (defined as "a group of unrelated persons who live in an institution and take their meals from a common kitchen…boarding houses, messes, hostels, hotels, rescue homes, observation homes, beggars' homes, jails, ashrams, old age homes, children homes, orphanages, etc."), and "houseless households" (defined as "households which do not live in buildings or Census houses but live in the open or roadside, pavements, in hume pipes, under fly-overs and staircases, or in the open in places of worship, mandaps, railway platforms, etc."). People were enumerated within each of these household types if (a) they normally resided in the household and stayed at any period within the

enumeration reference period, or (b) they were "visitors who are present in the household … and expected to be away from the place(s) of their normal residence during the entire enumeration period" (Registrar General and Census Commissioner, 2011a).

The census instruction manual advised enumerators to conduct the questionnaire with a "responsible member of the household" who was "well informed, articulate and can provide the requisite information by herself/himself or after consulting other member(s)", and "to involve as many members including female members present in the household as possible" (Registrar General and Census Commissioner, 2011b). Questions on surviving children were only asked for women who were either currently married or had previously been married (as part of the "fertility particulars" section). Enumerators were advised to ask these questions directly to the relevant women in the household. The instruction manual advised enumerators to probe to identify children not co-residing in the household as "it has been our experience that many persons, especially older women may not count daughters and sons not currently present in the household" (ibid).

In the months following the reference period, the Office of the Registrar General conducted a Post-Enumeration Survey in every state and union territory to identify under and overcounts and data quality issues. This involved repeated house-listing and enumeration in a random sample of the enumeration blocks and comparisons to the census records (Registrar General and Census Commissioner, 2014).

4.2.3. Limitations

There is evidence of age heaping and missing data in the 2011 census (Yadav, Vishwakarma, & Chauhan, 2020). While the Office of the Registrar General did not collect information on the main respondent (e.g., by age or gender), specific instructions to the enumerators to involve female household members indicates that the respondents were typically male. This increases the chances of poor-quality data if the main respondent estimated answers on the woman's behalf. There is also a chance of undercounting of surviving children who did not co-reside with the individual, perhaps more likely with married daughters who are less likely to be co-residing.

Censuses (as well as household surveys) are known to commonly undercount certain populations – the "poorest of the poor" - for instance highly mobile populations, those in informal settlements, institutions, or without homes (Carr-Hill, 2013). The Post-Enumeration Survey estimated net omission rates (i.e., the ratio of the number of omitted persons net of duplication per 1,000 enumerated persons) of 23 persons per 1,000 at the national level (Registrar General and Census Commissioner, 2014). The highest rates of omitted (i.e., undercounted) persons occurred at youngest ages (33 per 1,000 aged 0-4) and declined with age, though with an uptick from 50-59 (13 per 1,000) to 60-plus (16 per 1,000). Under-counting appeared to be highest in the urban, illiterate population (potentially those in informal settlements) and was more common in women in the older age-group (categorised by the census reports as 60-plus), for instance rising to 27 per 1,000 in older urban women (i.e., an estimated 3% of older urban women being missed from the census). Implications of these potential undercounts are expanded upon in chapter five.

The aggregate structure of the data restricted the analyses I could conduct, which I also expand upon in chapter five. Corresponding tables for marital status were unavailable therefore I was only able to assess differences in numbers of children.

4.3. Dataset 2: NSSO surveys (1995-96, 2004, 2014)

4.3.1. Overview and rationale for use

To understand the implications of India's demographic transition for the support (and subsequent health) of India's older population, it is necessary to understand (a) the degree to which changing demographic rates have impacted family structures of older individuals, and (b) the relationship between family-based support and health. These topics are best suited to longitudinal, quantitative data.

I wished to use the same dataset to assess change in family structures and the association between support and health for a concise analysis and assessment of the topic. While other datasets exist that are more suited to each separate aim, these two stipulations led me to choose the Indian NSSO Social Consumption: Health surveys (1995-96, 2004, 2014) over sources that are not longitudinal (e.g., the Building Knowledge on Population Ageing in India survey (2011)), or where individual-level health data in unavailable (e.g., the Indian census) or only available for reproductive-age adults (e.g., the NFHS), or where the surveys cover a short and/or recent time-period (e.g., the Study on Global Ageing and Adult Health Survey (SAGE) (appendix L)). The NSSO surveys were also selected because the variables required for the analysis were comparable across survey rounds, for instance, another Social Consumption: Health survey

was conducted in 1986 (42nd round) but self-rated health (the primary outcome) was not measured.

In addition to the variables available and the longitudinal nature of the dataset, the time-period (2004 to 2014) is a benefit of the selected surveys as it approximately covers the early stages of fertility decline. The mean age of participants in the earliest (1995-96) survey was 67, which corresponds to birth around 1930 and peak fertility in the early 1950s. Nationwide fertility started its consistent decline in the early 1960s though there was evidence of some inconsistent declines from the early 1900s (M Das Gupta, 1995; Guilmoto, 2016). Thus the 1995-96 survey approximates older people's family structures from relatively high, pre-decline fertility (e.g., TFR of 5.9 in the 1950s), while the average older person in the 2016 survey experienced peak fertility when rates had started dropping (e.g., TFR of 4.9 in the late 1970s) (Guilmoto, 2016). Family structures of all respondents were influenced by declining mortality rates, which started in the 1920s (to different degrees across regions and groups) (Saikia, 2016).

4.3.2. Description of data

For the above reasons, I used individual-level data from three cross-sectional Social Consumption: Health surveys, undertaken by the NSSO. This includes the 52nd round (1995-96), 60th round (2004) and 71st round (2014). Among other domains, the surveys aimed to collect data on the "problems of the aged" and included a module for persons aged 60-plus. The older individual was identified through an initial household roster of all households members (with a household definition of people normally living together and taking food from a

common kitchen, which includes temporary 'stayaways' (i.e., those whose total absence from the household is expected to be less than six months)) (NSSO, 2014). Information on sociodemographic and health outcomes was collected from the older individuals themselves "as far as possible".

4.3.3. Limitations

Older individuals were defined as household members aged 60-plus and identified through the household roster by the survey informant. It is unlikely that many older people had records of their birth date (though this likely increased with time) and the survey reports do not describe methods for estimating accurate age data (e.g., using life-history questions as in the NFHS for example). Therefore, ages will likely have been largely estimated by the informant, who was not necessarily the older individual, potentially further increasing error in age reporting. Assessment of the age data across the surveys demonstrates (a) heaping on ages finishing with integers zero, two and five, as is common in populations where chronological age has limited importance and/or is not easily tracked (e.g., due to low birth registration), and (b) improvements in age reporting with time[1]. I chose to not focus on age as a primary exposure (classifying older as 60-plus) because of these data quality issues.

Nevertheless, it is likely that there were individuals aged below 60 that participated in the survey (and vice-versa). When comparing the share of older people in the total sample to the estimated share in the population (United

[1] A Myers Blended Index measures preference for the age digits 0-9, the theoretical range is from 0 (no age heaping) to 90 (all ages end in the same digit). The Myers index for the NSSO surveys declined from 42 in 1995-96 to 37 (2004), to 33 (2014).

Nations Population Division estimates (United Nations Population Division, 2020b)), the 1995-96 survey may have undercounted older individuals (5.4% in the NSSO data versus approximately 6.4% according to UNPD estimates) while the 2004 survey indicates potential overcounting (9.1% survey share versus approximately 7.2%) (the 2014 survey share roughly matches the UNPD estimates at 8.2%) (table three). The National Old Age Pension Scheme was commenced in 1995 by the central government for those aged 65-plus. Increased awareness by 2004 may have led respondents to either over-estimate or round-up ages due to perceived links with these benefits, particularly as the surveys were implemented by a Government Ministry.

Table 3: Share of the older population (aged 60-plus) in the total sample (1995-96, 2004, 2014), and comparison to share in the census population

Survey year	**Sample size**			**Share of 60-plus in sample (%)**	**Share of 60-plus in UNPD estimates (%)**
	Households	**Total persons**	**Persons aged 60-plus**		
1995-96	120,942	629,888	33,991	5.4	6.4
2004	73,868	383,338	34,808	9.1	7.2
2014	65,932	333,104	27,245	8.2	8.9

UNPD United Nations Population Division (United Nations Population Division, 2020b). * Please note the UNPD estimates refer to the years 1995, 2005, and 2015 for the survey years 1995-96, 2004, and 2014 respectively.

The household definition may have resulted in the exclusion of older individuals that regularly move between households, which could feasibly include individuals that are most lacking in family-based support (survey estimates

indicate that around 10% of older individuals have this arrangement, though this estimate itself could be an undercount as all household surveys are vulnerable to this exclusion) (UNFPA, 2012)). Household surveys in general are thought to omit the poorest members of society (e.g., those in in informal settlements or in institutions) (Carr-Hill, 2013). There is evidence for poor age reporting and undercounting of older women in other Indian government data-sources (Saikia et al., 2009) and in household surveys conducted in Africa, which was suggested to result from their ambiguous household status or because they were not assumed to head their own households by enumerators (given the patriarchal and gerontocratic nature of the Sahelian countries in question, issues which could also be relevant for India) (Randall & Coast, 2016).

The possibility of a household member other than the older individual answering the older person's module confuses conceptualisation of the 'self-rated health' measure. Unfortunately, the survey reports do not describe how frequently this occurred.

While NSSO provided survey weights at the state level for adjustment of estimates to the sampling method, stratification by state quickly led to relatively small sample sizes (e.g., N=1,798 in Tamil Nadu in 2014), meaning (a) it is uncertain whether the sample can be representative of state populations which are large and diverse (e.g., around 7 million older people in Tamil Nadu at the 2011 census (Ministry of Statistics and Programme Implementation, 2016a)), and (b) state-level analyses would be difficult to interpret due to large confidence intervals. As such I chose to conduct the analysis at the national level. While this minimises the sample size issue, it expands the

representativeness issue. It is unlikely that a sample of 96,044 people can truly represent the diverse experiences of the older Indian population of ten million. Further, it begs the question of what being representative of a national average means in a country as diverse as India. I expand upon this in chapter six.

4.4. Dataset 3: Primary qualitative data

4.4.1. Overview and rationale for use

The bulk of this thesis is based on the results of a qualitative study conducted with a socioeconomically (urban/rural and socioeconomic status) diverse sample of adults in Tamil Nadu, with varying experiences of supporting older relatives. The rationale for the primary data collection stemmed from the gaps I perceived in the existing literature. To shed light on the potential impact of family structure changes on the status-quo of support provision, it is necessary to understand how support is provided currently. Key aspects of support that were unclear from the existing literature were (a) the alternatives available outside of typical primary sources of support which will influence how people are able to adapt to the unavailability of family members, and (b) the degree of task sharing that occurs within families which will influence how much decreasing family sizes affect support related strains. In addition, based on the existing evidence on the effects of support related strains for provision of support, I wished to identify support related stressors and the coping strategies that families used to deal with them, which could potentially be acted on to relieve the difficulties of support on families and promote family-based support for older people. While there is some evidence of the stressors that family members experience in India, these studies largely focused on specific issues

(e.g., migration) and were mostly conducted outside of Tamil Nadu, which is a relatively distinct state (e.g., relatively high shares of older people living independently) and where families may experience distinct stressors. Finally, I also wished to suggest recommendations based on people's preferences for support. The bulk of the evidence on attitudes towards old-age support arrangements comes from the current older population. Though these views are obviously important, to plan services and strategies it is also necessary to consider the views of younger adults (as future generations of older people who will likely have smaller family sizes). Further, the existing evidence on attitudes towards old-age support arrangements tends to focus on two extremes – co-residence with children and old-age homes – despite there being several more intermediate arrangements (e.g., independent residence, formal care services). As such, I chose to collect primary data to fill these gaps, which I have used alongside the quantitative analyses to assess the potential impact of family structure change for support, and to provide recommendations to ensure support for older people, considering preferences of the population.

The primary reasons for conducting the study in Tamil Nadu were (a) its relatively low fertility (meaning family structure changes could affect support earlier than other populations in India), and (b) the similarly low levels of fertility across socioeconomic strata and urban and rural populations (International Institute for Population Sciences (IIPS) and ICF, 2017b; N. Singh, 2015). Further, though other states have similarly low fertility (e.g., Kerala, Punjab), the share of the older population not co-residing with their children is higher in Tamil Nadu (Ministry of Statistics and Programme Implementation, 2016b), which I felt could indicate declines in the availability of support and

thus a need to focus on the needs of the Tamil Nadu population (I expand the limitations to this in the final discussion).

For the above reasons, I collected primary data on adults (aged 20-64) with varying experiences of supporting their older relatives in two neighbouring districts (representing urban and rural populations) in Tamil Nadu in 2018, while on placement at IITM.

4.4.2. My role

My role was (with guidance from Dr Thampi (IITM) as well as my UK based supervisors, and advice from individuals at Chennai based research NGOs[2]): study design and planning, ethics and funding applications, recruitment and training of the field team, piloting materials, recruitment of the sample, (with the field team) undertaking data collection and processing and analysing the data.

4.4.3. Study design

4.4.3.1. Methodology

I used qualitative methods, the benefits of which I expand upon later in the chapter. In sum, the qualitative approach was suited to the study aims as qualitative methods are useful for (a) an initial exploration of an understudied (in this setting) topic, (b) understanding the participants' perspective, and (c) personal subject matter that should be approached sensitively.

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[2] SAMARTH (http://www.samarthngo.org/), IFMR (https://ifmrlead.org/), MMSRF (www.mssrf.org), The Banyan (https://thebanyan.org/).

4.4.3.2. Methods

I used both in-depth interviews and focus group discussions (FGDs). Initially, these two methods aimed to explore different components of support. Given their open and group nature, I theorised that FGDs would be more fitting for understanding people's experiences in support, i.e., descriptions of support practices as well as challenges faced. I theorised that FGDs could identify the 'norm' of support and potentially act as a way to make participants more comfortable talking about difficult subjects (i.e., challenges) if they were conducted in homogenous groups, as it would be likely that people shared similar experiences. I perceived attitudes to be more personal and potentially stigmatising (i.e., if an individual did not feel positively towards the normative family-based model of support), and thus more fitting to an interview. Nevertheless, through piloting it became clear that a lot of people had at least some experience in supporting an older relative, for instance helping a co-resident grandmother when growing up. I therefore added some questions on support practices and difficulties into the interview topic guide. This also meant that interviews could capture some support practices or challenges that fall outside of the norm and that people may have felt uncomfortable speaking about in front of others (e.g., a man providing personal care for a female relative).

I developed a separate topic guide for the interviews and FGDs based on the existing literature and the study's research questions, and was guided by the Informal Care Model/Ajzen's Theory of Planned Behaviour (i.e., I incorporated norms, attitudes, and behavioural control) (Ajzen, 1991; Broese van Groenou & de Boer, 2016; Taylor et al., 2007). The guides incorporated mid-level theories

as well. The challenges questions were guided by the caregiver burden and stress and coping literature (including the increasing focus on positives of support relationships), the support practices questions were guided by the Hierarchal Compensatory and the Task-Specific Models (i.e., the idea of practicalities versus preferences), and the attitudes and norms questions were driven by Ajzen's conceptualisation and the existing evidence of stigma around cross-gender personal care (Ajzen, 1991; Ghosh et al., 2016; Lazarus & Folkman, 1984; Messeri et al., 1993; Schröder-Butterfill & Fithry, 2014). The main questions were (1) how is support provided (who does what, in which situations, why is it typically their role, what alternatives are available, what is the motivation to support one's older relatives), (2) what can make it difficult (what barriers exist, how do difficulties affect the support provider and recipient, how are these difficulties managed, and what are the positives), and (3) how do people feel about different ways of support provision (what are the perceived pros and cons of varying arrangements and perceived outcomes, how do people wish and plan to manage in their later life). The guides aimed to start with easy and non-sensitive questions to ease the participant into the interview, and to avoid excessive probing, e.g., the topic guide would include probes around potential financial issues but not ask if healthcare costs were difficult.

During the piloting phase, I explained the topic guides to the field team, explained the rationale and meaning behind every question to confirm whether they were clear and being interpreted correctly, and added Tamil translations to key words. The topic guides were piloted with different groups (expanded upon below). While I added brief questions on support experiences to the interview topic guide, it focused more on attitudes to care arrangements (using

vignettes) and views on the perceived 'right' way to provide support (norms). The final vignettes are described in chapter 8.

The FGD topic guide on the other hand focused more on practices (i.e., who provided what), the availability of support outside of the immediate family, and difficulties that the support provider or recipient faced. Once data collection was underway, I spoke with the field team following interviews and FGDs to see whether the questions were confusing, badly worded, ordered, or redundant, and if there was anything being raised that I had not included. As such the topic guide was amended repeatedly during piloting and as data collection was underway (the final topic guides are provided in appendix M).

4.4.4. Fieldwork preparation

4.4.4.1. Funding and ethics applications

I received funding from the ESRC Overseas Fieldwork Funding Grant (£1,970) and LSHTM's Doctoral Project Travelling Scholarship fund (£3,650). I received ethical approval from the Ethics Committees of IITM and LSHTM before undertaking any fieldwork (please see appendix A).

4.4.4.2. Training

I also received funding for Tamil language training before fieldwork, and I undertook a beginner's course at the School of Oriental and African Studies in London. I did not plan on conducting the data collection in Tamil myself, the language training was to help with life in Chennai and to aid with the fieldwork and recruitment (for instance to be able to communicate (at least simply) with potential participants and anyone aiding with fieldwork). My research background is quantitative, so I undertook several training courses before and

after fieldwork: a day of qualitative training at LSHTM, a weeklong Qualitative Research Methods course at King's College London, and a two-day Qualitative Data Analysis course at the National Centre for Research Methods.

4.4.4.3. IITM placement

During the fieldwork period (April 2018 to August 2018), I had a placement at the IITM in Chennai, under the supervision of Dr Binitha Thampi in the Humanities and Social Sciences Department. I applied for this placement as I wished to conduct the study in Tamil Nadu and had shared research interests with Dr Thampi (and the department in general).

4.4.4.4. Field team recruitment and training

I planned for all the data collection (interviews and FGDs) to be conducted by same gender, Tamil speaking fieldworkers. To recruit potential fieldworkers, I contacted local research institutions[3] and several Chennai colleges that taught social work/sociology courses. I eventually recruited two (a man and women) recent social work undergraduates, both from Tamil Nadu and fluent in Tamil and English, who had extensive experience in working in urban and rural communities in Tamil Nadu, and some experience (mostly (though not completely) quantitative) in research. Later a sociology university student joined the team (who has undertaken a qualitative methods course at a local social sciences NGO) to assist with the final stages of data collection and analyses.

[3] SAMARTH (http://www.samarthngo.org/), IFMR (https://ifmrlead.org/), MMSRF (www.mssrf.org).

Once recruited, we underwent a week of training which covered: background to the study and focus on Tamil Nadu (i.e., rationale), aims and objectives, study plan and methods, difference between qualitative and quantitative methods, FGDs and interviews, interviewer tips, sample and recruitment methods, ethics (including informed consent and confidentiality), and team roles and responsibilities.

4.4.4.5. Piloting study materials

During the first few weeks, myself and the field team worked through the topic-guides together and practiced each element of the data collection process (e.g., explaining the study, taking informed consent, conducting an interview/FGD). We did this amongst ourselves, with other students at IITM (who provided feedback afterwards), and finally with two pilot FGDs and two interviewees (one male and one female) in villages close to Chennai. We recruited the village pilot participants through personal connections of a field team member. Piloting allowed us to improve the data collection methods (i.e., the field team's roles) and the topic guides. The data collected during the piloting was not used in the final dataset.

4.4.5. Recruitment and sample

4.4.5.1. Target sample

We used a purposive, maximum variation approach to sampling, primarily aiming to sample men and women from a range of socioeconomic backgrounds (urban/rural residence and socioeconomic status). I initially proposed a sample of four urban and four rural FGDs, and ten urban and ten rural interviews (with a roughly equal gender split). Nevertheless, this was not concrete and was

amended as data collection was ongoing. I further aimed for variation by gender, age, religion, and caste group, though these were not the main characteristics that I focused on (I outline the limitations of this in the discussion).

4.4.5.2. Age-group

I chose to sample people at younger ages (under 65) because (a) I am interested in support availability and younger generations (particularly children) are key sources of support, (b) because family members are key stakeholders in the support system for older people in India, and of the limited research, most studies have focused on older people, and (c) for the attitudes and preferences analysis, I hoped to understand perspectives of the next generation of older people. I sampled people up to 65 years with the hope of understanding spousal support. Limitations of this age-bracket are outlined in the discussion.

4.4.5.3. Urban/rural and socioeconomic status

In line with the conceptual framework and existing literature, I chose to sample on urban/rural residence and socioeconomic status because each component (support practices, challenges, and attitudes), and thus potential recommendations, will likely vary between these groups. I propose that these components will vary because of differences in: (a) family structures (both immediate and extended) due to differences in fertility and mortality, (b) the availability of formal support due to differences in proximity (urban/rural) and financial resources, (c) differences in challenges due to the aforementioned factors. My conceptualisation of socioeconomic status is based on resources

("material and social resources including income, assets wealth, and educational credentials") rather than prestige (Krieger, 2001).

4.4.5.4. Recruitment criteria: FGDs

The recruitment criteria differed slightly between FGDs and interviews, given the slightly different aims. The criteria for FGDs were ages 20-64 with current or recent (roughly past five years) experience with supporting (e.g., both practical and financial) an older family member (e.g., parent, husband/wife, grandparent). These broad criteria (in terms of age and gender) aimed to understand the ways in which a range of support types were provided, and the challenges experienced by different family members. I also aimed to understand the perspective of family members in different roles that may not necessarily be the most challenging, to avoid a focus on the potential negatives. I aimed for FGDs to be conducted in homogenous groups, i.e., of the same gender and socioeconomic status, with individuals that knew one another. I proxied socioeconomic status during recruitment through occupation and settlement type (in urban areas, slum/slum resettlement colony versus non-slum). I kept "older" purposefully ambiguous (i.e., did not define as aged 60-plus) to allow participants to use their own perception of who they classed as old. I initially explored this in the FGDs but removed the question as the FGDs often took a long time and I wanted to avoid overburdening participants as much as possible. I also kept the idea of support ambiguous (e.g., help them financially, with day-to-day tasks) to allow participants to define what they deemed support. I elaborate on the difficulties in defining support in the discussion.

4.4.5.5. Recruitment criteria: Interviews

In contrast to the FGD criteria, potential interviewees did not need recent experience of supporting a relative as attitudes and preferences can be held by anyone. Nevertheless, as my support related criteria were so broad and multi-generational households are common, once the interviews were underway it became clear that the interviewees largely (22 of 25) had experience of supporting a relative, while the others had some experience (e.g., a daughter-in-law cooking for the whole household). To incorporate these varying experiences (i.e., the majority with considerable experience with support), I have defined the sample as having varied experiences with supporting older relatives (I outline the limitations of this in the discussion).

4.4.5.6. Recruitment strategies

Recruitment strategies varied considerably between the urban and rural participants.

4.4.5.6.1. Rural recruitment

Rural recruitment was undertaken first. I contacted the rural outreach programme of the Chennai based mental health NGO “The Banyan”(The Banyan, 2019), which is based in the Kancheepuram district that neighbours Chennai. The Banyan has provided mental health training for local female community (“NALAM”) workers in the local block. The NALAM workers provide mental health support for community members, link individuals with mental health services, run support groups (e.g., for caregivers of people with mental health conditions), and provide information and assistance with accessing social welfare schemes. I approached the management of the rural outreach

programme, who offered the assistance and time of the NALAM workers for recruitment and data collection as they were in-between major projects. On advice of the management team, I did not pay the NALAM workers (The Banyan paid their wages). Before recruitment began, the management team explained the local area to me and I requested assistance with recruiting from a range of villages, in terms of population size, relative seclusion from main towns/roads, majority employment (agricultural versus fishing) and majority caste groups. NALAM workers (that volunteered to help) each assisted with recruitment in roughly two villages each. First, the study team explained the purpose and methods of the study and the target sample to the NALAM workers. We then visited each village with a worker to introduce ourselves and explain the study to a local leader, and to request (informal) permission to undertake the study within the village (which was unanimously provided). The local leaders were ex-Gram Panchayat leaders, though at the time of fieldwork elections had not been held and they were not currently in position. Then, in the absence of the study team, the NALAM workers approached individuals in the villages who matched the recruitment criteria and arranged the interview/FGD (in coordination with the study team). This involved them explaining the basics of the study, asking whether people wanted to participate, and organising a suitable time. The study team returned to the villages at a later point (again with the NALAM workers) to undertake the interview/FGDs. As a result of this recruitment strategy, I do not have a record of the number of people approached versus participating.

4.4.5.6.2. Urban recruitment

The urban recruitment strategy was more varied. In urban areas, I used occupation and settlement type (slum versus non-slum) as a proxy for socioeconomic status and thus primarily recruited FGD participants through contacting various employers. The employers were: a Chennai school, a housekeeping firm, and a multi-national corporation. I liaised with an individual in a management position (e.g., the headteacher) who gave approval for us to interview in their work setting, and who approached their colleagues to co-organise the FGDs (with the team). I initially planned to recruit interviewees through advertisements placed in local stores and cafes in different areas of Chennai but was advised by the field team that it would be unlikely to get a response. Instead, we recruited interviewees from non-slum areas by advertising the study in residential block WhatsApp groups. We gained access to these via colleagues at IITM who were members of the groups. If any residents were interested in being interviewed, the IITM connection passed their contact details onto the study team and we organised the interviews. This strategy was also used to sample higher socioeconomic status women whose work was primarily household-based. Interviewees from slum and slum resettlement colonies (i.e., of lower socioeconomic status) in Tamil Nadu were recruited via Dr Thampi (and other IITM colleagues') NGO connections, who worked in various slum/slum resettlement colonies in Chennai district. For a handful of interviews, the NGO worker approached individuals within the communities and co-organised the interviews with the field team. For one slum resettlement colony, we visited with the NGO worker and the field team personally approached people in the community and asked if they wished to

participate. I assessed the sample characteristics as data collection was underway and used it to guide the future interviews (e.g., requested NGO links to approach potential participants in varying majority caste or religious communities).

4.4.6. Ethical considerations

Ethical considerations fell into four broad categories: informed consent, confidentiality, risks to respondents, and risks to researchers. Regarding consent, (potential) participants may have felt pressured or coerced to participate (especially as we recruited through employers/local NGO volunteers). To counter this, we repeatedly stated to anyone helping with recruitment, as well as to the (potential) participant, that participating was their choice. For those recruited via employers or NGO contacts, we explained to the participants that their data was confidential and would not be relayed back, and that participation was not linked to their job or involvement with the NGO. We did not provide reimbursement (on advice of the ethics committee), but travelled to communities to avoid participants being out-of-pocket, and provided refreshments. Participants may not have fully understood what participating consisted of, particularly if non-literate. To counter this, we provided participation information sheets and informed consent forms in both English and Tamil (in appendix D). The informed consent forms and participation sheets were translated to Tamil by Tamil-English bilingual translators using the freelancer website UpWork, back-translated by another translator, and finally validated by the field team to ensure the Tamil was locally relevant. For illiterate individuals, a literate person (often a fellow (literate) FGD member) signed off their consent form once it has been explained verbally

and they provided a thumb print. The consent form covered consent for (a) participation, (b) audio-recording, (c) sharing of anonymised transcripts with researchers outside of the field team, and (d) permission to contact in the future.

Regarding confidentiality, it may have been harmful to the participant if someone from their family or community overheard their opinions (particularly those in FGDs). To counter this, we conducted interviews and FGDs in spaces of the participants' choosing (e.g., side-rooms in private households, rooms in panchayat or ASHA offices) and explained that we were aiming for quiet and privacy, which meant participants helped in asking others to leave the area. Nevertheless, in some situations (particularly in the villages) this was not possible, so we made it clear that we could not ensure complete confidentiality and that people did not have to answer questions they were uncomfortable with, and asked FGD participants not to share what had been said.

Regarding risks to the participant, participants may have felt uncomfortable talking about personal issues with a stranger, in particular if they were having a difficult experience or had lost a relative. The fieldworkers aimed to make the participants comfortable with light starter questions, paused if a participant appeared upset, offered them the chance to stop or skip questions, and offered a phone number for tollfree helplines if they were distressed[4]. As recruitment in rural areas was facilitated by a mental health NGO, rural participants could also

[4] (Help Age India (toll-free) helpline[4] (aimed at older people, to identify potential additional sources of help for the older individual (and thus family member if feeling strained)), and the Vandrevela Foundation[4] (partially paid) helpline (mental health counselling)).

be guided towards the community workers if they needed emotional support or help with availing welfare schemes.

To avoid potential risks to the field team (e.g., if community members were suspicious of our presence), in rural areas we asked for permission to conduct the study from local leaders and were assisted by NGO workers (who were local to the community), and in both areas, we only conducted data collection in teams of at least two.

4.4.7. Study site

Data collection was conducted in two neighbouring districts in the North-East of the state, Chennai and Kancheepuram, which are Tamil Nadu's most populous and dense (particularly Chennai) districts (comprising 10% of the total state population) (Census of India, 2011b) (figure 4). Chennai district is defined as 100% urban by the census. Chennai district contains Chennai city (the state capital, formerly known as Madras), which is the sixth largest city in India; roughly 30% of the population lives in slums (Census of India, 2019). Kancheepuram on the other hand is 65% urban which is above the state average. Both districts have above state (and India) average literacy (including female) rates and child-sex ratios, and lower than average early (before age 18) women's marriage rates and fertility, demonstrating relatively high socioeconomic development and gender equity outcomes in comparison to the rest of the state and country, and relatively further progression through the demographic transition (Census of India, 2011b).

Figure 4: Tamil Nadu map and site of fieldwork in Chennai and Kancheepuram districts

In Chennai district, we conducted data collection with individuals from non-slum areas (around the city) (figure 5), slums and slum resettlement colonies. These were located towards the outskirts of Chennai city and composed of communities who had previously lived in inner-city slums and had been moved by the Tamil Nadu government during slum clearance.

In Kancheepuram, we conducted data collection in nine villages and one town located in a block on the border with Chennai and close to the Banyan's rural

center (figure 5). According to staff at the Banyan (the rural center has been established in the area for a decade), the primary source of employment in the block was agriculture and fishing, though factory work was rising in areas close to the urban borders. The town (primarily fishing) had recently urbanised and was wealthier as it was close to a main road running south from Chennai. Most of the women in the area did not work full-time, though many participated in MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act, a rural social welfare scheme that guarantees 100 days of work annually) or as casual labourers. Most men (and women) worked for daily wages. Unemployment was high and younger generations were moving to cities for work. Schools within the panchayats went up to 8th grade (middle-school) and children had to travel to nearby towns to undertake secondary education. As such, younger generations in the area were largely literate with up to middle-school education, and while the parents' generations (roughly middle-aged) were roughly 50% literate. If people wanted to avail social security schemes, they needed to travel to the block development office (in a coastal town) or the district office (in a larger town outside of the block). The block included Hindu

Figure 5: Two of the study communities (Kancheepuram (rural) and Chennai (urban))

(the majority) and Christian (and to a lesser extent Muslim) populations, though there was a lot of conversion between religions. There were some caste divisions and discrimination within the communities, though more along majority/minority castes rather than “lower”/”upper” castes.

4.4.8. Data collection

The data collection process is outlined in appendix E. Before undertaking the interview/FGD, each participant completed (or was assisted with completing) a short questionnaire (appendix F), which asked questions on sociodemographics (gender, age, religion, education, employment type, marital status, caste group, state of origin) and household structure (number of and relation to members, number of members 60-plus). Completing these was time-consuming (particularly in FGDs with many non-literate members), so the questionnaire was split into questions for before and after the interview/FGD, which has resulted in missing data. Participants were told that they did not have to answer every question, and the caste question was skipped most frequently.

Data collection took place over a four-month period (May to August 2018). We conducted 12 FGDs with homogenous, pre-existing (by village and/or employer) groups to understand collective experiences in support provision. FGDs had on average 7.3 participants (11 N=6-8, 1 N=12). One interviewer led the FGD whilst a second assisted with completion of consent forms and background information sheets and took field notes. FGDs were conducted in locations selected by local informants who assisted with recruitment, or by the participants (e.g., temple, Anganwadi center, panchayat offices, classroom, and side-rooms of homes). We conducted 25 interviews in a range of locations, both

in homes and in community (e.g., school) buildings. All (but one) interview/FGD was audio-recorded. Following the FGD that did not record (due to an issue with the audio-recorder), I noted down as much as I could remember of what had been said in the field notes.

While I initially planned for same gender interviewers to conduct the interviews/FGDs, it was difficult to organise interviews/FGDs that fit with the field team's timetables and the participants' availability. Towards the end of fieldwork, I began to use different gender interviewers. This did not appear to affect the way participants responded, for example women in an FGD openly critiqued their husbands when being interviewed by a male fieldworker. The majority were conducted in Tamil, though I conducted a few in English towards the end of the study.

The recordings were transcribed as data collection was underway and I read through the transcripts repeatedly and made notes but did not formally start coding until all the data collection was completed. The field team members were only available to work until August and I thus aimed to achieve the estimated sample by that point. At this point I stopped data collection and began data analysis in earnest, with the rationale that if I had additional questions or there were gaps in the data, I could contact participants again (e.g., by phone), or return to India, repeat the process, and recruit additional participants. Nevertheless, once I had coded the bulk of the data, I felt that the same topics were being raised and there were clear patterns in the existing data. While I had a few minor questions, I did not perceive that it was necessary

to conduct another round of data collection (though I did attempt "participant validation" (as outlined below)).

4.4.9. Sample

In total we sampled 113 individuals, 12 FGDs (7 with women) (with 88 participants in total) and 25 interviews. The FGD and interview sample details are described below (tables 4 and 5). I have focused primarily on socioeconomic differences in the analyses, so I have described these below.

Table 4: Sociodemographic characteristics of focus-group sample (N=88)

FGD	FGD size	Urban/ Rural	Gender	Age	Employment type	Education
F1	8	Rural	Women	38-45	Casual labour/ MGNREGA	None (illiterate) to secondary
F2	8	Rural	Women	24-45	Casual labour/ MGNREGA	None (illiterate) to secondary
F3	7	Rural	Women	25-46	Casual labour, household based (3)	None (illiterate) to middle
F4	8	Urban	Women	34-49	Household based	Secondary (1) to higher
F5	6	Urban	Women	36-47	Salary labour: housekeeping	None (illiterate) to middle
F6	6	Urban	Women	31-55	Salary labour: Teaching	Higher

F7*	12	Urban	Women	28-36	Salary labour: Multi-national corporation	Higher, miss (1)
M1	7	Peri-urban	Men	20-55	Casual labour: Fishermen	Primary to middle
M2	7	Rural	Men	36-62	Casual labour: Agriculture	None (illiterate) to middle
M3	7	Rural	Men	32-59	Casual labour: Agriculture	None (literate) to middle, miss (2)
M4	6	Urban	Men	29-36	Salary labour: Housekeeping	Middle to higher
M5	6	Urban	Men	33-51	Salary labour: Teaching, school staff	Primary to higher
FGD focus-group discussion; MGNREGA Mahatma Gandhi National Rural Employment Guarantee Act; * Not audio-recorded						

Table 5: Sociodemographic characteristics of interview participants (N=25)

Characteristic	**N (%)**		
	Women	Men	Total
Settlement type			
Urban (Chennai)	11	5	16
Non-slum	7	2	9
Slum/slum-resettlement	4	3	7
Rural (Kancheepuram)	4	5	9
Age-group			
20-29	2	5	7
30-39	4	0	4
40-49	4	3	7
50-59	3	2	5
60-64	2	0	2
Employment type			
Household-based	7	0	7
Casual labour	2	3	5
Salary labour	4	4	8

Self-employed	0	1	1
Retired	2	1	3
Student	0	1	1
Education			
None	1	1	2
Primary	1	1	2
Middle	5	1	6
Secondary	0	1	1
Higher	7	6	13
No data	1	0	1
Total	15	10	25

4.4.10. Epistemology

I have taken a critical realist approach (Fletcher, 2016). This assumes that there is an objective reality of support provision (akin to positivist thinking). For instance, an observer with a questionnaire could note down every time a family member helps their relative in different ways (e.g., provides food, helps them stand up), or receipts of healthcare costs could be used as evidence of financial support. Nevertheless, as evidenced by the importance of perceived (versus received) support on health and the key role for appraisal of potential stressors on caregiver burden, the subjective perception of support is also key (akin to more constructionist thinking). The objective reality can be perceived differently by different parties (differences do not necessarily represent

“dishonesty”), with potential repercussions (e.g., feelings of burden for the support provider or distress in the elder).

To explore support practices, we asked participants to describe who provides different forms of support to older dependent relatives in their family, and how available alternative sources were to help. This aimed to understand the objective reality and was dependent on the participant being able to accurately relay that to us. To meet these assumptions, we recruited individuals who had recent experience, and sampled a range of ages, gender, and relations to older people to understand how different forms of support were provided and to allow comparison of people’s responses (as well as to existing quantitative support data) to understand the “norm”. Nevertheless, my results represent participants’ subjective appraisal of support practices. I did not have the resources to undertake participant observation and focal follows, which would be the most objective way of understanding support provision. I chose not to triangulate interviews of the care provider with interviews with the care recipient or other family members (e.g., husband and wife), as I felt these would always be subjective to a degree, and it is unclear whether triangulation would bring us closer to the “truth”. Rather, triangulation between family members is more suitable to answering other questions (i.e., how care dyads perceived support provision). Further, the questions related to ‘who does what’, rather than ‘is the support good/enough’, which I feel is less charged and thus less likely to vary across parties. For the challenges analysis, while different family members may have identified different stressors (particularly the care recipient), the critical realist approach means that any stressor identified by the individual is valid, as it is their perception and will thus have consequences for

them. The critical realist approach is also particularly fitting to the analysis of attitudes/preferences, which is specifically aiming to understand subjective views. I explain potential limitations to this approach (alongside the other methods) in section 4.5.3.)

4.4.11. Reflexivity

There are two elements that I need to reflect on: how my characteristics and background might influence how others perceive and respond to me, and how they might influence how I perceive the research question and data.

I am British and have spent most of my life in the UK, living in a nuclear family. Older people in the UK are far less likely to live with their children than in India, and more likely to use residential or in-home formal care (I have personally never been involved in supporting an older relative). These differences are well known in India and formal care is perceived as a (negative) Western influence (Lamb, 2006, 2013). Given this, participants may have felt that I was there to 'push' a formal care agenda and thus have expressed even stronger commitments to caring for their families in a 'traditional Indian' way as a response (perhaps giving me an understanding of the ideals of support, rather than realities). My nationality could have influenced this also (due to the role of the British empire in India and Chennai particularly), though I did not observe any clear evidence of this. Being dependent on a relative (or other social tie) is perceived more negatively in the West than in India, which means I may have approached the research question viewing family-focused care as an 'alternative'. I am also a white, highly educated woman in her 20s, travelling and working alone in another country. These characteristics may have made people

feel uncomfortable (particularly if less educated) or intimidated. As such, I only conducted interviews/FGDs with highly educated, urban participants. Nevertheless, the field team were also highly educated, from urban areas and were likely of a higher socioeconomic status than many of the participants. Results indicated that rural participants felt that not caring for parents was a city person phenomenon, so the reaction to the field team in rural settings may have been similar.

Further, while I have not taken an explicit feminist approach, I am of the view that gender (including support) roles are a result of socialisation rather than inherit sex specific traits. I am for gender equity in terms of people's roles and opportunities not being restricted according to their gender. While there is gender discrimination in the UK, son preference is not a common cultural practice. Given this background, I may have particularly focused on gender (particularly the role of daughters) related aspects of the results. Further, I have a public health educational background and am from a high-income Western country, where dependence is relatively stigmatised and where ageing is medicalised (Brosius & Mandoki, 2020; Lamb, 2006, 2013). This may have led me to focus more on health or 'independence' related topics or solutions.

4.4.12. Data processing

The Tamil audio-recordings were translated and transcribed by bilingual Tamil-English speakers, employed via the UpWork freelancer website. This was undertaken as data collection was ongoing, which allowed me to have a better understanding of the results (in addition to what the field team relayed back) for adapting the topic guide. The first five transcripts were validated by the field

team to confirm whether they recordings were being correctly translated (the field team approved them, so I continued with the same translators). I transcribed a handful of the English audio-recordings, and the others were transcribed by freelancers.

4.4.13. Data analysis

4.4.13.1. Approach

I have followed a "qualitative descriptive approach" (Neergaard, Olesen, Andersen, & Sondergaard, 2009; Sandelowski, 2000, 2010). This aims to stay close to what the participants said, with limited inference, and for the results and conclusions to be (hypothetically) recognisable and sensible to the participants. Thus, in contrast to developing a broad theory (relevant across populations), it aimed to highlight context specific issues, which may also be relevant in similar settings, i.e., other populations in Tamil Nadu and India. Following this, I used a thematic analytical approach, which "is a method for identifying, analysing and reporting patterns of meaning" (Braun & Clarke, 2006). The analysis was conducted across the whole dataset rather than individually for each participant or FGD. I used NVIVO 12 for data management and analysis (QSR International Pty Ltd. Version 12, 2018)

4.4.13.2. Dataset

The dataset consisted of the transcripts of all the interviews and FGDs which were recorded (N=36), as well as the fieldnotes that I or another member of the field team had taken during data collection (N=37). The interview and FGDs transcripts were analysed together because I did not observe any discernible difference in the way people responded in the two methods or through the

transcripts. For instance, some of the more personal and sensitive issues (e.g., about considering not providing care out of anger of the impact on the family, the lack of help from a husband or conflicts with in-laws, or issues with the care recipients' incontinence) were shared during FGDs. Further, while the two topic guides varied and the two methods had slightly different aims, there was typically overlap in the issues mentioned between the methods. I therefore did not think that anything would be gained from analysing the data separately. Nevertheless, once coding was largely complete, I searched for patterns between the codes and the methods to assess the degree to which they affected the results (expanded upon below).

4.4.13.3. Indexing

After familiarising myself with the transcripts and speaking over initial thoughts with a member of the field team (DP), the first formal step in the analysis was to develop an analytical framework. This is a framework that describes the topics spoken about in the transcripts and can be used to organise the data (e.g., to combine all the excerpts of participants speaking about financial struggles). I chose a selection of eight heterogenous transcripts (in terms of method, gender, socioeconomic status) for myself and DP, and we each separately developed a framework which covered the topics and sub-topics mentioned in the transcripts. DP and I then spoke over our separate frameworks and decisions, and together developed a final framework that was used for indexing (appendix G). The analytical framework largely reflects the questions asked and the study aims, thus the study was largely deductive. This framework was not final and was adapted as indexing (and the next coding stage) was underway (as evidenced from the final coding tree). Finally, I went

through the full data-set and indexed words, sentences and short sections into the framework's topics and sub-topics.

4.4.13.4. Coding

I then undertook the next (main) coding stage. I went through each of the framework sections (e.g., challenges > financial) and searched for more detailed topics, specifically trying to identify differences between and within transcripts. This coding round generated more specific codes. For example, within financial challenges, I developed the categories "reasons for", "consequences", and "coping strategies", which each had final lower-level codes. During this stage supervisor IPN intermittently assessed the new code trees and spoke over coding decisions with me. This composed the (roughly) final dataset which was used for the final interpretation stage (this was continuously amended during the final stages as well).

4.4.13.5. Interpretation

The interpretive stage was undertaken separately for each of the three objectives (understanding practices, challenges, and attitudes/preferences). For each aim, I created a separate table which contained the relevant index topic/sub-topic/codes, the corresponding notes, and descriptions I had written, and a selection of quotes which illustrated the code, particularly quotes that demonstrated variation (example in appendix H). I then searched for patterns between the codes and the main characteristics of interest using NVivo's crosstab and attribute function; urban/rural, socioeconomic status and gender (as well as method to identify potential differences in the responses).

Nevertheless, this is qualitative data and I have only interpreted a pattern if some topics were clearly mentioned by some groups and not others.

For searching for patterns within the data, I developed a socioeconomic status category which I added as an 'attribute' in NVivo. I categorised a participant/FGD as lower socioeconomic status (those who worked for daily wages, lived in a slum or resettlement colony, or had middle school education or below (for those who were not currently working)); upper-middle socioeconomic status (if they had professional careers and/or attended higher education); and middle-socioeconomic status (if they did not fall into the other categories). While I imagine there is variation within these groups, the sociodemographic questionnaire was short and I chose not to use a complex socioeconomic indicator (Deepthi et al., 2016; Saikia, Bora, & Luy, 2019), therefore these characteristics (occupation, education, and settlement type) are proxies.

Given the largely deductive nature of the methods and analysis, the resulting "themes" typically fell under the study aims and questions asked (e.g., types of challenge). The final interpretations thus aimed to bring together and highlight differences in the various sub-themes and identify potential patterns and underlying mechanisms. The analysis of support practices included an additional step of interpretation (described in chapter 7).

4.4.13.6. Participant validation

Once I had reached broad conclusions from each of the analyses, I wished to cross-check these with participants to assess whether they appeared true to their experiences (Neergaard et al., 2009). In late 2019 I returned to India for a

short period (two weeks) to relay back my conclusions to participants and gauge their views and feedback. Unfortunately, this was restricted by availability of the field team, participants, and my own work timetable, and we were only able to interview three participants (two middle socioeconomic status in urban Chennai, one lower socioeconomic status in a slum resettlement colony on the outskirts of Chennai district). I selected these participants based on their transcripts and hoped to interview people who seemed particularly engaged in the topic, who had strong views (i.e., would feel confident to disagree with our results), and who were not experiencing particular difficulties in caring for older relatives in bad health (i.e., who may have lost their relative in the interim and struggled to speak about the topic). The interviews were conducted by myself and a female fieldworker and recorded, though the transcripts were not added to the primary dataset. While they added a few additional details and views, participants largely agreed with the conclusions, though they had not experienced all the issues described as a result of the socioeconomic variation. This step therefore did not greatly influence my interpretations. I also used this time to share and discuss my conclusions with the field team and researchers at varying institutions who had advised with fieldwork.

4.5. Mixed methods approach

For this thesis I have used both quantitative (using two secondary datasets) and qualitative methods (collecting primary data). In addition to the drawbacks of the separate datasets, each of these methodologies has its own benefits and limitations, as does the combined approach. I describe these below.

4.5.1. Quantitative: Benefits and limitations

The quantitative analyses allowed me to assess change over a key time-period regarding India's demographic transition, to compare differences between populations across India, and to ask deterministic questions regarding the relationship between family and health. In sum, to take a more scaled back and broader view of family structure change and its implications for support across different groups in India.

Nevertheless, each of the secondary datasets had its own limitations and potential biases, and sample sizes and available variables restricted the potential analyses. This resulted in the assessment of broad populations and varying foci of separate analyses. For instance, chapter six focused on the relationship between family structure and health by gender of the older person, (a) to tease out social versus physiological influences of children on health, and (b) because I felt assessment by a socioeconomic status indicator (e.g., education) would have resulted in many estimates, small sample sizes and have been difficult to interpret (though this was conducted as a secondary analysis). On the other hand, the census sample was only composed of ever married women and assessed socioeconomic differences in family structure (urban/rural and socioeconomic status (using completed education as a proxy)) as the sample size allowed further stratification but corresponding data was unavailable for men.

A more general limitation of quantitative methods (particularly secondary data-sources) is that the resulting data is typically used with a (positivist) assumption that it represents an underlying truth linked to how people

consistently think and behave, which may not be able to reflect the complexities of their lives and views. Closed answer categories limit the range and detail of responses. There is also very little information for understanding people's responses, for instance how they might have reacted to the data collection setting and related power dynamics, or how they (or the interviewer) interpreted the question and answers.

4.5.2. Qualitative: Benefits and limitations

The qualitative component on the other hand allowed me to take a more detailed focus to assess how these wide-scale trends might affect people's lives at the micro-level. By not restricting to a survey with closed categories based on the existing literature and my own assumptions, I explored how families shared support roles and used counterfactual scenarios (e.g., who would be the primary carer if you were unavailable), how participants viewed varying roles and support arrangements, aimed to understand their (sometimes contradictory) perspectives and rationalisations of support, assessed variation within a geographically narrow population, allowed participants to raise issues that I had not identified as important, and allowed some participants to share difficult experiences (with myself, the field staff and others within FGDs) in a relatively sensitive and sympathetic environment. This approach allowed discrepancies between responses (e.g., reported attitudes and practices) and did not treat them as 'errors' but as representing the complexities and conflicts surrounding old-age support. The fact that I was an outsider (in India) and the fieldworkers were outsiders (in rural and low-socioeconomic status urban settings) also felt beneficial in some ways, particularly with female participants,

as I had the impression participants felt less judged for expressing negative feelings or experiences around support.

On the other hand, the narrow geographical focus of the qualitative methods means the experiences and perceptions of the sample may not necessarily translate to other populations (e.g., within Tamil Nadu or elsewhere in India) (please see the final discussion for an assessment of this). While old-age support appeared to be a key issue in the minds of many participants and were thus often keen to speak about it, it was sometimes difficult to gage whether participants were reporting the actualities of their lives or presenting a positive and unified image of 'traditional Indian culture'. The moral ideal of the joint family, old-age support and the link with Indian identity has been examined in-depth elsewhere (L. Cohen, 1992, 1998; Ruddock, 2009; Samanta, 2019). While the comparative (i.e., modern/non-traditional) group for urban and higher-socioeconomic status groups tended to be the "West", the corresponding group for rural and/or lower socioeconomic status groups was more commonly city dwellers/wealthy families. Thus, the need to present a positive Indian image of support was likely heightened in the face of outsiders. This appeared to be higher in male respondents. Nevertheless, on probing, participants often reported both on how things are done in 'India' or 'this village' as well as diversions in their own families, often with several caveats (e.g., the elder was still in good health, did not want to move to the city, was independent and did not want to co-reside). As such, I don't believe participants purely reported ideals rather than practices. An alternative to capture behaviours would have been ethnographic methods and/or focal follows, though these have their own

drawbacks regarding observation bias and are outside the scope of this study and my own research training.

FGD participants may have felt concerned about sharing anything that could have had consequences for them if it was relayed back to their families (e.g., complaining about their elders' behaviours) or anything that placed themselves or their relatives in a negative light (not wishing to be judged or to share private issues). The inverse is true for interviews. When undertaking data collection, assessing the transcripts, and searching for patterns between codes and method, I did not see clear evidence that more sensitive issues were spoken about less in FGDs. Rather, this line appeared to be fall more between women and men, with women being more willing to share sensitive (e.g., negative experiences) issues. This may be because the men were less willing to share their private difficulties (particularly with a foreign researcher) or because they are less involved in and impacted by the day-to-day issues of support provision. In fact, with the FGDs, it appeared that the group setting (as conducted with a group of known individuals) removed some of the awkwardness of the one-on-one interview with a stranger. The women's FGDs felt like a therapeutic way of women being able to share their difficult experiences, particularly around the lack of help from their husbands, difficult relationships with their in-laws, and struggles in attempting to look after their parents. Nevertheless, a drawback of the FGDs was that it was not possible to know which participant said what exactly, so I could not link them to certain characteristics (outside of the joint ones for the group). The age inclusion criterion also meant that some FGDs contained participants with widely varying ages (e.g., from 36-62 years), which could have influenced how comfortable participants felt expressing their views

(e.g., about their younger/older relatives). I have compared the responses for the FGDs with wider and narrower age-distributions and cannot identify any clear differences. These dynamics were also not evident during data collection.

4.5.3. Mixed methods: Benefits and limitations

I combined the two approaches to combine a macro and micro view of changing family structures, support, and health. The quantitative analyses aimed to assess how family structures are changing (and for whom) while the qualitative analyses aimed to understand how support functions currently and what people wish for (across different socioeconomic groups). Based on this, the combined approach aimed to understand the potential implications of changing family structures for varying socioeconomic groups. The qualitative work also generated hypotheses which could explain the evidence on the relationship between family structure and health (please see 10.4.1).

A key drawback to this approach is that there some friction between more positivist and critical realist assumptions across the methods. For instance, interpretation of the quantitative results and chapter seven are largely based on a (positivist) understanding that participants report on an underlying truth that is consistent among them (though with the caveats and limitations of data collection methods). On the other hand, on the whole I take a critical realist approach, which proposes that, while there is an objective truth that could potentially be measured (e.g., observing an older individual with mobility issues for one day and noting every time they are helped to stand/walk), this truth can be interpreted in varying ways and thus have varying effects. I conceptualise this tension in the following way. The constructs assessed in this thesis are

either subjective by definition (e.g., self-rated health, attitudes, and preferences), impactful regardless of their subjectivity (e.g., challenges experienced), or based on relatively clearly defined constructs (e.g., current marital status, number of living sons and daughters). There is a chance that participants interpreted the latter differently, e.g., if receiving no care from a son or husband so reporting having no sons/husband. Nevertheless, trends in family structures across time and populations follow the expected patterns given the underlying fertility and mortality rates, and results (e.g., proportion childless) correspond with existing evidence from different data-sources (Allendorf, 2019; Ranjan & R, 2020).

In chapter 7, participants were asked to describe how they and their relatives supported their older relatives. These reports relate to their perception of how support is provided which could differ from their relative's (or an observer's) perception. Nevertheless, in addition to the points made above, the questions largely focused on who provided various types of support, rather than how well it is done or received, which I propose would be more difficult to assess through secondary reports.

4.6. Chapter summary

- The preceding chapter outlined the strengths and weaknesses of the three data-sources used for the following analyses: 2011 Indian census data (which allow assessment of differences in family sizes at the sub-national level), repeated national-level NSSO surveys (1995-96, 2004, 2014) (which allow assessment of family structures changes over time and the relationship between family structure and health), and

qualitative data collected in a socioeconomically diverse sample of adults in Tamil Nadu in 2018 (which I collected to fill the gaps in the literature highlighted in chapter 3).

5. Chapter 5: State-level and socioeconomic variation in family sizes (2011)

5.1. Chapter aim

A primary aim of this thesis is to develop an understanding of the potential impact of India's demographic transition for support of the older population, considering variation across populations. Demographic trends vary greatly across geographic and socioeconomic populations in India. Existing evidence demonstrates the key role of children in supporting older parents, as such, the following chapter uses Indian census data (2011) to describe family size (number of children, sons, and daughters) at the sub-national level (state and socioeconomic background (urban/rural and socioeconomic status)) for ever married women aged 60-plus across 17 states.

5.2. Methods

I used publicly available Indian census (2011) data for the following analysis. The dataset and its limitations have been described in detail in the preceding chapter. To summarise, the 2011 India census aimed to collect data on every person residing in every state and union territory within a reference period in February 2011. Sociodemographic data was collected on all individuals enumerated (e.g., age, sex, level of education completed, caste category), including numbers of surviving children, sons, and daughters, to ever married women of all ages.

The data is available in cross-tabulation form, i.e., total number of ever married women per category (e.g., age-group, sociodemographic characteristic), and total number of surviving children/sons/daughters per category. To estimate average number of children/sons/daughters per category, I divided the latter

by the former. I repeated this for each of the 17 most populous states in 2011 (using the classification of 'major states' used by the NSSO (Ministry of Statistics and Programme Implementation, 2016b)), by highest level of education attained as a proxy for socioeconomic status (categorised as illiterate, literate but below primary, primary, middle, secondary, graduate) and urban/rural residence, for ever married women aged 60-plus. Other potential proxies for socioeconomic status were unavailable in the dataset. Unfortunately, no information was available on the children's characteristics, so though they are likely adult children (given the age of their parents) I have been unable to define them as such. The states have been presented by region according to the NFHS regional classifications (International Institute for Population Sciences (IIPS) and ICF, 2017a). I selected to present the 'major states' as they contain vast majority of the older Indian population (90%) and because the sample sizes were large enough to stratify by both education and urban/rural.

I have not presented confidence intervals as they relate to the 'true' population value and imprecision due to sample sizes, and the census aimed to collect information on every person in every state in the reference period. Nevertheless, as I mention in the below limitations, the data may be biased in other ways. For instance, the Post-Enumeration survey indicated that 3% of older urban women may have been missed from the census (the largest undercount in the 60-plus age-group) (Registrar General and Census Commissioner, 2014). This group could hypothetically be those without any children, for instance if women were living alone and assumed not to count as a true 'household' (Randall & Coast, 2016). As a sensitivity analysis, I have repeated the above analysis (calculating average numbers of

children/sons/daughters to ever married women) for an inflated population denominator that assumes 3% of all older women were undercounted and that each undercounted woman had zero children.

To assess the quality of the census educational data, I estimated the share of the population by education using the 2011 census data and the 2014 NSSO survey data (using survey weights) for Tamil Nadu and compared the two. The two data-sources used the same definition of education (highest level attained) and the categories were comparable (appendix B, table 11). Please note, when I use the term 'fertility' I am referring to the number of live births a women experiences, when I use the term 'family size' this relates to the number of surviving children/sons/daughters she has at age 60 and above (itself a function of her fertility as well as mortality).

5.3. Sample by level of completed education

Table six describes the level of completed education of ever married women aged 60-plus at the 2011 Indian census, for 17 of the major (most populous) states. Almost three-quarters of older Indian women at the 2011 census were illiterate, while less than 10% of women had middle school education or above. The southern state of Kerala stands out for its relatively high literacy rates in older women, for instance only 28% of women were illiterate versus highs of 83% in Bihar and Uttar Pradesh. Levels of education in older women in Tamil Nadu were slightly higher than average, for instance around two-thirds were illiterate versus 72% at the national level. Older women with graduate education encompass the smallest share of the population in each state, with the highest percentage of graduate women in West Bengal (2.9%) and the

lowest in Bihar (0.5%). The final column demonstrates the large sample sizes in each group.

Table 6: Ever married women aged 60-plus by level of completed education in India, for a selection of major states (2011 census) (urban and rural populations combined)

State	%							%
	Completed level of education							(N per 1,000)
	Illiterate	Literate, below primary	Primary	Middle	Secondary	Graduate	Missing	
Andhra Pradesh	80.0	3.7	8.2	1.4	2.7	0.9	3.1	100 (4,307)
Karnataka	71.3	7.2	8.4	2.1	5.2	1.6	4.2	100 (2,988)
Kerala	28.2	25.0	19.5	7.6	11.7	2.3	5.7	100 (2,233)
Tamil Nadu	65.7	5.1	12.0	5.4	6.8	1.4	3.7	100 (3,792)
Gujarat	64.9	12.6	9.1	2.0	5.4	1.7	4.3	100 (2,494)

Maharashtra	62.3	11.7	8.5	2.1	5.9	2.6	6.9	100 (5,724)
Bihar	83.0	2.6	5.9	2.7	2.1	0.5	3.2	100 (3,521)
West Bengal	63.6	13.3	7.0	5.5	4.6	2.9	3.1	100 (3,806)
Jharkhand	83.1	2.7	5.6	2.5	2.6	0.9	2.6	100 (1,145)
Odisha	76.0	10.0	8.7	1.1	1.3	0.6	2.4	100 (1,960)
Assam	69.9	11.2	7.3	4.3	3.3	1.0	3.0	100 (999)
Uttar Pradesh	82.5	1.4	6.3	2.9	2.7	1.4	2.8	100 (7,204)
Chhattisgarh	84.8	5.5	4.1	1.5	1.6	0.7	1.7	100

								(1,059)
Madhya Pradesh	81.8	4.3	5.3	2.3	2.3	1.4	2.7	100 (2,887)
Punjab	71.4	1.8	11.1	3.9	6.5	2.2	3.1	100 (1,401)
Haryana	79.4	1.8	6.8	2.8	4.4	2.5	2.4	100 (1,090)
Rajasthan	87.0	2.4	4.1	1.7	1.6	0.9	2.4	100 (2,648)

I compared the share of women with different levels of completed education according to the 2011 census data and the NSSO (2014) health and social consumption survey for Tamil Nadu (appendix B; table 11). While the estimates varied between the two data sources (for instance the NSSO data estimated that over 70% of surveyed women were illiterate in comparison to around 65% in the survey data and indicated higher shares of literate women with below primary education in comparison to those with primary education, while the census data indicated the opposite), the NSSO confidence intervals largely crossed the census estimates.

5.4. Results

Figure six describes number of surviving children to ever married women aged 60-plus at the 2011 census by level of completed education and region and for 17 of the major states (combined urban and rural population). It demonstrates the variation in family sizes between women with different levels of education as well as across states. While there is a negative relationship between family size and education (i.e., women with the highest levels of education consistently have smaller family sizes than those with the least education), the shape of the relationship varies across states (with some similarities within the grouped regions). For instance, in most the states in the central and northern regions (apart from Chhattisgarh), family sizes demonstrate a roughly linear decline with increasing education. On the other hand, in most the other states assessed, family sizes are either similar across the lowest education categories (e.g., in Andhra Pradesh, women with primary, literate but below primary, and primary education each had just under three children on average) or increase in women with low levels of education versus none (e.g., in Odisha illiterate women had

around three children on average while women with primary education had around 3.5 children on average).

Other patterns are apparent from the graphs. In some states, the gradient (i.e., difference in family size between the most and least educated women) is narrower than others, for instance, graduate women in West Bengal have roughly two fewer children than illiterate women (1.3 versus 3.7). In contrast, in Tamil Nadu, graduate women have roughly one fewer children than illiterate women (1.6 versus 2.7). This is due to relatively small family sizes in the least educated women (the lowest across the states for the total (urban and rural) population). There is also less variation in family sizes in the highest educated women (between 1.5 and 2.5 children) in comparison to illiterate women (between 2.7 and 4.2 children). Family sizes in urban and rural populations largely demonstrate similar relationships with education, though family sizes are typically smaller for urban women. Though illiterate women in urban Andhra Pradesh have similar family sizes to those in Tamil Nadu, illiterate women in rural Tamil Nadu have the smallest family sizes across the states assessed (due to similar family sizes across urban and rural populations). Women in rural Odisha with graduate education have larger family sizes than

those with secondary education, likely demonstrating the relatively few women of this population with higher education.

Figure 6: Number of surviving children to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (total population)

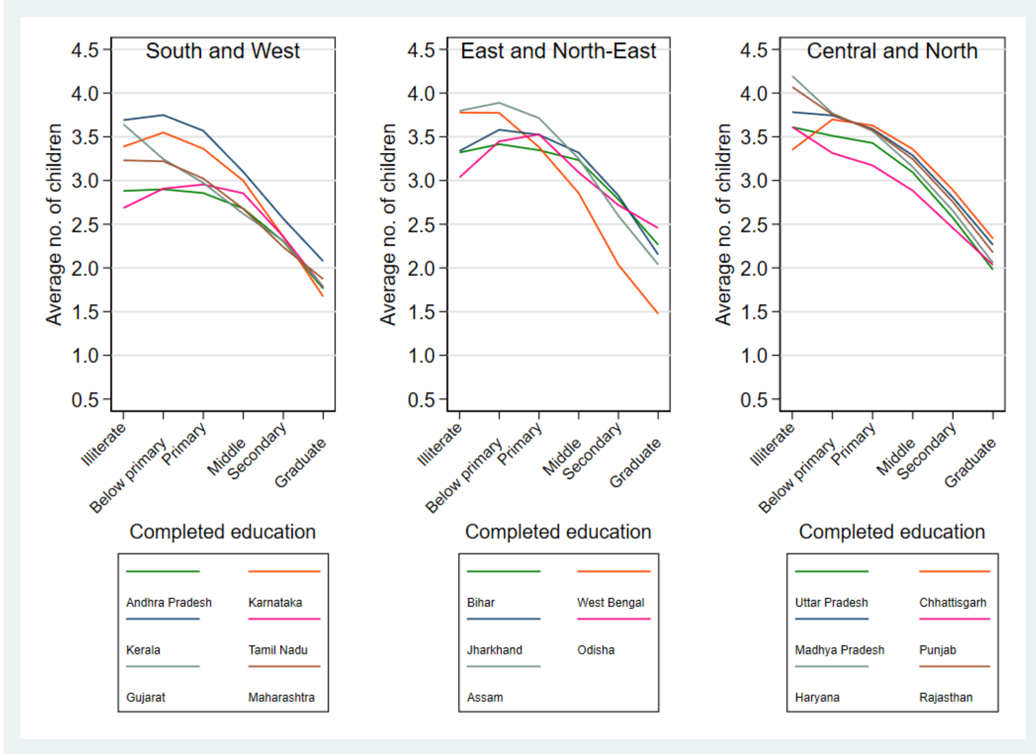
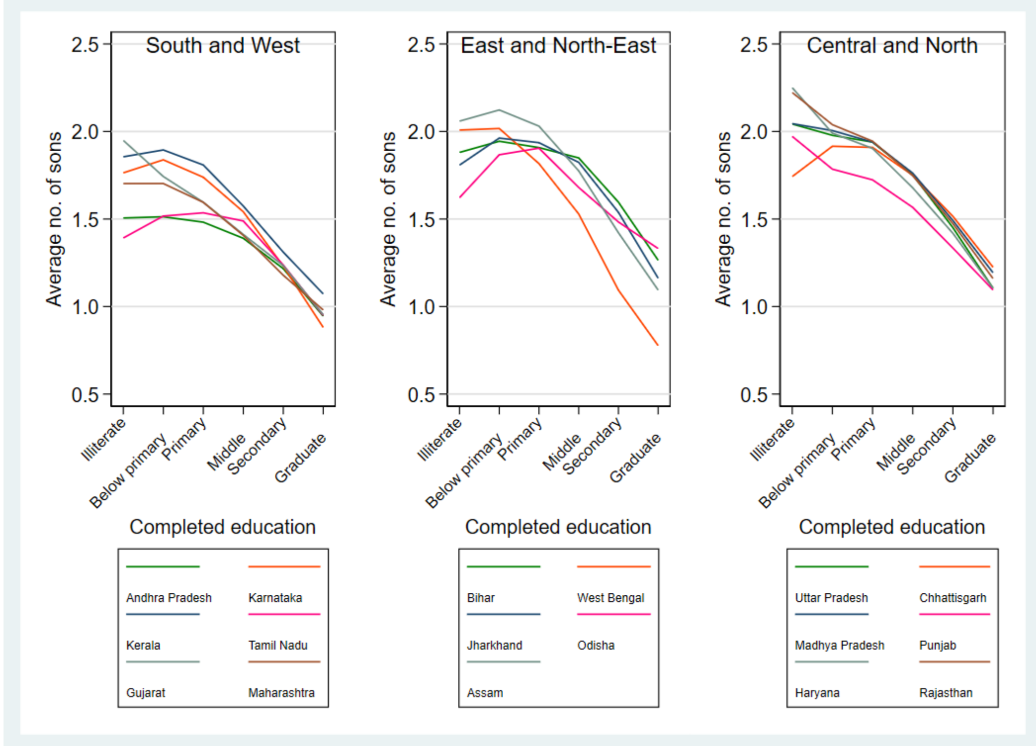


Figure seven demonstrates the variation in numbers of surviving sons between states and socioeconomic groups (for the combined urban and rural population). Patterns largely mirror those for total numbers of children, for instance average number of sons is lowest in the most educated, the shape of the relationship between education and number of sons differs across the states (following the same shape as total numbers of children) and there is more variation in the least educated groups. Only graduate women in a few states in the southern and western regions (as well as West Bengal) have fewer than one son on average (though as table six demonstrates, these women are a small share of the population overall). Tamil Nadu has the lowest average number of sons in the least educated group of women - almost one son less on average

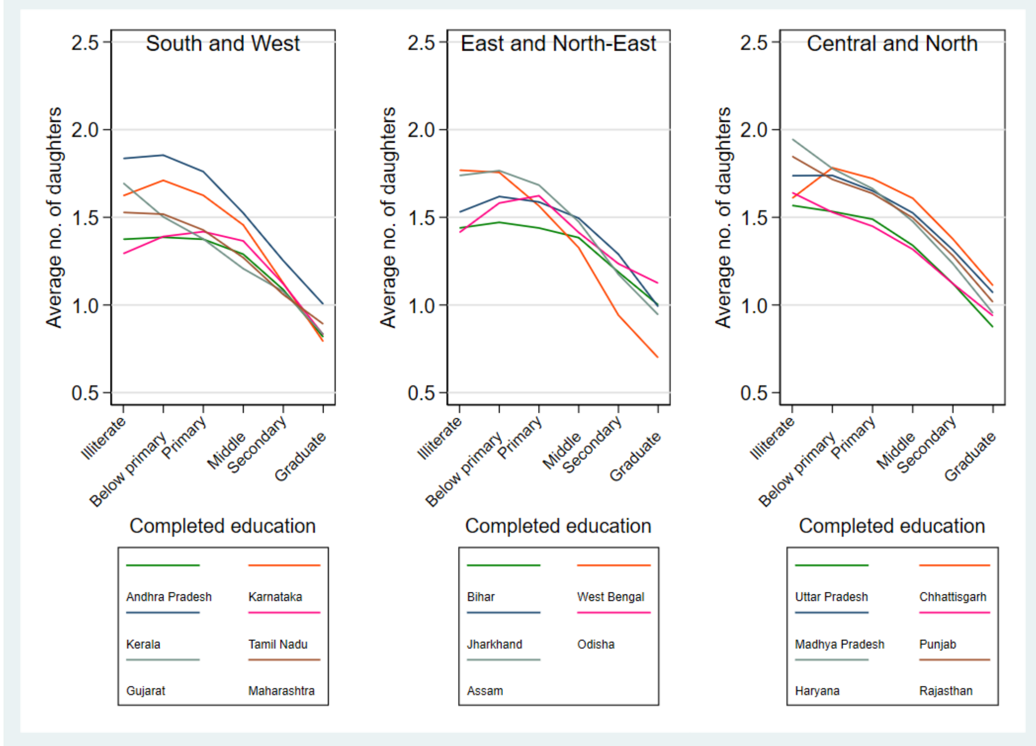
than illiterate women in Haryana and Rajasthan – resulting in a relatively small gradient between the lowest and highest socioeconomic strata (similar to Andhra Pradesh).

Figure 7: Number of surviving sons to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (total population)



In line with the results in chapter six at the national level, average numbers of daughters are consistently lower than numbers of sons (though this gap is smaller in many of the southern and western states) (figure eight). In addition to the (largely southern and western) states where graduate women had one son or less on average, graduate women in several northern and central states have around one daughter or less. For both sons and daughters, the estimates for urban and rural populations again demonstrate similar patterns, though largely with higher numbers of surviving sons/daughters for rural women (appendix B, figures 18-23).

Figure 8: Number of surviving daughters to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (total population)



Results of the sensitivity analysis indicate that potential undercounting of women with zero children likely had a minor effect on the estimates, there was roughly a difference in 0.2 children and 0.1 sons/daughters between the undercount scenario and the main estimates (not shown).

5.5. Discussion

This chapter aimed to describe differences in family sizes (average number of surviving children, sons, daughters) by education (as a proxy for socioeconomic status) and state (as well as urban/rural, please see appendix B). As expected, based on fertility trends, women with the highest levels of education consistently had smaller family sizes. Nevertheless, in many (largely southern, western, eastern, and north-eastern) states, women with the least education had similar or smaller family sizes than those with some education (e.g., below

primary, or primary). Family sizes at later ages result from a combination of past fertility and mortality trends. Both fertility and mortality typically follow a negative socioeconomic gradient in India (and elsewhere) (Asaria et al., 2019; International Institute for Population Sciences (IIPS) and ICF, 2017a; Saikia et al., 2019). As such, I propose that the non-linear relationship between family size and education observed in many states results from higher mortality of children in lower socioeconomic status women (please note I use the term children to refer to the relationship with the parent, rather than to the age of the child). While mortality will be higher in lower socioeconomic groups across states, the smaller family sizes observed in some states could result from (a) particularly high mortality in lower socioeconomic groups and/or (b) relatively low fertility in lower socioeconomic groups.

While the mass coerced and forced sterilisations in the 1970s targeted lower socioeconomic status individuals (as well as other marginalised groups), the states which were less impacted (e.g., Tamil Nadu) demonstrate the non-linear pattern between family sizes and education (Dyson, 2018; Guilmoto, 2016). So, while these programmes will impact later life family sizes, I propose that it is unlikely that these patterns are a result of the mass sterilisation drive. Another potential cause of these patterns could be survivor bias. Evidence from prior studies (as well as chapter six) demonstrates that having many children is associated with worse health and higher mortality for women (Barclay et al., 2016; Högnäs et al., 2017; Yun Zeng et al., 2016). Women of lower socioeconomic status already experience worse health outcomes and higher mortality rates (Asaria et al., 2019; Registrar General and Census Commissioner, 2019), therefore if this is compounded by having many children,

higher mortality before age 60 could result in larger shares of women with fewer children reaching older ages in the lowest socioeconomic status group. In turn, leading to lower average numbers of children/sons/daughters. Nevertheless, several of the states that demonstrate a roughly linear relationship between family size and health tend to have the worst health outcomes and highest mortality in the country (L. Dandona et al., 2017), therefore I propose that the non-linear relationship observed in many of the other states is largely a result of relatively low fertility in those groups combined with higher mortality of children across the older individual's lifecourse.

Women of the lowest socioeconomic status group in Tamil Nadu (as well as the southern state of Andhra Pradesh) had particularly small family sizes, resulting in relatively small differences in comparison to those of the highest socioeconomic status. I will expand upon the implications of these findings in the final discussion.

5.5.1. Limitations

To evaluate potential data quality issues in the census, I compared estimates of the population of older women by level of completed education from the 2014 NSSO survey with the 2011 census data. I selected to only compare the Tamil Nadu data as I felt a cross-state comparison would be too complex to interpret and because the variable is being used as a proxy for socioeconomic status (therefore the exact categories are less important than their relation to each other, expanded upon below). Comparison of the estimates indicated some differences in the share of women by completed education in Tamil Nadu by

data-source. On the one hand, the higher share of illiterate women based on the NSSO data could indicate that illiterate women were more likely to be missed off the census, or for their data (e.g., educational attainment) to be missing. On the other hand, the Tamil Nadu sample is small (around N=900) in the NSSO survey in comparison to the census (around N=3.8 million) and therefore has more sampling error and may give less precise estimates. While some miscategorisation between the lowest education groups could contribute to the patterns observed, several states (including Tamil Nadu) demonstrated similar family sizes across several education categories (e.g., illiterate to middle). I assume that miscategorisation between highly disparate categories will be uncommon, therefore while miscategorisation may influence the shape of the relationships to a degree, I do not propose that it is the underlying mechanism. Further, the education variable is being used as a proxy for socioeconomic status (e.g., rather than to examine the relationship between years of education and fertility) and therefore the exact categories are less important than their relation to each other. Finally, the census estimates follow expected patterns across states (e.g., highest levels of education in Kerala) and education categories (i.e., a high proportion of illiterate women and small proportion of women with graduate education as would be expected in this population). While the results of the sensitivity analysis did not indicate that undercounting of women with no children would impact the estimates considerably, the results are vulnerable to other biases in the data (e.g., inaccurate reporting on the women's data if the main census was completed by male household members).

Due to the structure of the data, I was only able to calculate average numbers of children despite the data being discrete and thus difficult to interpret (i.e., "1.2

sons”). Further, these averages will not correspond to numbers of children/sons/daughters for parents if child/son/daughterless-ness is on the rise (which will vary by state) (Allendorf, 2019; Herlofson & Hagestad, 2011).

Data on numbers of surviving children/sons/daughters is also available for women according to their religion, economic activity, and caste category. I selected to assess differences by socioeconomic status as this is a key determinant of demographic trends as well as likely access to support. Nevertheless, there are likely differences between these other populations which could be assessed in the future.

While I have proposed that the smaller family sizes in the lower socioeconomic groups result from higher mortality of children, I have not examined socioeconomic trends in fertility and mortality in each of the states over the past 40 or so years (i.e., approximately the years post-first birth for the population aged 60-plus). That was outside the scope of this analysis which aimed to highlight diversity across groups. I propose that the contribution of fertility and mortality to these inter-state and inter-socioeconomic status differences should be decomposed in the future.

5.6. Chapter summary

- Chapter five used publicly available 2011 census data to describe trends in family sizes (numbers of surviving children/sons/daughters) for ever married women aged 60-plus in 2011 at the subnational level (for 17 of the major states, urban/rural, and socioeconomic status as proxied by completed education).

- While women with the highest levels of education had the smallest family sizes, the relationship between education and family sizes varied across states. In some states (largely northern and central), family sizes declined roughly linearly with rising education, while in other states, family sizes in the lowest educated women were either similar or smaller than those with slightly higher levels of education. These patterns may be due to higher mortality of lower socioeconomic status women's children across their lifecourse.
- Graduate women in the South and West (as well as West Bengal) had less than one son on average across the period, which has the potential to impact support, though this is a small proportion of the total population.
- Tamil Nadu has particularly small family sizes in both urban and rural lower socioeconomic status groups.

6. Chapter 6: Trends in family structure and self-rated health of India's older population (1995-96 to 2014)

6.1. Chapter aim

This thesis aimed to develop an understanding of the potential impact of India's demographic transition for support (and subsequent health) of the older population. As such, the following chapter aims to describe trends in family structure (number of children, sons, daughters, and marital status) for India's older population (aged 60-plus) (1995-96 to 2014), and to determine the relationship between older people's family structure and their health. The primary analysis examines the relationship between family and health by gender of the older individual to elucidate between social (i.e., affecting both fathers and mothers) and physiological (i.e., only affecting mothers) influences of children on health. I have also conducted secondary analyses, assessing potential interactions with survey year and socioeconomic status (proxied by wealth quintile).

6.2. Background

6.2.1. The influence of children on parental health in India

To my knowledge, no studies have examined the combined effect of sons and daughters on parents' later life health in India. Evidence from other settings indicates the shape of the relationship between children and parents' health is dependent on the population. Contemporary populations tend to demonstrate U or J-shaped relationships, whereby having both few (zero-two) and many (four- or five-plus) children is associated with poor health in comparison to having three or four children (Barclay et al., 2016; Högnäs et al., 2017; Yun Zeng et al.,

2016). On the other hand, a meta-analysis of historical populations (and populations of less economically developed countries) demonstrates declining mortality for women with increasing numbers of births (Hurt, Ronsmans, & Thomas, 2006). Children can both positively and negatively influence their parents' health over the lifecourse, and these influences vary by context, thereby underscoring these differing relationships. For instance, it has been theorised that having multiple children provided parents with survival benefits in historical populations as children were necessary for support at older ages, while large family sizes in contemporary populations are more likely to result in financial strain and stress (Hurt, Ronsmans, & Thomas, 2006).

One consistent trend is that childless older people tend to have worse health outcomes (Barclay et al., 2016; Högnäs et al., 2017; Yun Zeng et al., 2016). This is proposed to result from both social (e.g., effects on psychosocial outcomes such as self-esteem or lack of social support) and biomedical (e.g., higher rates of certain cancers in childless women) pathways (Berkman et al., 2000; Carr & Utz, 2020; Högnäs et al., 2017). Given the dependence of much of the older population in India on their children, I hypothesise:

H1: Having no children is associated with worse health for both men and women.

The study population were born in the first half of the 20th century and had children during the early stages of the demographic transition. As such, it is not immediately evident whether having multiple children would have been beneficial (as indicated in historical populations) or detrimental (as indicated in contemporary populations) for health at older ages. However, I propose that older women in this population would have experienced a physiological penalty

on their health due to their fertility histories. Fertility had started to decline but remained relatively high (average completed family size of 4.7 for a woman born in the 1940s (Mari Bhat & Zavier, 1999)). Early first births (which are associated with negative health outcomes (Barclay et al., 2016)) would have been common (D. E. Bloom & Reddy, 1986). Evidence from Bangladesh and a recent meta-analysis indicates that women experience more negative effects from having multiple children than men, with the meta-analysis indicating divergence between men and women at parity seven (Högnäs et al., 2017; Hurt et al., 2004). Given the fertility histories of women of this population, I hypothesise that:

H2: Having many children is associated with worse health for women, but not men.

Only two studies have assessed the distinct relationships between sons and daughters, and older parents' health in India, with contrasting results. A nationwide survey in the 1980s revealed a positive effect of sons on functional health, but no effect of daughters (Sengupta & Agree, 2003). This may be underscored by the distinct roles of sons and daughters (for instance in terms of later life support, co-residence, dowry costs), which stem from the largely patriarchal, patrilocal, and patrilineal structure of Indian society.

In contrast, the second study indicated a positive effect of having 1-plus daughters on father's (but not mother's) self-rated health. Sons were not associated with either parents' health (Sudha et al., 2007). Though daughters are not expected to be primary carers for their parents, they are typically perceived as reliable sources of emotional support, and can provide care during

illness (Bailey et al., 2014; Cain, 1986; Diamond-Smith et al., 2008; R. Gupta et al., 2012). Given the varied roles of sons and daughters in old-age support, I have the following hypothesis:

H3: Having sons is associated with better health for both men and women, while the effect of daughters is smaller or negative.

India is undergoing rapid social changes, therefore the influence of children on their parents' health may be also changing with time. Some trends could increase support availability, for instance there is qualitative evidence that the stigma around daughters providing support is lessening (Allendorf, 2012a). Nevertheless, common perception (including in the academic literature) offers a pessimistic view, due to the perceived effects of migration, household nuclearisation, labour market participation of women, ideational changes, and rising dowry practice (Bhat & Dhruvarajan, 2002; L. Cohen, 1998; Diamond-Smith et al., 2008; Lamb, 2000a). As such, I hypothesise that:

H4: The effect of both sons and daughters on health is increasingly negative over the inter-survey period.

Finally, there is evidence that children are more likely to be associated with negative health outcomes in parents of low socioeconomic status (Dribe, 2006). Negative influences of children (both sons and daughters) may be more acute in lower socioeconomic status groups, for instance due to the higher propensity to work in low-paid and risky jobs to support the household, and the higher chance of early first births for women (International Institute for Population Sciences (IIPS), 1995). Positive influences (i.e., support) may also be reduced, as evidence indicates that support tends not to be readily available from children

for the poorest individuals in India, who prioritise and struggle to support their own nuclear families (Vera-Sanso, 2004). As such, I make the following hypothesis:

H5: The effect of sons and daughters is associated with worse health in lower socioeconomic status groups

6.2.2. Marriage and health in India

Current evidence demonstrates that having a spouse is associated with better health for older Indians (Sengupta & Agree, 2002); some studies suggest a greater effect for women (Perkins et al., 2016; Stewart Williams et al., 2017; Sudha et al., 2007) while others show similar effects by gender (Hirve et al., 2012). Gender norms result in qualitative differences in the support and status that husbands and wives provide. Women tend to act as caregivers for dependent husbands, though care can be supplemented by daughters-in-law if wives are unavailable (10/66 Dementia Research Group, 2004). On the other hand, older women tend to be economically and socially dependent on their husbands and widowhood can result in declines in social status, discrimination, and limitations on access to economic resources (Agarwal, 1998; M. Chen & Dreze, 1992). I hypothesise that:

H6: Being currently married is associated with better health for both men and women, though the positive effect is *larger for women.*

6.3. Methods

I used three cross-sectional (1995-96, 2004 and 2014) and nationally representative NSSO household surveys for the following analysis. The dataset and its limitations have been described in detail in chapter four. To summarise,

each survey included a module for persons aged 60-plus that collected data on sociodemographic and health outcomes, and used a stratified multi-stage design, sampling 33,991, 34,808 and 27,245 older individuals respectively (total sample size of 96,044).

The primary outcome is the respondent's own perception about their current state of health (self-rated health), which was categorised as excellent/very good (1), good/fair (2), and poor (3) (hereon referred to as excellent, good, and poor). There is strong evidence that self-rated health is a reliable and holistic measure of health in India; self-rated health is associated with different components of health, including mental, physical, and functional health, and with objective measures such as chronic disease diagnosis (Cullati, Mukhopadhyay, Sieber, Chakraborty, & Burton-Jeangros, 2018; Hirve et al., 2012). I cross-checked the primary findings with the outcome of functional health, which was categorised as physically mobile (1), confined to home (2), and confined to bed (3).

The survey collected data on the number of sons and daughters alive at the time of the survey (biological rather than children-in-law), which I categorised as zero, one, two, three, four, and five-plus, due to small sub-samples at higher parity. As marriage is almost universal, having an adult son will typically correspond to having a daughter-in-law, and vice-versa. Nevertheless, I did not have information on children's characteristics (e.g., marital status) so was unable to confirm or investigate this. While I believe that most children will be adults (as the sample consists of people aged 60-plus), the lack of information on children's ages means I cannot define them as such with certainty. Sons and

daughters were summed to total number of children alive, which was categorised as zero, one, two, three, four, five, six, seven and eight-plus. This was guided by a meta-analysis of parity and mortality, which demonstrated a divergence in mortality risk between men and women at parity seven (Högnäs et al., 2017). I treated each child variable as categorical given the mixed evidence for the shape of the relationship between children and parents' health outcomes (Barclay et al., 2016; Högnäs et al., 2017; Hurt, Ronsmans, & Thomas, 2006; Yun Zeng et al., 2016), though I also conducted linear tests for trend, excluding zero children/sons/daughters with the rationale that the relationship would differ between zero and one, and one-plus. Finally, I coded marital status as being currently married versus not. Divorce and remarriage remain rare in India (less than 2% of the sample were divorced or never married), therefore individuals who were not currently married were mostly widowed.

I estimated descriptive statistics age-standardised to the 1995-96 survey age distribution, weighting for sampling design. I presented the descriptive statistics by gender for self-rated health and marital status due to large gender differences. To examine the relationship between family structure and health, I used ordinal regression. Ordinal regression assumes that the association between each exposure and poor/good versus excellent is the same as for good/excellent versus poor. I tested this assumption on the full model with the autofit option of the gologit2 command (R. Williams, 2016), which was set at a significance level of 0.01 to limit trivial assumption violations resulting from the large sample size. The assumption was not violated for any of the exposures and results of the unconstrained model were similar to the ordinal model, therefore I used ordinal regression.

I tested for collinearity by introducing covariates in a stepwise fashion and assessing the standard errors of the coefficients. Due to collinearity, I modelled total number of children separately to sons and daughters (which were always modelled together). I did not include household size as a covariate in the final models as it was highly correlated with both marital status and living arrangements, and I determined the latter two were more important and informative. I controlled for age (five-year intervals, 60-64 to 80-plus), gender, education (below primary, primary, middle to secondary, above secondary), socioeconomic status (quintiles of household consumption), living arrangements (alone, with spouse only, with children and grandchildren, with children, with others), region (South, West, North, Central, East/North-East), and survey year. I was unable to investigate living arrangements in detail due to the response categories available in the survey. I developed the socioeconomic status variable from household consumption data using an equivalence scale, selecting parameters on the basis of estimates summarised by (Deaton, 2018). I adjusted for inflation using the consumer price index of each survey year (World Bank, 2019a) and finally split the adjusted consumption data into quintiles separately by urban and rural residence.

Conceptually, this population corresponds to the Indian population aged 60-plus living between 1995-96 and 2014, therefore I adjusted the survey weights of the later surveys to account for the larger older populations in India at these time-points (Korn & Graubard, 1999; United Nations, 2013). I used Wald tests to determine strength of evidence for interactions, firstly with survey year, secondly with gender, thirdly with wealth quintile, and finally between exposure variables. I calculated predicted probabilities using the STATA

margins command using the marginal standardization method (which is most appropriate for models that contain binary variables and leads to results that are analogous to standardization to the total population) (Muller & Maclehose, 2014; StataCorp, 2017). I multiplied the predicted probability estimates by 100 to estimate 'predicted prevalence'.

I used multiple imputation to account for missing data, which was greatest in the children variables, 14%, 11% and 7% missing in total children, daughters, and sons respectively. All other variables were <3% missing. While the complete case sample was large (N=76,639), other factors might have influenced whether the data were missing, which could have biased the effect estimates. To address this, I fitted an imputation model, which included the analysis model variables plus auxiliary variables (caste category, functional health, change in self-rated health, economic dependence, household size, urban residence, self-reported illness, and hospitalisation in the past year). I assumed that data were missing at random conditional on these variables. I used the chained equations method and imputed ten datasets. Results from analysis of the complete case and the imputed data (N=96,044) were very similar and we used the imputed data for the final analyses. All analyses were conducted using STATA 15, and I used the mi estimate and svy prefixes to account for the imputed data and sampling design throughout (StataCorp, 2017).

6.4. Results

Table seven summarises the sociodemographic characteristics of the Indian population aged 60-plus between 1995-96 and 2014. The average age was 67.6, which similar between men and women (please see below limitations for

further assessment of the age data). Levels of education were low although men were more educated (38% had primary schooling or above in comparison to 14% of women). More people lived in the South versus the rest of the country, and women tended to live in households of slightly lower socioeconomic status than men. Most older people lived with their children (80%) and living alone was rare, but more common for women (6% versus 2% of men), while living with only one's spouse was more common for men (16% versus 9% of women). Appendix C (table 12) describes changes in background characteristics over the survey years.

Table 7: Percent distribution of the older Indian population according to their background characteristics, by gender (1995-96 - 2014)

	% (95% CI)		
Characteristic	**Women**	**Men**	**Total**
Age (years)			
60-64	36.0 (35.0-37.0)	34.1 (33.2-35.1)	35.1 (34.4-35.7)
65-69	29.2 (28.3-30.1)	29.3 (28.3-30.2)	29.2 (28.6-29.8)
70-74	18.4 (17.6-19.2)	19.4 (18.6-20.2)	18.9 (18.4-19.4)
75-79	7.8 (7.3-8.3)	8.8 (8.2-9.4)	8.3 (7.9-8.7)
80+	8.6 (8.1-9.1)	8.5 (8.0-8.9)	8.5 (8.2-8.9)

Female	100	0	50.5 (50.0-51.0)
Education			
Below primary	85.9 (85.2-86.7)	61.9 (60.9-63.0)	74.1 (73.3-74.8)
Primary	6.1 (5.6-6.6)	11.9 (11.2-12.5)	9.0 (8.6-9.4)
Middle to secondary	6.3 (5.8-6.7)	19.8 (19.0-20.6)	12.9 (12.4-13.5)
Above secondary	1.7 (1.4-2.0)	6.4 (5.9-6.9)	4.0 (3.7 - 4.4)
Quintile of socioeconomic status			
1 - lowest	24.5 (23.6-25.4)	22.8 (21.9-23.7)	23.7 (22.9-24.4)
2	18.3 (17.5-19.0)	18.0 (17.2-18.7)	18.1 (17.5-18.8)
3	17.7 (17.0-18.5)	17.5 (16.8-18.3)	17.6 (17.0-18.3)
4	18.0 (17.1-18.8)	18.9 (18.1-19.7)	18.4 (17.7-19.1)
5 - highest	21.5 (20.6-22.4)	22.8 (21.8-23.7)	22.1 (21.3-22.9)

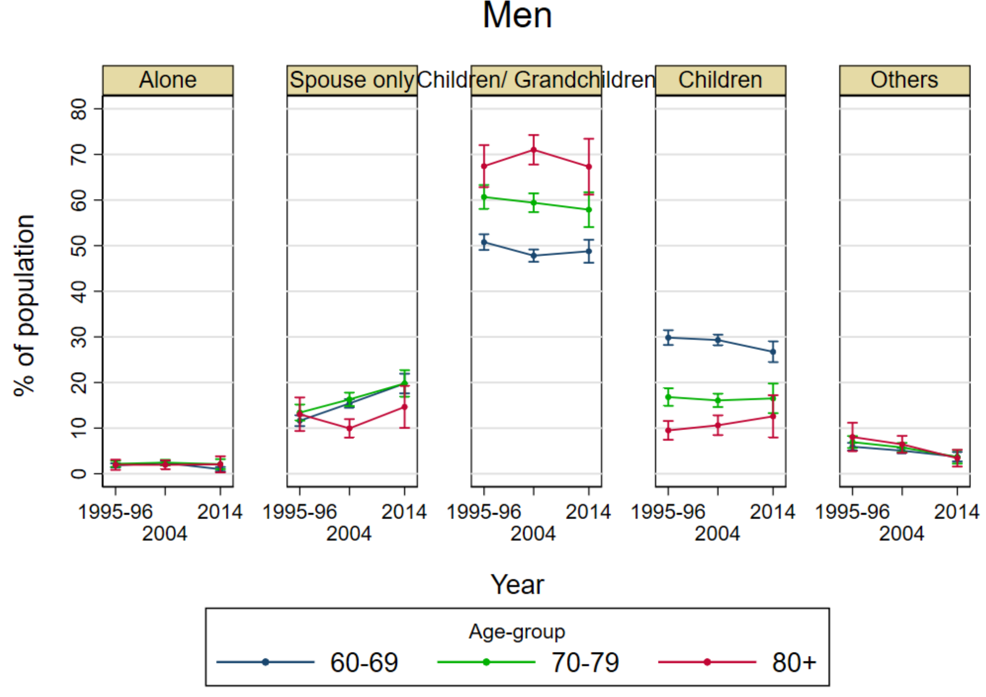
Living arrangements			
Alone	6.2 (5.7-6.8)	1.8 (1.6-2.1)	4.1 (3.8-4.4)
Spouse only	9.1 (8.5-9.7)	16.3 (15.5-17.1)	12.6 (12.0-13.3)
Children and grandchildren	63.6 (62.6-64.5)	53.4 (52.4-54.5)	58.6 (57.7-59.4)
Children	15.0 (14.2-15.7)	23.5 (22.6-24.4)	19.2 (18.5-19.9)
Others	6.1 (5.7-6.6)	4.9 (4.5-5.3)	5.5 (5.2-5.9)
Region			
South	27.8 (26.6-28.9)	25.7 (24.6-26.8)	26.8 (25.8-27.8)
West	15.7 (14.8-16.5)	14.7 (13.8-15.5)	15.2 (14.4-16.0)
Central	22.3 (21.3-23.3)	22.6 (21.6-23.6)	22.5 (21.6-23.3)
East/North-East	21.1 (20.1-22.1)	24.3 (23.3-25.4)	22.7 (21.8-23.7)
North	13.1 (12.3-13.8)	12.6 (11.9-13.4)	12.9 (12.2-13.6)

CI confidence interval

Figures nine and ten describe changes in living arrangements for men and women by 10-year age-group across the survey period. Nevertheless, please note that the quality of the age data may be poor as indicated by the higher

share of men at the oldest ages (table seven) and evidence of age heaping (chapter four). Results indicate that for men, living with a spouse became more common across the full survey period for ages 60-69 and 70-79. For the oldest age group (80-plus), the share of the population living with a spouse declined between 1995-96 and 2004 and rose again between 2004 and 2014 (around 15% of the oldest-age group of men co-resided only with a spouse in 2014). The prevalence of older men co-residing with their children and grandchildren increased with age, while the prevalence of older men co-residing with their children (and no grandchildren) decreased with age (this may be older people living with their younger (potentially unmarried or recently married) children).

Figure 9: Trends in living arrangements for older Indian men, by age (1995-96-2014)



For older women (figure ten), prevalence of the oldest age-group living alone and with others declined across the survey period (which could represent increasing availability of support), rose in those living with their children

(without grandchildren), and did not vary across the survey period for those living with only a spouse or with children and grandchildren. Prevalence of women in the younger age-groups living alone demonstrated small increases between 1995-96 and 2004 (though confidence intervals overlap) and rising prevalence of those living with a spouse over the full survey period. The prevalence of women living with children and both children and grandchildren was similar between the two older age-groups and though the age-gradient mirrored that of men, by 2014 a similar share of women across the varying age-groups co-resided with only children.

Figure 10: Trends in living arrangements for older Indian women, by age (1995-96-2014)

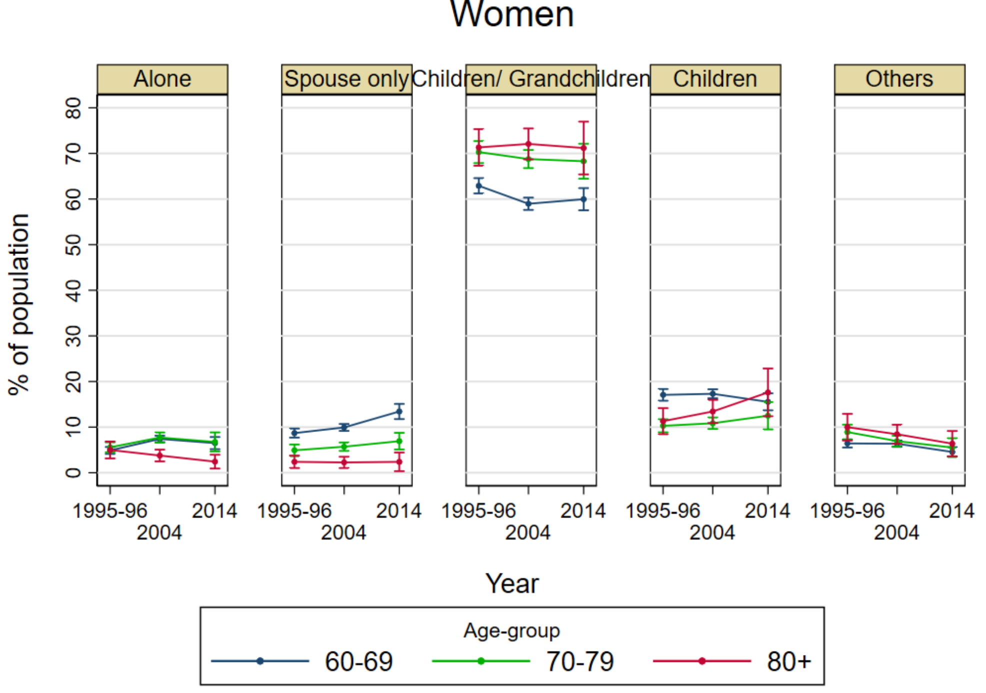
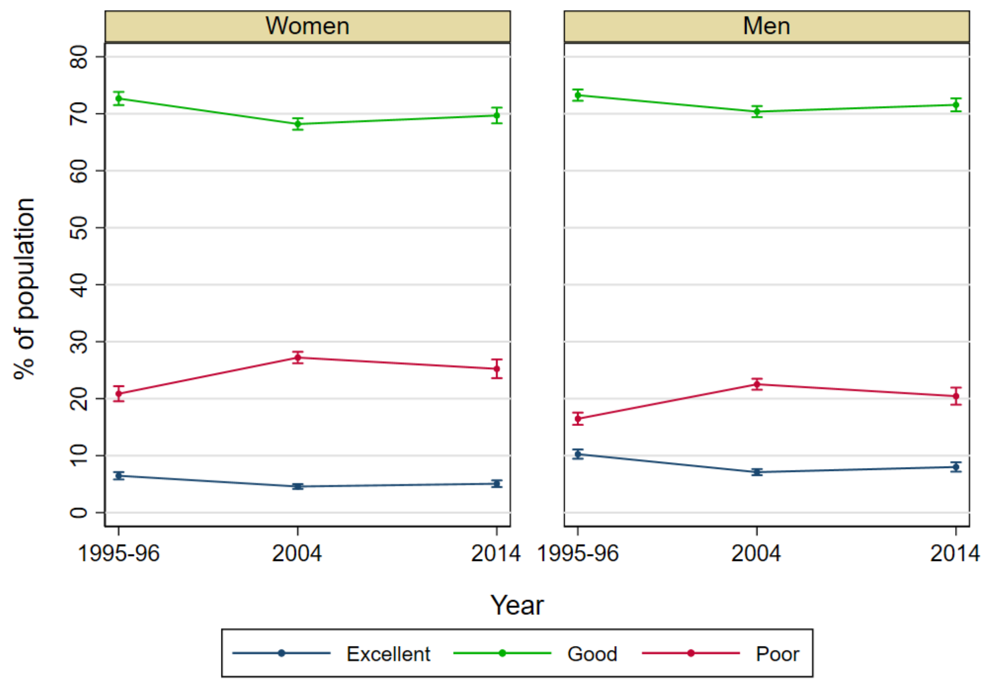


Figure 11 reveals that the self-rated health of India's older population worsened between 1995-96 and 2004; prevalence of poor reported health rose by approximately 6%, while excellent health declined by 2-3% for women and men (p<0.001). In the second inter-survey period, self-rated health improved slightly, with poor reported health declining by 2% for

women and men (p=0.04 and 0.01 respectively), and excellent health showing no further changes.

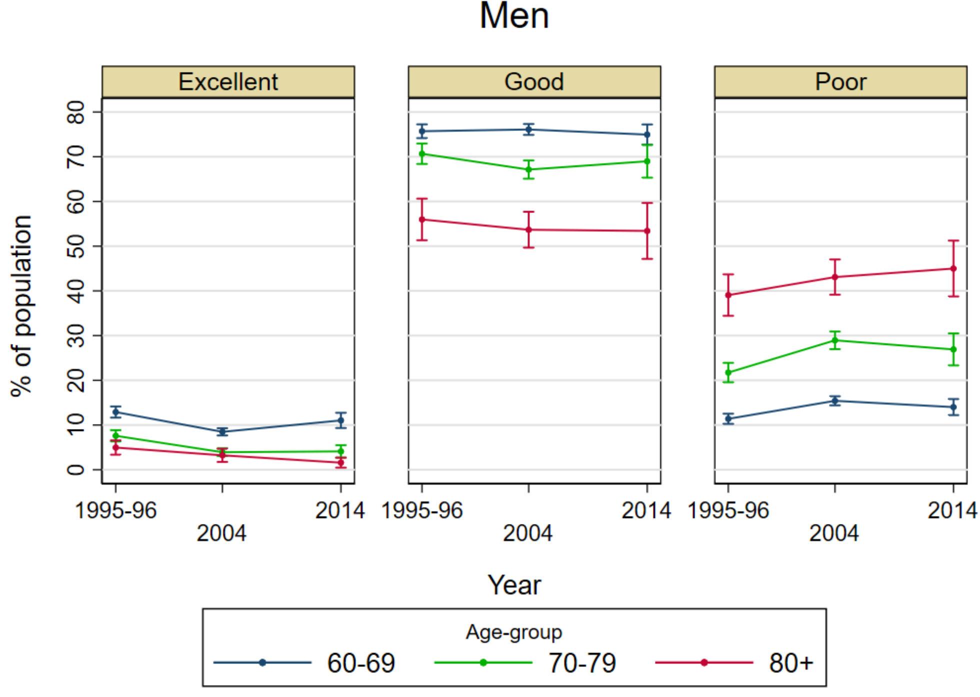
Figure 11: Trends in self-rated health of India's older population, by gender (1995-96 to 2014) (standardised to 1995-96 age-structure)



Stratification by 10-year age-group demonstrates worsening self-health with age as expected (figures 12 and 13), for instance poor health is consistently more prevalent with rising age, while good health demonstrates the opposite. The prevalence of men in in excellent health is consistently higher than women in each age-group and year (apart from those aged 80-plus in 2014 where it was similarly low at 1.5% of the population) (figures 12 and 13), while the prevalence of men in poor health is consistently lower than women in each age-group and year. Similar to trends in women's self-rated health (figure 13), results indicate worsening self-rated health between 1995-96 and 2004 for the age-groups 60-69 and 70-79 (i.e., rising prevalence in poor health and decreasing prevalence in excellent health) (figure 12). For those aged 70-79 there is little change in self-rated health between 2004 and 2014, while

prevalence of those in excellent health increases again slightly for those aged 60-69 across the same period. In the oldest age-group (80-plus), results indicate worsening self-rated health across the survey years (for instance prevalence in excellent health declined from 5% to 1.5% in 2014, and prevalence in poor health increased from 39% to 45%, though confidence intervals overlap for both health states).

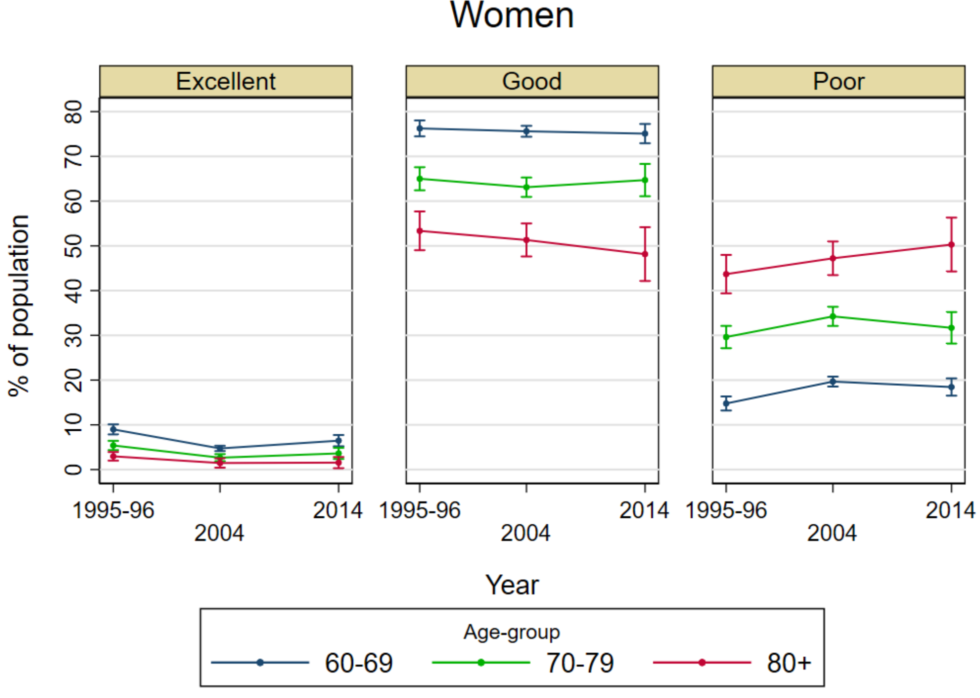
Figure 12: Trends in self-rated health of older Indian men, by age (1995-96 to 2014)



For women, age-groups 60-69 and 70-79 demonstrate the same pattern as the total age-group (figure 13); worsening health between 1995-96 and 2004 (i.e., decline in prevalence of women in excellent health and rise in prevalence in poor health) and little change between 2004 and 2014. In the oldest age-group on the other hand, self-rated health worsened across the survey years (i.e., prevalence in poor health rose from 44% to 50% while prevalence in good health declined from 53% to 48% (though confidence intervals overlap for both health states)). The prevalence of 80-plus women in excellent health is

consistently low across the years (declining from 3% in 1995-96 to 1.5% in 2004 and 2014).

Figure 13: Trends in self-rated health of older Indian women, by age (1995-96 to 2014)



In sum, the trends in self-rated health of the population aged 60-plus (figure 11) may hide differences between the oldest (80-plus) and the younger age-groups, whereby self-rated health of the oldest age group continued to worsen between 2004 and 2014. The 80-plus age-group is the smallest (of the 10-year groups) of the population aged 60-plus and therefore likely had minimal impact on estimates of the broader age-group. Nevertheless, these patterns should be taken with caution as (a) the confidence intervals are wide for the 80-plus population due to their small share in the overall population, and (b) because there is evidence of poor quality of the age data.

Appendix C (figure 24) demonstrates that functional health improved slightly for men (3% rise in physically mobile across the inter-survey period, p<0.001)

but did not change for women. By 2014, less than 10% of the population were confined either to their house or bed).

By 2014, older Indians had on average 3.7 children in comparison to 4.5 in 1995-96 (not shown). Figure 14 demonstrates that the share of the population with 5-plus children declined over the reference period. While the share of the population with zero or one children has increased, both cases remain unusual (<5% and <10% of the population in 2014 respectively). By 2014, the largest proportion of the population had three children (around one-quarter).

Figure 14: Trends in number of children alive to India's older population (men and women) (1995-96 to 2014) (standardised to 1995-96 age structure)

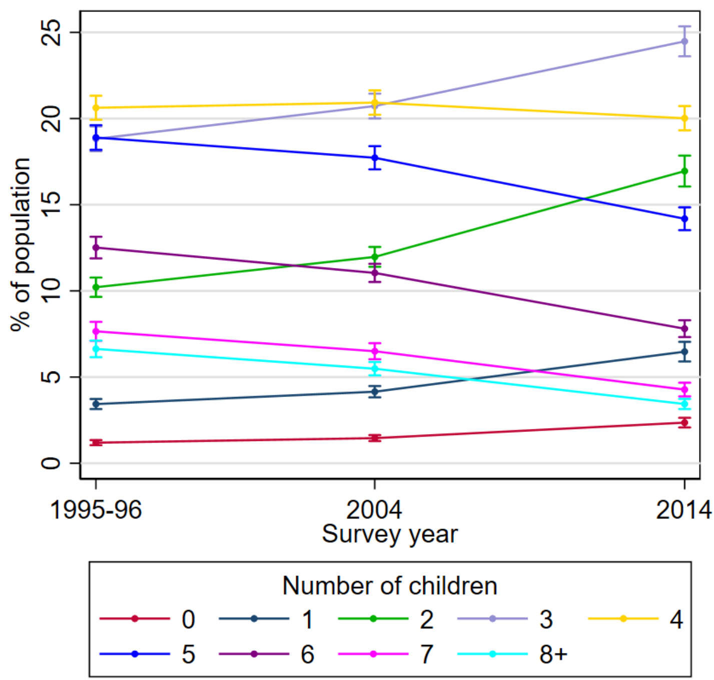
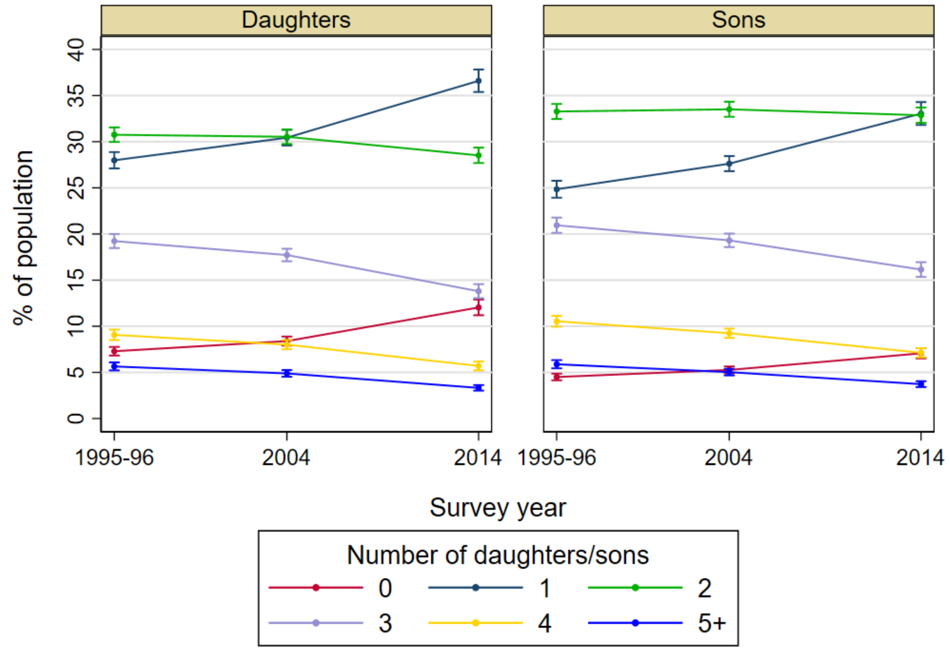


Figure 15 demonstrates that, by 2014, the majority of older individuals had one daughter in comparison to two in 1995-96. Having no daughters has risen by 75% since 1995-96; over 10% of older people did not have a daughter in 2014, similar or higher than the number with three or four-plus daughters. Having one or two sons was most common by 2014 due to the decline in the number of

older people having three or more, while having no sons has increased by 50% but remains rare (7% in 2014).

Figure 15: Trends in number of sons and daughters alive to India's older population (men and women) (1995-96 to 2014) (standardised to 1995-96 age structure)



Finally, almost twice as many older men than women were currently married, 83% in 2014 versus 43% of women. The percentage rose by 5% and 4% for women and men respectively between 2004 and 2014 ($p<0.001$), with no change between 1995-96 and 2004.

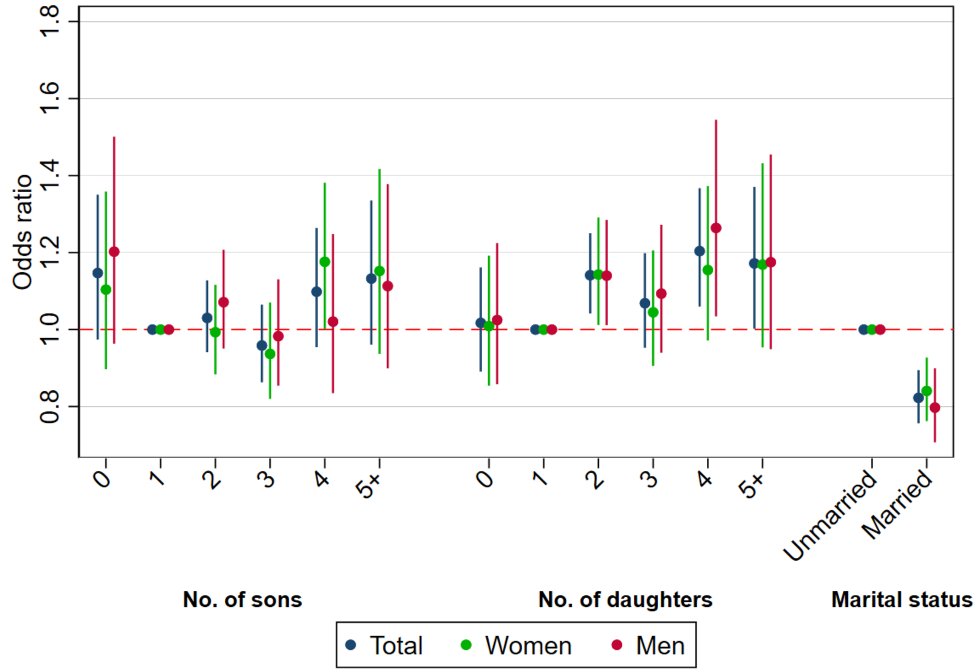
I interacted survey year with each of the family structure variables to determine whether the relationships with self-rated health changed over time. There is no evidence that the relationship between family structure and health varied across the survey rounds ($p>0.05$) (appendix C; tables 12 & 13), so I combined the surveys for the regression models. I also tested for an interaction with gender. As is evident from the overlapping confidence intervals in figures 16 and 17, there is also no evidence for differences in the relationship between

family structure (including total number of children and marital status, as hypothesised) and self-rated health by gender (p>0.10 for each variable) (appendix C; tables 14 & 15). The estimates of the fully adjusted models are very similar to those of model one (appendix C; tables 14 & 15), indicating little confounding by the socioeconomic variables included in the model, and are presented in figures 16 and 17. I have also presented results of the fully adjusted models (appendix C; tables 14 & 15) as predicted probabilities (appendix C; figures 25-28).

Figure 16 demonstrates that having none versus one son is associated with 15% higher odds of having worse self-rated health, though again the confidence interval crosses one (p=0.10). There is no evidence that this effect varies by co-residence with a daughter (p=0.30) or the older person's marital status (p=0.73). There are no further gains from having more than one son for self-rated health, and potential negative effects of having many sons (five-plus sons: OR=1.13, p=0.14). There is no evidence for a relationship between having none

versus one daughter and self-rated health (OR=1.02, p=0.80), but for individuals with a daughter, having an additional daughter is associated with 5% higher odds of worse health (p=0.01) (appendix C; table 15). This relationship between number of daughters and parents' self-rated health is the same in those with and without sons (p=0.78) and irrespective of marital status (p=0.28). Having a spouse is associated with better self-rated health for older people, with 18% lower odds of worse self-rated health (p<0.001). The effect of marriage is largest in those without children (OR=0.69 p=0.11).

Figure 16: Relationship between number of sons, daughters, and marital status and worse self-rated health for the older Indian population, by gender (1995-96 to 2014).



Ordinal model controlling for age, gender, education, socioeconomic status, living arrangement, region, and survey year. Appendix C; table 15.

Figure 17 demonstrates that, in comparison to having two children, having zero or one children is associated with worse self-rated health (zero children: OR=1.20, p=0.16; one child: OR=1.16, p=0.13), though confidence intervals are wide and cross one, potentially due to small sub-samples. Having more than two children (in comparison to two) is also associated with worse self-rated

health; the largest effect size for the total population is for eight-plus children (OR=1.38, p<0.001).

Figure 17: Relationship between total number of children and worse self-rated health for the older Indian population, by gender (1995-96 to 2014).

Ordinal model controlling for age, gender, marital status, education, socioeconomic status, living arrangement, region, and survey year. Appendix C; table 14.

I also interacted wealth quintile with each of the family structure variables to determine whether the relationships with self-rated health varied by socioeconomic status. In contrast to hypothesis 5, there is no evidence that the relationship between family structure and health varied across the categories of wealth quintile (p>0.01) for each variable (appendix C; table 18, figures 29-30). Though there is no statistical evidence for an association, the results tend to indicate a pattern where estimates of the association between number of sons (all categories) and zero daughters are similar between the lowest and highest wealth quintiles (in comparison to the central quintiles). Having zero or two to four plus sons is associated with worse self-rated health in comparison to having one son (though the confidence intervals cross one) for those in the

lowest and highest quintiles, while the estimates lie closer to the null for the central quintiles. On the other hand, while having zero daughters is associated with worse self-rated health in comparison to having one daughter for the central three quintiles, the estimates for the lowest and highest quintile fall below the null (though confidence intervals of all the estimates cross one).

I repeated the models with functional health to cross-check the results. Marital status is similarly associated with functional health (OR=0.73, $p<0.001$; appendix C table 16) while the association between total number of children, sons, daughters, and functional health is less clear (all the confidence intervals cross one). In comparison with having one son, being sonless may be associated with worse functional health (OR=1.24 p=0.09; appendix C table 16), while being daughterless (in comparison to having one daughter) may be associated with better functional health (OR=0.84 p=0.09; appendix C table 16).

6.5. Discussion

This chapter described how family structures have changed between 1995-96 and 2014 and examined the link between family structure and health. In contrast to the typically pessimistic view of changing families and population ageing in India, my results indicate that changes in family structure that have occurred thus far have been largely associated with better health.

I proposed that fertility decline has the potential to negatively affect the older population's health by limiting the support available from children. Following this, hypothesis one proposed that having no children would be associated with worse health. The results provide some support for this hypothesis. Being childless is associated with worse health in comparison to having two children

(as is having one child), though the evidence is inconclusive. The impact for older people in India is likely to be minimal as it remains rare to have none or one child (3% and 7% respectively in 2014).

I then proposed that reductions in high parity births could benefit Indian women due to the direct physiological impact of having children. Hypothesis two proposed that having many children would be associated with worse health for women but not men. The results do not support this, as having three-plus children was associated with worse health for both women and men. This is in line with several studies that have demonstrated an association between parity and negative health outcomes for men, though it contrasts with a meta-analysis which indicates higher mortality for women at parity seven (Barclay et al., 2016; Högnäs et al., 2017). The study population raised their children in the latter half of the 20th century when almost half of the Indian population were living below the poverty line (World Bank, 2019b). Raising children, for instance financing their living costs, education, and marriages, corresponds to a heavy socioeconomic burden for parents (Diamond-Smith et al., 2008), therefore having limited resources may have resulted in parents adapting their own behaviours.

A woman-specific physiological burden of children could have been masked if social mechanisms act differently for men and women. A study in Egypt revealed a larger negative effect of parity on functional health for older men, which was hypothesised to be due to their role as economic provider (Engelman, Agree, Yount, & Bishai, 2010). This could also be underscored by the fact that women in better health are more able to have one or several children

(the “healthy pregnant woman effect”), which is particularly strong in populations not consciously restricting their fertility (similar to the study population) (Beeton, Yule, & Pearson, 1900). This effect was likely exacerbated as I used numbers of surviving children in the analyses, rather than children born. Less healthy women are likely to have fewer children who survive to adulthood, amplifying the positive association between children and better health. Given the lack of a clear physiological penalty of having many children in Indian women, it appears that so far, fertility decline has been beneficial for the total population.

Hypothesis three proposed that sons (and correspondingly daughters-in-laws) would be associated with better health, while the effect of daughters would be either smaller or negative due to the varying roles in later life care. My results largely support this and are in line with the results of the 1980s nationwide survey of children and parents’ functional health (Sengupta & Agree, 2003). I found that having no sons versus one was associated with worse health but having no daughters had no effect. The negative effect of being sonless remained in individuals living with, and assumedly being supported by, their daughter. Thus, this effect could result from a loss of social standing (rather than support) that a son provides (C. Vlassoff, 1990). Despite the preference granted to sons in Indian society, there is no evidence for health gains from having more than one son. This corresponds to older Indians’ perceptions of one son being optimal for support in later years (UNFPA, 2012; M. Vlassoff & Vlassoff, 1980). On the other hand, having more than one daughter was associated with worse health, and this effect was similar in individuals with and without sons. This perhaps conflicts with evidence of daughters supporting

their parents when sons are unavailable (Bailey et al., 2014; Cain, 1986; R. Gupta et al., 2012) and may indicate that the negative relationship between daughters and parents' health is determined at an earlier life-stage, for instance from the financial impact of dowry. As fertility has declined to a level where most older people have one daughter and one or two sons, past fertility trends appear to have been beneficial for the current older population.

Hypothesis four proposed that the effect of sons and daughters would be increasingly negative over time due to social changes. The results do not support this. Rather than social trends not affecting the relationship between children and parents' health in India, it may be that changes are balancing each other out. To give a straightforward example, the rise of schooling in India will increase the financial costs of raising children (which appears to be corroborated in the NSSO data as number of children was not associated with household consumption in 1995-96, but negatively associated in 2014 (not shown)). This could impact economic wellbeing of the household and subsequently, parents' health over the lifecourse. On the other hand, education would increase children's earning potential and thus their ability to financially support their parents in later life (as evidence from populations with old-age support systems similar to India demonstrates (Yang, Martikainen, & Silventoinen, 2016; Zimmer, Hermalin, & Lin, 2002)). So, similar relationships between children and parents' health at different periods could be underscored by different mechanisms.

Hypothesis five proposed that higher numbers of sons and daughters are associated with worse self-rated health in lower socioeconomic status groups

due to (a) reduced support to older parents due to financial pressures on adult children and their nuclear families, and (b) a more acutely negative impact of children on the health on poorer individuals due to a higher propensity to work in poorly paid and hazardous jobs, and to experience relatively early first births. The results do not support this hypothesis; there was no evidence that the relationship between number of sons and daughters (as well as total number of children and marital status) and self-rated health varied across wealth quintile. Nevertheless, and contrary to my hypothesis, the estimates tended to indicate some patterning whereby the relationship between self-rated health and the family structure variables were more similar between the lowest and highest wealth quintiles in comparison to the central three quintiles. Nevertheless, the confidence intervals consistently overlapped and it is difficult to draw any conclusions from these results. I propose that the model may have been underpowered due to the categorical exposures and interaction variable, and the relatively small size of the sub-samples.

Hypothesis six proposed that declines in widowhood would benefit health of the older population, particularly women if they experience a larger positive effect of marriage due to the socioeconomic support a husband provides in Indian society. The results reveal declines in widowhood but indicate a similarly positive effect of marriage on both men and women's health. This contradicts some evidence of larger effects for women in India (Perkins et al., 2016; Stewart Williams et al., 2017; Sudha et al., 2007), but is in line with other studies from India and Bangladesh (Hirve et al., 2012; M. O. Rahman, 2000), and is very similar to the relationship in Western populations (Manzoli et al., 2007). It is likely that marriage benefits older men and women via different pathways,

although the distress from losing a spouse and the loss of emotional support may be significant for both.

On the whole, as it remains uncommon for older Indians to be sonless (or childless), but is increasingly common for older Indians to have a spouse, the results suggest that family structure changes have not led to declines in family-based support and thus their health has not been adversely affected at the national level.

6.5.1. Limitations

I assessed the association between family structure (number of children, sons, daughters, and marital status) and health, with an assumption that a major pathway linking the two is social support. The relationship with health differed between sons and daughters, which may support this proposition. Nevertheless, this is a broad proxy for support and other factors may be at play. For instance, though I controlled for education and wealth, there is potential for residual confounding by socioeconomic status (i.e., as both high fertility and poor health outcomes are more common in lower socioeconomic status groups) (International Institute for Population Sciences (IIPS), 1995). Results indicated that not having a son was similarly associated with worse self-rated health in those co-residing with a daughter. While co-residence does not necessarily translate to support (particularly in a daughter's household, where there is evidence that older people feel uncomfortable to ask for assistance and are perceived more as 'paying guests' (Ahlin & Sen, 2020; Bailey et al., 2014; Dhar, 2012; Vera-Sanso, 1999), this may also be underscored by the distress of being sonless in a pronatal and patrilineal society (Suppes, 2020; Tanaka & Johnson,

2014). The cross-sectional nature of the data and the variables available make it difficult to examine potential causal mechanisms. For instance, numbers of children are not strongly linked with receipt of support outside of India (Grundy & Read, 2012). Thus, data on children's characteristics (e.g., proximity, marital and employment status), and amounts, type, and sources of support would be preferable, as would data on fertility histories. Thus, while I can establish the relationships and broadly estimate which mechanisms are at play, I am unable to clarify further.

Self-rated health is conceptualised to be made up of two components, latent health (i.e., ""the value assigned to duration of life as modified by the impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment, or policy"...if it could be measured objectively without bias", and reporting behaviour (i.e., the lens through which latent health passes when people are asked to evaluate their health) (Layes, Asada, & Kepart, 2012). It is possible that individuals without a spouse, child, or son, felt pessimistic about their life in general and evaluated their health poorly, though this may be related to their mental health. There is evidence that individuals with similar objective measures of health rate their health differently according to their own expectations, for instance educated people with higher levels of health awareness tend to be more critical (Sen, 2002; Bago d'Uva, O'Donnell and Van doorslaer, 2008). Nevertheless, adjusting the descriptive statistics of self-rated health for education resulted in very similar estimates (not shown). I also cross-checked the results with functional health, which led to broadly similar conclusions (for instance on the relationship between marriage and health, and the varying relationship between sons,

daughters, and parental health). However, the results did not mirror self-rated health exactly, for instance having more than one son or daughter was similarly associated with health as having one. This may be because the functional health question only captured more extreme forms of functional limitations (i.e., restricted to household or bed), which were rare (<15% of the population with either limitation). Self-rated health was similarly associated with gender (poorer health in women) and age (poorer health in older individuals) as existing evidence from India (Bora & Saikia, 2015). While self-rated health has its limitations, there are few other measures available that could be used to evaluate changes in health over time or the association between health and family structures. For instance, the NSSO dataset also included information related to hospitalisation but this may be related to the support available (i.e., healthcare access) as well as underlying health. Health measures using self-reported prior diagnosis by a clinician are also skewed to those that can afford to access treatment (Vellakkal et al., 2015).

A key limitation is that I described past trends and associations to infer how sociodemographic trends have affected health of India's older population, without formally assessing the potential impact on the future population. Nevertheless, I propose that the socially driven nature of these relationships make projections unsuitable. Instead, research should focus on quantifying trends and elucidating the (potentially changing) relationships between family, social support, and older people's health.

I have described the limitations of the dataset in chapter four, though to briefly summarise, there is a possibility that the self-rated health question was

answered by the household informant (rather than the older individual) which negates the meaning of the construct (though there is no information on how often this occurred). Further, there is evidence for age misreporting which varies across the survey years and between men and women, as the share of men at older ages (70-79) is higher than women, and similar in the age-group 80-plus. These estimates do not correspond with the lower life expectancy of men in comparison to women in India that emerged in the 1980s (Registrar General and Census Commissioner, 2019) and the 2011 census estimates (appendix C; table 17). These differences remain in the non-imputed dataset and may be a consequence of poor quality of the age data, for instance men over-estimating their ages and/or women under-estimating theirs. While this may not have a major impact on the results of the primary analysis (age-group of 60-plus), these data issues should be accounted for when assessing the descriptive analyses by 10-year age-group. Household surveys can miss the most vulnerable individuals, for instance those in institutions where individuals without family-based support will likely be overrepresented (Kalavar et al., 2008), which could potentially result in an overestimation of the positive association between family structure and health. If older women are being undercounted (particularly at the oldest ages), which is plausible given evidence from the Indian 2011 census and multiple household surveys and censuses in African countries (Randall & Coast, 2016; Registrar General and Census Commissioner, 2014), this could also underlie the relatively larger share of men at the oldest ages.

The regression sample corresponds to a very broad population, Indians aged 60-plus living between 1995-96 and 2014. I selected to conduct the primary

analysis at the national level as sub-analyses were restricted by sample size and an assessment of family structure and health trends was not possible with other datasets. Although I did not find evidence that relationships varied over survey year, by gender, or socioeconomic status (though this model was potentially underpowered), this grouping has likely hidden other variation given diversity of the Indian population. Being representative of the national population averages these differences to a mid-point that may not correspond to any specific population (or an unclear population). I have attempted to mitigate this limitation by assessing differences in family sizes at the sub-national level in chapter five. There is limited evidence on the relationship between family structure in India, therefore I see these results as an initial step to be built on. Other datasets (chapter four) could be used to examine the relationship between family structures and health with varying health measures, including more objective and continuous health outcomes such as hand grip strength and for varying sub-populations. The potential patterning of the relationship between wealth quintile, family structure and health should be examined in the future.

6.6. Chapter summary

- Chapter six used nationally representative data to describe changes in family structure (number of children, sons, daughters, and marital status) and health outcomes between 1995-96 and 2014 for the older (aged 60-plus) Indian population at the national level.
- Health of India's older population (measured by self-rated and functional health) changed little between 1995-96 and 2014.

- The share of the population with few (zero or one) children remained uncommon at the national level in 2014 (<5% and <10% of the older population respectively).
- The share of the population with no daughters has risen more than those with no sons; one in ten older individuals did not have a daughter in 2014
- The share of the population with a spouse rose for both men and women; in 2014, 83% in of older men were currently married versus 43% of women.
- Support (as proxied by family ties with varying support roles) appears to be associated with positive health outcomes.
- Having one son is similarly associated with self-rated health as having four, which may indicate that increasing numbers of sons does not translate to increasing support.
- Assuming causality, family structure changes that have occurred over the past two decades may have been beneficial for older parents' support receipt and health at the national level.

7. Chapter 7: “Maybe in a few years everything will be changed!”: Qualitative typologies of social support for older people in Tamil Nadu, India

7.1. Chapter aim

This thesis aims to understand how changing family structures may impact the support available to older people in India, considering variation across populations. Existing evidence tends to focus on the primary sources of support and the degree of task sharing for varied types of support is also unclear. The following analysis aimed to explore how families of varying socioeconomic backgrounds support their aging relatives (i.e., who provides what support and why) in Tamil Nadu, using the primary data collected (see chapter four for a description of the fieldwork methods, analysis, and the sample characteristics).

7.2. Background

A person’s ‘support system’ (or ‘network’) is composed of the network of support sources available to them. These sources can be informal (for instance family and friends) or formal (for instance paid care services), and can provide practical (e.g., domestic tasks, help with mobility), financial (e.g., daily food, travel, and healthcare costs), health-related (e.g., hospital visits, nursing in the household) and emotional support (e.g., providing comfort, chatting) and personal care (e.g., bathing, dressing) (Dykstra, 2016).

Two predominant theories - the task-specific theory and the hierarchal compensatory model - propose different consequences for lacking a support source (Messeri et al., 1993). The task-specific theory proposes that support provision is guided by the practical match between characteristics of the task and the source (e.g., a co-resident spouse is most available for frequent tasks so

will be the main source of personal care) (Messeri et al., 1993). Lacking the optimal source will thus result in worse quality of support (e.g., delayed). On the other hand, the hierarchal compensatory model proposes that support provision is guided by preferences of the support recipient and that these are based on "primacy of the relationship" (Cantor, 1979). If the highest preference is missing, it may have a negative emotional impact for the support recipient. I have used these theories to explore the potential implications of the below results.

7.3. Methods

When interpreting the qualitative results and assessing the way in which support was provided, it became clear that some modes were very common regardless of socioeconomic background, and some differed greatly. Given these apparent patterns, I felt a typology of support systems would be a compelling way to describe support systems in different groups. I created a framework chart (different to the analytical framework mentioned previously) (full chart in appendix I and explanation of process in appendix J). This summarised each topic in which I observed variation (role of daughter, formal care, non-co-resident relatives, financial dependence, degree of sharing tasks between genders, living arrangement) individually for each support recipient that the interview and FGD participants spoke of (Ritchie, Spencer, & O'Connor, 2003). As the FGDs consisted of several participants, participants' experiences sometimes were included in more than one topic. Once this was complete, I grouped similar interviews/FGDs together, to make the typology groups and described the differences between each of the support categories between the

groups. To demonstrate the varying support systems, I have included case-studies, changing personal details (e.g., names) but retaining all details of support. I have assumed that participants are of similar socioeconomic status to their older relatives and there was no evidence from the transcripts to counter this.

7.4. Results

The sample is described in chapter 4four While I predicted that participants may have felt less comfortable to share non-normative support practices in the FGDs, results from interviews and FGDs were similar and have been presented together. The vast majority of participants spoke of supporting their parents or in-laws, though some had also helped look after their grandparents, and a handful were helping support other relatives such as sisters, aunts, and uncles. For certain types of support, the way in which older people were supported for some support types was similar across participants of varying backgrounds (table eight).

Table 8: Commonalities and variations in support provision

	Commonalities	**Variations**
Type of support	Financial support [1]	
	Practical support	Living arrangements
	Health-related support	Support from daughter
	Personal care	Gender-division of practical support

	Emotional support	Use of formal care services
		Support from non-co-resident relatives
[1] –aspects of financial support that were consistent across participants have been described under commonalities, others varied and have been described under each typology		

7.4.1. Commonalities in support

7.4.1.1. Financial support

Financial costs included daily expenses such as food and clothing, occasional costs such as travel or functions, and healthcare expenses such as hospital fees and medicines. In the participants' eyes, their older relatives usually preferred to remain financially independent from their children for as long as possible for several reasons. First, to avoid negatively impacting their family's wellbeing, particularly if they had high healthcare costs. Second, to avoid a change in relationship and losing their status and voice in the household, as a highly educated retired woman in Chennai explained:

> "I think you will lose your respect if you are dependent on your children, financially… All the time you are going to stretch your hand out for money, there will be a drop in your relationship…and then they call the tunes."

Third, to prevent over-reliance that could leave them vulnerable if support were retracted. Uncertainty around support was evident as, although some older

relatives gave their entire income over to their families, others kept a portion to themselves for “security”.

For people who were financially dependent and living with their adult children, co-resident children (typically sons) were responsible for supporting their parents financially. This was typically perceived as the logical source due to the sons’ perceived role as financial provider. A low-educated rural woman explained her reasoning behind the division of support in her household:

> “because men are going out of home for work, women only have the responsibility to look after, fulfil all the tasks. Even if a woman is an IAS officer (*senior government employee)*, household tasks are supposed to be done by women only. That’s why women only have to take care of elderly.”

While this participant did occasional daily wage work herself, she did not deem herself as a key provider, and would try to fit employment alongside her support responsibilities. In some families, one son shouldered all the costs despite having brothers, while in others, costs were shared with non-co-resident brothers (I could not identify any clear differences between these families). A woman in a slum resettlement colony explained:

> “Recently we were dividing shares of our assets. So we gave our share to them because they are the ones taking care of her (*mother-in-law)* … But twice a week, we would go and give care to her.”

Healthcare expenses were most commonly shared as they were unequivocally perceived as the largest expense.

Some individuals with no children available were financially supported by other relatives, particularly grandchildren or siblings, who provided support if they had parent-child-like relationships or if they perceived there was nobody else. Others had no-one available or willing to support them and were forced to work. This included wives supporting their husbands financially. A rural man explained about an older couple in his village:

> "Even till date they work, earn and live on their income. They have only one son, who is living in another street. The son doesn't care about them… First, he (*husband*) was taking care of her and now she does."

Neighbours or friends would only loan small amounts of cash and were not expected or asked to help with any sizeable expenses.

7.4.1.2. Practical support

Practical support tasks (for instance cooking, helping with mobility issues) were deemed a woman's responsibility, largely a wife or daughter-in-law. This was for two main reasons. First, women were deemed more able by virtue of being patient and caring – "only a woman can tolerate all difficulties" – and experienced:

> "Until the wife is alive, she will be taking care of everything. She cooks, she does everything. They (*husbands*) become so used to it that once the wife is no longer there, they don't know what to do with this."

Second, women were less likely to be employed and thus were more available. The choice of primary caregiver was also related to the older person's preferences, for instance daughters-in-law from the same natal family. In some

families, tasks were shared between several daughters-in-law or between a mother-in-law and daughter-in-law. In fact, many women stated that their mother-in-law was a huge "support system" to them, doing domestic tasks and caring for grandchildren. Sons were largely responsible for practical tasks outside the household such as assisting with travel. A professional in Chennai explained how his family divided tasks for his parents when his mother became unwell:

> "And somebody also had to cook food and all because mother was always active in the kitchen… So when she fell sick somebody was there to take care of the kitchen, food, and cooking stuff. So my wife will do some bit so my sister will do some bit and I will take care of the overall logistics and healthcare support and all that and whatever was needed."

As tasks such as cooking were strictly perceived as a woman's role, other female relatives (particularly sisters and daughters living nearby) would sometimes step in if the primary carer was unavailable over a longer period (though only as needed). Help with other less gendered tasks (e.g., supervising) could typically be provided from other immediate, co-resident relatives (for instance sons, grandchildren) if the primary caregiver was unavailable, or neighbours if the task was undemanding and short-term. Participants commonly perceived neighbours as readier and more available to help in rural areas, though family were typically perceived as optimal sources of alternative support as they were socially obliged to help and more emotionally attached.

Some families had no alternative to the primary caregiver, meaning the primary caregiver had to restrict their activities, for instance lowering work hours,

quitting their jobs, limiting support provision to others, or not attending important social functions such as weddings. A FGD of female teachers in Chennai were highly sceptical about help available outside the immediate family:

> "if we are married we only have the responsibility to take care of our in-laws, ok, no other relative… they will say no we are not responsible… first sons take care and after the sons, daughter… M: And after daughter? R (together): No no, no one. R: No after daughter it is only old care home or any orphanage… R: Like I told you any tough times they will not come."

7.4.1.3. Health-related support

Provision of health-related support followed a similar gender division as practical support. Sons were responsible for accompanying older persons to healthcare centers (as hospitals were perceived as "male places"), liaising with medical staff, and organising logistics, while daughters-in-law were responsible for more household-based and caring tasks such as nursing in the household or providing food and support when in hospital. Spouses were key for providing company and emotional support, particularly as they tended to have more time in comparison to adult children who had conflicting responsibilities. For instance, when speaking about her father's role in caring for her mother, a highly educated professional in Chennai stated:

> "in spite of his health, in spite of he being older to her... Every doctor in these five years only my father has taken to. Only on important occasions I have gone like counselling, chemo, or surgery…Night-time my father

> used to be there and the attender's cot will be very small you can't even turn. You must sleep on one side. But in spite of that he has risen up to the occasion."

Non-co-resident relatives, particularly adult children, were also important during illness, for instance visiting to provide emotional support, taking the older person in, or staying in their household to nurse them back to health. This was especially important for older people living independently, for instance a retired professional in Chennai described caring for her mother:

> "there were many times when we have motored from here to Bangalore and brought her in the car, and absolutely sick… She's been with me for 3-4-5 months continuously, I would nurse her back to health. And go back and put her."

Proximity was the decisive factor for medical emergencies, thus neighbours and grandchildren also played a large role in taking older persons to hospital, though adult children would always bear the costs.

7.4.1.4. Personal care

The sources of personal care, for example feeding, toileting, bathing, followed a strict hierarchy, influenced by gender norms and stigma around cross-gender caregiving. Spouses were the primary source as they had the most intimate relationship. When speaking of a friend's father who had "urinary trouble", a highly educated retiree in Chennai stated:

> "the daughter-in-law obviously can't do the things which only a wife can do, like giving erm, you know a bed pan, for him to pass, no daughter-in-

> law can do, no daughter-in-law will do, and also the men will also not allow a young daughter-in-law to come in and bathe them and sponge them."

When a spouse was unable or unavailable, the responsibility fell to the co-resident child of the same gender; "Gents can take care of gents. Ladies can take care of ladies." Nevertheless, the actual source of personal care sometimes diverged from the preferred source, as it was reliant on the availability and physical strength of caregivers. Providing personal care is a physical task and often requires teamwork. This involved family members of the opposite gender or even non-family if necessary. When speaking about her father-in-law, a low-educated woman from an agricultural village stated:

> "They (*participant's husband*) go out to work, so I cannot take him to bathroom alone, so I ask my neighbours to help. At that time, I have some tension, there is nobody to help. Their age is such that he cannot go alone, I am also unable to support him alone."

It was typically more acceptable for women to provider personal care for older men than vice-versa, nevertheless sons could provide personal care to mothers, and grandsons to grandmothers if necessary.

7.4.1.5. Emotional support

Emotional support – "See you sit with them, you...Listen...listen to their complaints, listen to their problems…They want company actually…They need that, having someone around them all the time…Attention." – was typically provided by a broader range of sources. Participants repeatedly stated that emotional support was important for their relatives, citing their perceived

loneliness and insecurities. Time was key therefore spouses, grandchildren, and neighbours all played key roles. Older relatives were often stated to have a "special bond" with grandchildren in particular, even stronger than with their children; "It gives happier to them seeing the grandchildren than seeing us." Co-resident adult children were also important sources of emotional support although, more than other forms of support, it took second place after employment. Technology, e.g., phone-calls, WhatsApp, Facetime, meant non-co-resident relatives could provide emotional support from a distance.

7.4.2. Support typologies

The sources of some types of support varied greatly between participants but tended to cluster together. To illustrate this, I developed four support system typologies (table nine) (see appendix J for method). I interpreted support provision to follow either classic patrilocal normative roles or not, because of families' flexible interpretations of the support ideal. Within groups with particular support roles, I further interpreted the final support system to result from socioeconomic differences (urban/rural residence and socioeconomic status), which affected the availability of alternative sources of support and the bargaining power of different parties.

Table 9: Description of support system typologies

Typology	Classic patrilocal	Restricted	Flexible	Affluent
Support roles	Normative		Non-normative	
Socioeconomic background	Varied	Rural, low SES	Mostly urban, low - middle SES	Urban, upper-middle SES
Living arrangements	With son OR daughter if no son available	With son OR alone/with spouse if no son available	Alone OR with spouse OR with son OR daughter	Alone OR with spouse OR with son OR daughter OR care home
Support from daughter	Some financial and practical support, especially during times of need e.g., no sons available	Visits and some practical support	Can be equal to a son, both financial and practical support	Can be equal to a son, both financial and practical support

Gender-division of practical support	Primarily women (daughter-in-law/wife), men do tasks outside the household	Primarily women (daughter-in-law/wife), men do tasks outside the household	Primarily women, but men more likely to share household-based tasks	Primarily women, but men more likely to share household-based tasks
Financial support	Dependent on son OR daughter (if no son available) AND/OR income from pension/ employment/ health insurance	Dependent on son AND/OR income from public pension/ employment	Dependent on son OR daughter AND/OR income from pension/ employment/ health insurance	Independent due to income from private pension/ savings/ rental property/ health insurance
Use of formal care services	Not used	Not used	Used OR not used	Used
Support from non-co-resident relations	Available OR limited	Available	Available OR limited	Available OR limited
SES – socioeconomic status as proxied by composite variable of completed level of education, settlement type (slum versus non-slum), and occupation.				

7.4.2.1. Classic patrilocal typology

The 'classic patrilocal' typology is named so as roles followed classic patrilocal/patrilineal support norms. It was the predominant system of support for participants' older persons and was prevalent in both urban and rural areas and across socioeconomic backgrounds. Sons (and their wives) co-resided with and were responsible for supporting older persons, although daughters could provide some or total support if sons were unavailable. The choice of co-resident son was typically related to practical considerations (for instance whether they had space in the household or wives who were not employed) and the older person's preference (for instance those living nearby or with stronger relationships), and rarely related to normative considerations (for instance choosing the eldest). The practical characteristics of adult children were sometimes reactive to their parents' needs, e.g., participants spoke of avoiding migrating for jobs or considering leaving their jobs.

The final living arrangements involved much negotiation, primarily between the older person and their children(-in-law), but also occasionally other relatives, for instance their siblings. Practical support was split by gender such that women undertook tasks within the household and men did tasks outside the household.

Given the diverse socioeconomic backgrounds, the sources of financial support varied. Some co-resident older persons worked out of necessity when their sons could not afford to support them, while others were dependent on their sons or financially independent from private pensions.

Formal care services were not used but help was typically available from other adult children nearby, siblings, or other relatives. Nevertheless a few urban participants were unsure about the availability of support from family who lived far away.

Classic patrilocal case study - Grishma

Grishma is a widow in her 90s and lives in a slum resettlement colony on the outskirts of Chennai with her son and his family. She has three other sons and two daughters, all of whom live in the surrounding streets. Her co-resident son provides for her material needs and her co-resident daughter-in-law acts as her primary caregiver. Nevertheless, other sons give money to help cover her costs and daughters-in-law visit weekly. She has the closest relationship with one non-co-resident daughter-in-law as they are from the same natal family, and when she is unwell this daughter-in-law helps to nurse, bathe and feed her. Grishma would prefer to live with her eldest son but he does not have space in his house, partly because he is supporting his mother-in-law, who has no other children.

7.4.2.2. Restricted typology

The 'restricted' typology is named so as roles strictly followed patrilocal gendered support norms and because women's autonomy, and the support available to their parents (if sonless), was restricted. The typology was only prevalent in rural families of low socioeconomic status. Older people either lived with sons or alone if they had no sons, as women were expected first and foremost to support their affinal families (husband and in-laws). Affinal families restricted the support women could provide their parents (particularly co-

residence and financial support) irrespective of whether they had a son and despite women expressing strong desires to look after their parents. A rural woman who did daily-wages work described her widowed (and son-less) mother, who was struggling to recover from an operation alone:

> "If I bring them here what will my in-laws say, that's the fear I had… because of that I didn't bring her here… My husband didn't support on that. So for daughters that responsibility is not there. You can say it is, but it's just for name-sake."

Female participants of this typology were low-educated and did low-paid casual work (if employed) and struggled to negotiate on their parents' behalf. This included one young woman who lived in the same village as her parents and was married to her mother's brother. When speaking of being unable to support her widowed father, a young rural housewife explained "life changed a lot when I got married, I have to listen to what my husband says". Older generations in particular, including parents without sons, adhered to the stigma around daughter's support:

> "when they broke their legs, they went to stay with my sister (*crying*). She also looked after them. Still they were adamant not to live with my sister, tradition doesn't let them get support from a daughter, no matter how difficult they are doing all household work."

This concern around "tradition" may also result from the lack of readily available help from a daughter and her affinal family. Older people of this typology tended to do low-paid daily-wages work and it is unlikely that they

had considerable assets, therefore limiting their ability to 'adopt' a son-in-law or other relative.

Men were responsible for providing financially therefore the household income was perceived as his parents' right. All domestic and caring tasks were a woman's responsibility irrespective of employment, and men were likely to refuse to help with these tasks. A low-educated rural woman who did occasional daily-wage work explained:

> "Even if I am unwell, I have high fever, I still get up, cook and offer them and then only I can take rest…I can't ask my husband because he will not do, even I ask other people to help but not my husband. He will not go near the kitchen stove…He will not ask help from others, he will get help from my sisters, or neighbours only if it's worst case."

As the population were of lower socioeconomic status, older people were either fully dependent on their sons, worked out of necessity (particularly if they had no sons), and/or received small public pensions. Formal care was not used (it was both unavailable (rural setting) and inaccessible (due to cost) and therefore not considered) but family members lived nearby and gave occasional help when necessary.

Restricted case-study - Harini

Harini is widowed, in her 50s, with two daughters and no sons. Harini has been living alone since her two daughters got married and moved to nearby villages. Neither of her daughters' in-laws have permitted her to live with them despite her health worsening. She does daily-wage work to support herself. Her daughter occasionally gives her small amounts of money but must provide it

without her family's knowledge or permission. Harini can only visit her daughters for short periods as their mothers-in-law become upset if they feel Harini is being prioritised or served first. Harini's daughters try to visit her though they are expected to do all in-personal practical support and domestic work for their affinal families, alongside occasional daily-wages work.

7.4.2.3. Flexible typology

The 'flexible' typology is named so because support did not follow classic patrilocal norms and older people were more likely to live independently or with a daughter, irrespective of whether they had a son. Older people of the flexible typology were of low to middle socioeconomic status and lived in both urban and rural areas. Daughters supported their parents (both financially and practically), for instance a male agricultural worker stated, "In some houses, it differs that we would look after our parents, whereas my wife would care for my mother-in-law". While practical support and domestic tasks still largely remained a woman's responsibility, men were more likely to "share the works".

Formal care services were unaffordable to most, though some (mostly rural) were helped by nearby relatives when they needed it. A male agricultural labourer was confident in the support available from community members: "These helps will be done only if they depend on all the sisters and brothers and the neighbours." On the other hand, others had concerns around their relatives' competing priorities (e.g., support responsibilities, employment). When speaking of requesting help from his siblings to support their parents, a male teacher in Chennai stated:

"There will be some hurdles, but they have to come overcoming all those things. They can't come all of a sudden. Because they live as a nuclear family, they may also have the older people, right."

Flexible case-study – Thangamma

Thangamma, widowed, is in her 60s and lives in a Chennai slum with her two sons and their families. Thangamma spends all her time at her daughter's household which is a few streets away. Thangamma's daughter works in a formal sector job and both she and her brothers give her money to subsidize the small public pension Thangamma receives. Despite this, Thangamma is uncomfortable with receiving money from her daughter, and tends to value the support she receives from her sons more. Thangamma has a close relationship with her son-in-law, who supports the time and money his wife gives her mother, sometimes making her dosa in the mornings.

7.4.2.4. Affluent typology

The 'affluent' typology is named so because older persons were financially independent through sizeable private or government employee pensions and health insurance coverage, which resulted in a reduced (but not complete lack of) dependence on adult children. Older people of this typology lived in urban areas and were of upper-middle socioeconomic status (for instance working as doctors before retirement). Domestic help, formal care services (particularly for those with the highest support needs e.g., when recovering from illness), and disability aids were used as standard (and some older persons chose to live in private care homes), allowing people to live separately from their adult children. Nevertheless, respondents made it clear that these services

supplemented their own support, which they provided when living together or in separate households. For example, a retired professional in Chennai spoke of her mother:

> “24/7 she's got two people waiting on her hand and foot, despite that, meals are never sent with servants, we carry the meal to her room… I personally serve her food, and I ask whether it is palatable…that kind of thing we do take care of.”

On the other hand, older individuals without closely residing family were completely reliant on hired help or their neighbours. A FGD of highly educated women in Chennai explained the situation of an older woman in their apartment block:

> “Both her kids are doctors in the US… she met with a very severe accident and had major fractures in her body. Like we had to take her to the hospital and the surgery and all. Her kids came only after a week's time… And when she left from this apartment again she fell down and she broke her hip, still her kids didn't come. Her maid and her driver took care of her.”

Husbands and wives were highly reliant on each other when living alone and there was evidence of men taking on more domestic tasks to support their wives. A highly educated professional in Chennai described changes in her fathers’ behaviour:

> “He was like, you know, very high handed, just going out earning money and he never used to know what is, he didn't even know that you have to

> put a weight for the cooker. Now he is like sort of trying his hand with cooking… M: He himself started doing? R: He had to. They had no other choice."

Nevertheless, as was often the case, this participant planned on moving her parents into her household (or close by) as she felt their health had worsened to that point that she was unable to help them from afar. The distinction between the role of sons and daughters and men and women was blurred. Female teachers in Chennai proposed that:

> "now because of education, because of women coming out for working, now the situation has changed, now equally how we look after our in-laws we look after our parents. R: Maybe in a few years everything will be changed!"

Another teacher in the same FGD elaborated:

> "Even my in-laws they are not accepting that my mother is with me. But I am ready to break up this relationship for this. They I am telling like that. M: And your husband? R: Starting, he was also like that only. But nowadays he understands, because he also having only daughters."

This quote illustrates the higher negotiating power of this participant in comparison to those in the restricted typology, as she felt willing and able to go against her the wishes of her parents-in-law. It also illustrates how flexible people's preferences are, as although her husband preferred to not support his mother-in-law, he was aware of being in a similarly precarious situation.

Adult children often lived far away, for instance in other states or countries, but could send money or fly to visit fairly often. For instance, every month one highly educated professional flew to Bangalore two weekends to look after her parents, spent a further weekend at her parents-in-law's household on the other side of Chennai, and the final weekend at her marital household.

Affluent case-study – Venkatesh

Venkatesh is a widowed man in his 80s. His only son passed away years ago and he currently lives with his daughter and her family. Before retirement Venkatesh worked as a professor and lived independently with his wife until her death. Although he had domestic staff to cook for him and maintain the household, Venkatesh had some health issues, so his family decided he should move with his daughter. Venkatesh is financially independent as he receives a family pension (his wife was a government employee) and has some savings. Nevertheless, he has high practical and personal care needs. These are mostly shared between his retired son-in-law and a live-in formal care nurse, as his daughter is still working full-time. His daughter helps when she is available, particularly with personal care tasks as he is uncomfortable with others doing them.

7.5. Discussion

The preceding chapter aimed to explore how older people from different socioeconomic groups are supported in Tamil Nadu. Some aspects of support appeared to be similar across groups. For instance, the co-resident child and child-in-law unit (largely sons and daughters-in-law) were often the first and main source of financial and practical support, though some tasks (e.g., large

healthcare expenses) were shared with other parties (e.g., non-co-resident siblings). This is supported by evidence of borrowing from family members as a key strategy to cover large healthcare costs in India (Joe, 2015) and the existing (seemingly contradictory) evidence from primary carers in India, who report both receiving little assistance from family members and the key role of family to help with support related challenges (Brijnath, 2012; Shaji et al., 2003; Ugargol & Bailey, 2018).

On the other hand, the results indicate that, while support provision was family-centric and gendered, it was also complex. Though I conducted the study within a geographically narrow area of Tamil Nadu, there was great diversity in how older people were supported (as evidenced by other studies in Tamil Nadu (Dharmalingam, 1994; Jothikaran et al., 2020; Thiyagarajan, Prince, & Webber, 2014; Vera-Sanso, 2004)). I developed four typologies of support systems to illustrate and explain these differences: classic patrilocal, restricted, flexible, and affluent. The aspects of support that varied across these typologies were: living arrangements (e.g., independent residence (self or with spouse), son, daughter, or old-age home), the availability of support from a daughter, formal care or non-co-resident relations, the gender division of practical support, and the source of financial support (e.g., son, daughter, self/spouse via employment, public or private pensions).

In the flexible and affluent typologies (urban and mostly (though not completely) middle-socioeconomic status), daughters played a larger role in support than patrilocal/patrilineal norms would predict, and men helped more with practical support tasks. Similar support dynamics have been noted

elsewhere in India (Ahlin & Sen, 2020; Allendorf, 2012a). In China, a patrilocal society with a comparable system of old-age support, daughters are now providing similar levels of support as sons (Xie & Zhu, 2009). It is possible that daughters have always provided more support than predominant norms indicate, for instance a study in rural Tamil Nadu in the 1980s demonstrated support from daughters, particularly when sons could not afford to support their parents (Dharmalingam, 1994). If support from a daughter is a response to the lack of support from a son, this may result from wider socioeconomic pressures that make it difficult for sons to support their parents (Vera-Sanso, 2004, 2012; Vera-Sanso et al., 2010). These non-normative support practices could further be underlined by Tamil Nadu's demographic transition. Tamil Nadu has small family sizes and the relatively high prevalence of sonless families, which makes the son-based system of support less practical (Allendorf, 2019).

Nevertheless, the restricted typology demonstrated particularly strong adherence to these patrilocal/patrilineal norms despite small and sonless families also existing (potentially at higher rates due to higher mortality, see chapter 5) in rural and lower socioeconomic status groups (Asaria et al., 2019; Registrar General and Census Commissioner, 2019)). I propose that, while participants consistently emphasised the importance and need for families to support their relatives, different groups interpreted and used the "traditional Indian" model of support differently. This is in line with theories which propose culture provides a set of options for people to follow, which flexibly guide (and justify) their actions (Bernardi, 2007; Swidler, 1986). The choice of action comes down to the individual's circumstances. For instance, while participants

of the flexible and affluent typologies were conscious that their support roles were not necessarily "traditional", they emphasised the good quality support provided, regardless of the source. By keeping the focus on maintaining support within the broader family – which acted as a supplement to formal care in the affluent typology - families could justify these practices as fulfilling moral and social expectations. "Rationalization" of support dynamics has been observed in Indians with migrant children and similarly flexible interpretations have been noted in other settings with strong family-focused support norms (Bailey et al., 2018; Sinunu, Yount, & El Afify, 2009; Wang & Wu, 2017; Wong & Chau, 2006).

On the other hand, the strict adherence to patriarchal, patrilineal, and patrilocal support norms in the restricted typology may result from particularly limited household resources in comparison to the other typologies (though unfortunately I was unable to assess more nuanced socioeconomic differences with the data collected). It is perhaps not surprising that those higher in the gender and patrilocal hierarchy of the poorest rural households aimed to uphold these norms if nonadherence could mean sharing limited resources such as money, space, and daughter-in-law's time and energy. A justification based on upholding tradition could be deemed both morally and socially acceptable.

I have expanded upon the implications of these results for the potential impact of the demographic transition on support to older adults of varying socioeconomic groups in Tamil Nadu in the final discussion guided by the hierarchal compensatory model and the task specific theory (Cantor, 1979; Messeri et al., 1993).

7.5.1. Limitations

I interviewed younger generations, proposing that they could inform on how their families supported their older relatives. This is their subjective assessment, and the results may have differed if I interviewed other relations, particularly the support recipient, or undertook participant observations. This also meant the voice of the focus of the analysis (the older individual) has not been heard. I focused primarily on availability (e.g., quantity) of support rather than quality of support as I felt it would be less subjective and sensitive and more suitable to the research methods. Nevertheless, given the considerable evidence for the varying availability and quality of support from immediate family members, this misses a wealth of information on the quality of support received. For instance, while participant's relatives in the classic patrilocal typology may have co-resided, this does not necessarily translate to readily available support when required. This question is better suited to ethnographic methods which were outside the scope of this study. Further, as the sample consisted of family members that stated they supported their elders, I have missed the experiences of older people that lack any family-based support, likely the most vulnerable individuals whose wellbeing should be prioritised

I developed typologies to illustrate and explain the different ways that older people are supported. Nevertheless, many of the dimensions are continuous and can change with time, so individuals will sometimes lie somewhere between typologies (e.g., a parent being taken into a daughter's household when recovering from an operation but not typically being permitted to co-reside). Tamil Nadu is highly heterogenous and there may be many more individual, family, and social-level influences on support provision (e.g., religion, caste) and

likely more nuances within socioeconomic strata. Future research could attempt to validate these results, for instance by investigating the patterns of support in Tamil Nadu and other states with differing norms, levels of socioeconomic development, and family structures.

7.6. Chapter summary

- This chapter aimed to understand how families of varying socioeconomic backgrounds support their aging relatives.
- The bulk of the responsibility typically fell on a co-resident or nearby child and child-in-law unit, while other family members (e.g., non-co-resident adult children) provided occasional help, e.g., during illness, paying for large healthcare costs, acting as a back-up if primary carers are unavailable.
- There were clear differences in some aspects of support: living arrangements, availability of support from daughters, formal care services, and extended family members, and the gender division of practical support. I developed four typologies of support systems based on these: classic patrilocal, restricted, flexible, affluent.
- While higher socioeconomic groups often had small/sonless families, they were able to adapt by employing domestic and formal care staff, or by getting help from a daughter and son-in-law.
- Potentially because of highly limited household resources, rural and lower socioeconomic status groups had the strictest adherence to patrilocal support norms and the least access to formal care services.

8. Chapter 8: “We are tuning ourselves to what is inevitable”: Attitudes and preferences for (future) long-term care arrangements of adults of varying socioeconomic backgrounds in Tamil Nadu

8.1. Chapter aim

This thesis aimed to suggest recommendations to ensure support for the older population that follow preferences of the population. As the conceptual framework outlines, attitudes towards long-term care arrangements can both influence the use of varying services and affect psychosocial outcomes (for instance if using a non-preferred arrangement). Evidence on the acceptability of several long-term care arrangements (e.g., in-home formal care services) is largely lacking. Further, the current evidence on attitudes and preferences around long-term care is based on views of the current older generation. Future generations of older people will likely have much smaller families so it is particularly important that the public, private and third sectors design policy and services for long-term care that suit their wishes. The following analysis aimed to explore the attitudes and preferences for (future) long-term care arrangements using the primary data collected (chapter four for a description of the data collection and analysis methods and the sample characteristics). I compared views on the normative arrangement of co-residence with a son to independent residence, old-age homes, formal care services, and day care centers.

8.2. Methods

Attitudes towards varying long-term care arrangements were primarily assessed during the interviews (rather than FGDs) using vignettes, though if

participants offered their opinions on varying arrangements in the FGDs, this data was also included during analysis. The vignettes were:

1. An elderly widow who is physically fit but is lonely and lives alone but in the same village as her son and his nuclear family. Her son pays for all her costs.
2. An elderly couple living with their son and his family. Both need practical help, for instance taking medications, getting up from chairs, moving around the house. Their daughter-in-law helps with all of this.
3. An elderly man being cared for in a private old-age home (முதியோர் இல்லம்), paid for by his only son who lives abroad. He is physically mobile but has started to get easily confused and distressed.
4. A widow living with her son and daughter-in-law who both work, and who pay for an outside carer (கவனிப்பாளர்) to come to the house and help her in the day, for instance preparing and eating meals, moving around the house
5. A center in the community where older people can spend time together during the day, with volunteers and food provided.
6. An elderly couple living alone in the village, as their children have moved to the city. The older woman is bedridden (படுத்த படுக்கை) and dependent (சார்ந்திருப்பது) on her husband for support with everything e.g., including going to the toilet, washing, eating.

Participants were asked about the perceived pros and cons of each arrangement for different family members, whether they deemed it 'good', whether there were preferable arrangements, and finally which arrangement they preferred.

These vignettes aimed to understand the influence of varying characteristics (e.g., gender and relation of the support provider and recipient, health of the support recipient, the contrast between formal and informal support). I aimed to use terms ("old-age homes") that are typically used in India (A. B. Dey, 2016; Government of India, 2020a).

8.3. Results

8.3.1. Co-residence with adult children

Participants consistently viewed co-residence positively and the majority viewed the vignette as the best arrangement for the older individual described. Views (including perceived pros and cons) did not vary clearly across socioeconomic groups. Co-residence was perceived as characteristically Indian, as synonymous with caregiving and thus morally right. It was also the pre-dominant arrangement of participants' elder relatives (across socioeconomic backgrounds, but particularly rural and lower socioeconomic status groups) and thus people deemed it as normal; a handful of participants were confused by the fact we questioned this arrangement – "That's not a problem at all. What are you asking?". When asked about positives and negatives of this arrangement, participants typically felt that co-residence meant older people were better looked after (benefitting their health and happiness) while proximity would make support provision easier and result in less worry for the children. Participants particularly laboured the importance of this arrangement for family bonding, particularly between grandparents and grandchildren. A rural woman (who worked for occasional daily wages) stated:

> "It is a good thing. I like being in a joint family. We can have guidance from the elders, we should give them the respect they deserve it. If there are grandchildren, they can also learn to be loving and attached with the elderly."

When asked about potential drawbacks, the main issues mentioned were conflicts with, and caregiving strains on, the daughter-in-law (the primary caregiver), though participants felt these should be managed by family members "adjusting" and sons helping their wives, rather than living separately. Interestingly, younger interviewees (it was not possible to attribute individual-level characteristics to FGD participants) tended to express more positive views of the co-resident arrangement and to be less concerned with the potential drawbacks (e.g., conflict). These individuals also tended to have less direct experience in supporting elder relatives (for instance acting more as helper to their parents for their grandparents or providing some help to relatively health and independent parents or in-laws) or to report being negatively impacted by the experience. This lack of experience may have led to relatively idealised and positive views of the co-resident support arrangement.

8.3.2. Independent residence

Respondents largely perceived independent residence as unacceptable and immoral - "If you keep them with you, whether you have food to eat or not, you would all be happy since you all stay together. It (*living separately)* is wrong" – though some urban professionals felt it was acceptable in certain circumstances. Participants were particularly concerned with the impact on the family unit and the mental health effects of older people living alone, as they felt

they would miss their family and feel abandoned, which might impact their physical health. A man who worked in a school in Chennai stated:

> "Now when they are left separately, they would feel like living alone in a forest. When they miss the previous happy days they had with their children, they tend to develop a kind of fear."

Participants felt that older people could not be cared for adequately when living alone or with a spouse, as the spouse would likely require support themselves. A self-employed rural man expressed his dislike:

> "Though providing financial assistance, suppose if elderly woman falls sick at midnight or if she needs someone to bring water, then somebody should be available there to help her. If you are beside her, then you can take care of her. No matter how many crores of money you give, it is not going to help her much. In case she is having breathing problem, then who will take her to hospital? You think the money will take her to hospital? Someone should be with her and that is very essential."

Nevertheless, acceptability of the situation relied on the circumstances, particularly support needs. Participants (mostly urban and with higher education) primarily felt that independent residence was acceptable if children visited and spent time with the older individual often, or if a husband and wife were living together (though some expressed concerns about the potential burden on older frail caregivers). A retiree in Chennai (with higher education) expressed her feelings:

> "If my father were alive then I would perhaps think of it in a different way, like if things got worse I would tell my dad look it's becoming too much, take mom and live outside, I'll take care of you. But since he's not there, and she's all alone, I think it's cruel for all of us to gang up and say get lost. We wouldn't even do it for a dog. If you had a very old dog at home, again she was sick or he was sick, we wouldn't turn him out into a blue cross and say OK fend for yourself, you would still keep that. If you can do that do a dog why not your parent?"

Interestingly, the participant's 90-year-old mother had lived alone for almost 30 years when she had been physically fit, illustrating the importance of elder's health on acceptability of the arrangement.

On the other hand, perceived positives included the older individual being able to maintain their independence and avoidance of conflict within the family (particularly between daughters-in-law and mothers-in-law). In fact, a minority (of urban higher socioeconomic status) participants felt independent residence was the best option, particularly if they lived close by. A Chennai professional stated:

> "I think, living nearby is preferable… if at all there has been a situation where my mother had to be living alone, I would say living nearby with a trusted helper or relative, where I get to see her, talk to her, my children go to see her, make sure that she does not feel she is living alone. She is in the right independence, and at the same time she is taking care and we have a complete watch on her and she is watching on us."

This is in clear contrast to the response of a FGD of fishermen, who when asked how they might feel if someone suggested living separately from their parents, stated:

> "R: If they talk like this, we might get angry… R: They should not be telling like that because when the parents are alive we have to live with the parents only."

8.3.3. Formal care services

The vignette of formal care was largely deemed acceptable by participants of varying socioeconomic backgrounds. Urban middle-class families were already using domestic staff and formal care services as standard, though these services were unavailable to most rural and lower socioeconomic status participants. While family-based care was perceived as best, participants underscored the need for dual-career households – "todays time they both have to work otherwise it's difficult to run a home" - and therefore felt employing a carer was an appropriate middle-ground and an improvement on the older individual being alone during the daytime. Some felt formal carers were preferable to asking a neighbour or extended family member to help (which may result in discomfort and awkwardness) as carers were "trained to do it professionally," or to a woman quitting her job to care. A female homemaker with higher education gave her view:

> "Sometimes I feel this is the best thing. Because when you have a good job, leaving that job in order to stay home and provide care, it creates tension. Instead of doing like, I will quit my job to do this, at least you

> know that if you can, you cook, at least give her food and you have somebody to take care of her physical needs that's fine."

This quote also highlights a major perceived drawback of formal care services. While they were useful for practical support, participants repeatedly stated that they could not provide the emotional support that older people needed; "Despite an outsider doing all the works to the older person, nothing will substitute the kind of love and care given by the children." Thus, participants typically felt that formal care services should act as a complement to family-based support rather than an alternative. Participants were also concerned that carers were doing it for the wrong motives - money rather than love - and therefore would not look after the older individual well and were very conscious that this arrangement was only available to the minority who could afford it. Thus, a handful of participants felt that formal care services were insufficient and unacceptable, and that care should always be provided by family members if possible.

8.3.4. Old-age home

Rural and/or lower socioeconomic status participants had no experience of old-age homes and perceived them as a city and rich-person phenomenon; "Maybe the rich might their parents in an old age home but we don't" (FGD of fishermen). Many urban and middle socioeconomic status families also did not have personal experience of homes (only one participant had a parent who used a home), though it was fairly common for people in these groups to know of a friend or extended family member who had used them. Participants (of varying socioeconomic backgrounds) consistently expressed strong negative attitudes

towards old-age homes and stated that they would never consider old-age homes for their own parents. Old-age homes were repeatedly deemed equal to abandonment (and thus immoral) and unacceptable. A rural man expressed his feelings:

> "It is very unfair to leave the parents desolate. I am totally against this arrangement. Nobody should follow this arrangement. On the contrary if the parents had done the same thing when the son was a baby and if they had left the baby with somebody else and gone abroad and if they were willing to send money for the child, then just think what would be the mentality of the child".

Participants consistently felt that old-age homes would result in loneliness and shame for the older individual. When pressed for potential benefits, participants typically mentioned that homes provide the basic requirements for older people (for instance food, basic healthcare, company, and security), which would therefore reduce the worry for family members. Nevertheless, and like in-home formal care, these services were deemed inadequate as they would not replace (or be motivated by) the love and care of a family. A FGD of male school staff in Chennai felt strongly about this:

> "R: Though the parents are joined in a home for the aged and live in an air-conditioned room, they miss the happiness of being with their children. They are longing that their children are not with them. They might have all facilities… R: Rather than the medicines and tablets, for them the real cure is to be with their children only. It only gives them

> comfort... R: Some parents would die soon because of the depression that they are away from their children and grandchildren."

While no participant stated that an old-age home was the best arrangement for the hypothetical older individual in the vignettes, a few stated that it would be an acceptable option in specific circumstances. For instance, if they had no living children (or children were living abroad) or other relatives willing and able to help, or if the older individual was particularly social and could benefit from being surrounded by their peers. Homes were deemed more acceptable for people in good health and not a place where someone with personal care needs should stay or (in particularly) die, which is in line with regulations in India (Brijnath, 2012). Thus, old-age homes were deemed acceptable as an ultimate last resort (again in line with existing policy (Ministry of Social Justice and Empowerment India, 1999)) and preferable only to vulnerable older persons living alone without support.

While most participants felt children should avoid this situation by rejecting jobs abroad or moving their parents with them, a handful felt that it was sometimes unavoidable and highlighted the paradox of parents investing their effort and money to help their children's career, while also hoping for them to co-reside and support them in India later. A highly educated male retiree in Chennai stated:

> "but you have done what you have done to ensure that they do very well in life, and they're doing very well in life! That is what has happened. That's the irony…And if the daughter's ready to come and support us in any point in time it's a bonus, it's an additional thing, but don't expect!

> We should not be sad that it's not happening, you made them, you taught them to fly, if they come back to you fine, if they don't come back fine."

8.3.5. Day care center

Though no participants were aware of a community center as described in the vignettes, a few felt that villages naturally had places where older people could gather and spend time together. Participants' (of varying socioeconomic backgrounds) attitudes towards community centres were consistently positive (particularly in cities) and they were considered a viable option for their own parents. Participants felt that community centers would counter the main issues which they perceived older people were experiencing, namely loneliness and boredom. An urban professional woman spoke of her father-in-law who had Parkinson's:

> "Like I said my father-in-law has nothing to do during the day he's totally bored he doesn't want to sleep, so something like that (*community center)*. More of such community centres in different places, I think it would make a lot of difference. Or if there is I'm not aware of them, you know, so he could go there meet people of his age. Bangalore, I remember in the apartment complex where my brother-in-law stayed, they had this laughing club, for old people, so it was good he used to go there… Because he had friends he could catch with them, go for breakfast, these things were little joys that he enjoyed there so I feel something like that would really make a lot of difference for older people, some kind of activities so they're not bored, because they have nothing to do. What happens when you have nothing to do is your mind

> keeps thinking of unnecessary things and he gets very anxious, and that's when his tremors increase the anxiety, if your mind is occupied to an extent it makes a lot of difference."

8.3.6. Future preferences for self

In contrast to people's attitudes towards support arrangements, participants from mostly (though not exclusively) urban and middle-socioeconomic status backgrounds commonly stated that they wished to be independent in their later years, for instance to live separately from their children with their spouse or in residential care. Despite repeatedly rejecting the idea of their own parents being a burden, participants often stated that they did not wish to burden their own children. They wished to remain involved in their children's and grandchildren's lives and have close emotional ties with them, while simultaneously avoiding dependence (particularly financial). A minority gave reasons pertaining to the positives of independence, for example to avoid being controlled by their children or having their social time restricted by caring for grandchildren. More commonly, participants indicated that they wished for independence because they were unsure whether their adult children would be able or willing to care for them. Reasons behind this included the risk of not having a "good" daughter-in-law who was willing to care (for instance someone who is employed, supporting her own parents, or focusing on her nuclear family), as well as shrinking family sizes, children's plans to work abroad (for those in middle-class families), perceived decline of the joint Indian family structure and changes in intergenerational relations (for instance with younger generations being increasingly educated and less respectful of older generations). A FGD of female agricultural labourers expressed their concerns:

> "R2: In this day and age, we are taking care of our in-laws, thinking this is our duty, but in our case, generation will change, there is no chance our daughter-in-law will take care of us. We have to take care of our husbands and they have to look after us. That's only how we can live. R3: Today's kids will say sorry we cannot do. R1: That's how it is. M: That's what you are thinking *(everyone laughs).* R: Now we think it is our duty. That's how we are following, but we don't have any chance. Our parents had four children so one of them took care, we only have one son, he may be attached to us but if the daughter-in-law who comes into the house will we expect her to take care of us? R1: The generation is changing."

People thus limited the expectations they held for their children; "the less the expectations the healthier the relationship". Rural and/or lower socioeconomic status participants were conscious that some of the arrangements described were unavailable to them, as a man that worked in a Chennai school expressed "Nowadays we see more number of homes for the aged. If we have more money, then we can go and live in any home." Instead, they spoke of the importance of working into older ages, maintaining their health, and having alternative sources of subsistence (e.g., farm animals) to support themselves. Urban wealthier participants on the other hand were more likely to plan on using domestic staff and formal care services to be able to live securely by themselves or with their spouses or using old-age homes. Several urban middle-class individuals spoke of plans to move with friends or family members of the same age to live in assisted living communities or rural areas with hired staff. A professional in Chennai outlined her thinking when asked about her future:

> "Yes, saving. Plus not being so dependent because I have a single child… I have a sister. We share, sometimes both of us, me and my sister will complain about my mother… But whereas my daughter won't have anybody even to share or anything. I don't know but we won't send our parents to old age home. But we are, you know, sort of tuning ourselves to what is inevitable because we all have one child. We are all working. My mother never went to work, though she was highly qualified. Now I am seeing people around saying 'no, it is not a taboo anymore, going to an old age community living'. It's just like living in an apartment. That taboo is slowly going."

On the other hand, for some 'independence' represented a midway arrangement, whereby adult children helped financially and visited occasionally, but they remained living separately. A highly educated retiree in Chennai spoke of her daughters who lived in the US "I know that they will ensure that we are very very, we are looked after well and er, they will ensure that. Good cottage, or good, with the servant and car."

In contrast, several (primarily rural and lower socioeconomic status) participants hoped to co-reside with and be cared for by their adult children. Some were conscious of the fact they would not be able to afford to financially support themselves or employ formal care in the future. When asked if they considered living independently in their later years, a focus group of male school staff responded "R1: Nobody is adamant like that here (*laughs*). R2: If one has money, then he can live like that. Without money, nothing can be done." For others it was a clear preference, though only a handful of participants were

sure of the support their adult children would provide them later in life. A rural man stated:

> "I would never want to live alone, I would always like to live with my sons. M: Do you believe it will happen? R: Yes. I am a little scared but still I have faith in my sons."

Participants repeatedly laboured the importance of having financial resources or assets in old-age - "money is everything" - to motivate support from family members, or to employ formal carers if family-based care was unavailable. Nevertheless, there were conflicting views on the feasibility of saving to remain independent and members of a FGD of housekeeping staff in Chennai disagreed with each other:

> "R1: Older generation did not save any money for old age. Now, we should do and not face such difficulties, that's what we should think and run family like that now. R2: For children we are spending everything – tuition fees, clothes, how can we save money? It's not possible. Whatever income gets spent."

This quote also demonstrates how people focused on their children's needs before planning for their own. The following exchange (with a woman who worked for daily wages in a slum resettlement colony) was common when we asked about preparations for the future:

> "only if we save some money, then others will look after us. Otherwise we can arrange someone to assist us. M: You have an idea. For that, have you started saving money from now? R: Not yet started. M: Right now

> you don't have anything. R: We have to save for our daughter's marriage."

Other strategies of engaging support from adult children included maintaining control of assets, setting an example by caring for one's own parents well, and investing in children and hoping they observe and repay the support. A handful of rural women also spoke of marrying their sons to women from their affinal family to increase the likelihood of having a "good" daughter-in-law. A woman from a Chennai slum who worked at a labour union gave her opinion on this strategy:

> "Because of this belief, some people want to give good education to their children. Even some people would sell their own house to conduct their son's marriage in a grand manner… what he does is that immediately after his marriage, he changes the property to his name… If you change your property to your son's name, then sooner or later you will be thrown out of your house. So it is safer to have property or money with your name… At least for this property sake, the son would take care of us."

This quote illustrates the insecurity that people felt around the availability of support in the future.

8.4. Discussion

This chapter has explored the attitudes of adults in Tamil Nadu towards long-term care arrangements and preferences for their own support in the future, comparing views on the normative arrangement of co-residence with adult children to independent residence, formal care services, old-age homes, and

community centers. The results demonstrate that the arrangement of co-residence and caregiving from children is perceived as the ideal by people across differing socioeconomic backgrounds. At the other end of the spectrum, and in line with current evidence (Brijnath, 2012; Lamb, 2013), old-age homes were almost unanimously perceived negatively and as unacceptable. Attitudes towards the other arrangements tended to fall somewhere in between these options. While urban and middle socioeconomic status individuals tended to feel more positively around independent residence, there was little variation in attitudes between groups of varying socioeconomic backgrounds, for instance rural poorer participants perceived benefits in and were largely open to formal care services (though not old-age homes) which are practically unavailable to them.

The major factor underscoring the differences in attitudes was not the typical policy view of support, for instance providing food and shelter. Instead, participants repeatedly laboured the importance of meeting an older individual's emotional needs, for instance for support to be motivated by love and respect (rather than money or obligation) and to go above and beyond the 'basics', and for family members to be emotionally close and spend time together (particularly grandparents and grandchildren) (in line with existing evidence from Kolkata (Lamb, 2013). Thus, arrangements such as formal care, old-age homes, and providing support from afar were sometimes perceived as inadequate, even if they provided for an individual's daily needs. A study of the complaints that older parents have lodged against their children under the Maintenance Act (2007) previously demonstrated the disconnect between the support that the law provides for (basic subsistence) and the support that older

individuals wished for (demonstrations of care and respect) (D. Dey, 2020; Ministry of Social Justice and Empowerment India, 2007). A recent study of older people's living arrangements in Tamil Nadu and Andhra Pradesh demonstrated openness towards living independently and also came to similar conclusions, concluding that the degree of emotional support and connection with families was more important for quality of life than the arrangement itself (Jothikaran et al., 2020).

Nevertheless, participants were conscious of the potential drawbacks of the co-resident arrangement within contemporary Tamil Nadu, for example, there were concerns around co-resident elders being left alone for long periods in dual-career households and the strains of caregiving on daughters-in-law. As such, these novel arrangements were typically deemed acceptable (and sometimes an improvement) if used in conjunction with family-based love and support, as they could hypothetically allow families to maintain close relationships as well as provide for their elder's practical needs. For example, formal care services may reduce the strains on the caregiver as well as ensuring an individual is looked after during work hours, while living in separate households (but close by) may reduce family conflict but also allow support provision and bonding between generations. One issue that differed was the provision of personal care tasks (e.g., bathing, dressing), which was mostly viewed as something that should be family-based, which has been similarly noted in other cultures (Pinquart, Sorensen, & Song, 2018; Schröder-Butterfill & Fithry, 2014) .

Attitudes towards varying arrangements were reliant on the circumstances, most notably the health and perceived vulnerability of the older individual. As such, some arrangements were considered a non-issue in certain circumstances (for instance a healthy older couple choosing to live independently) and immoral and unacceptable in others (for instance a widowed older woman with support needs living alone). Both age and health needs are subjective so it is likely that the relationship between these attitudes and real-life decision making (for instance for one's own parents) will be complex. For example, there is evidence from Tamil Nadu that sons provide support when they deem their parents need it, which does not necessarily match with their parents' views (Vera-Sanso, 2004). Further, this demonstrates the complexities that can be missed with quantitative data, for instance a large share of surveyed older adults in Tamil Nadu stated that they preferred to live independently, but it is unclear whether that preference would hold if they were in poor health.

Preferences for own care in the future typically contrasted with general attitudes towards support. Participants (from varying backgrounds) were consistently pessimistic about the likelihood of receiving support from their children (because of perceived widespread social changes) and as such, lowered their expectations from the typical family-focused ideal of old age support. This pessimism around later life support is not novel, there is evidence from 1970s and 80s rural India that fathers were concerned about the support their sons would provide them later in life (Dharmalingam, 1994; M. Vlassoff & Vlassoff, 1980) and the causes behind "dependence anxiety" were examined in detail by Vatuk in 1990 (based on her data collection which commenced in the 1970s) (Vatuk, 1990). Vatuk suggested that "although rapid industrialization,

urbanization, and overall economic transformation in South Asia have doubtless exacerbated the potential for intergenerational discord…the seeds of such discord were deeply rooted in the cultural system itself" (ibid). Classical Hindu texts divide the lifecourse into four stages, the latter two (following the Householder stage) involve purposeful loosening of social ties and increased self-reliance. While people may not be specifically aware of these texts or follow them literally, they have influenced how Indians perceive the appropriateness of behaviours in old age (ibid). Vatuk concluded that people's anxieties result from realistic observations that support may not be readily available if it severely burdens resources of the household, which could leave them both in "extreme need" and distressed by the lack of support from persons expected to respect and care for them (as a result of the reciprocity built over the relationship's lifecourse, which could include transfer of property) (Vatuk, 1990). In their role as support providers to older relatives, I propose that participants were also acutely aware of the difficulties that support provision can involve and at this point in time, felt reluctant to impose the same on their children.

Nevertheless, at the same time, few had made concrete plans for staying independent, and instead focused first on raising their own children (for instance financing weddings and schooling) which is in line with cultural norms of life stages (Bhat & Dhruvarajan, 2002; de Jong, 2011; Vatuk, 1990; Vera-Sanso, 2004). Thus, people often committed to supporting both their parents, their children, and themselves in the future. This is clearly a lot to take on and leads to the question of how much stated preferences (of a sample of adults without support needs) will translate to behaviours in the future (which I

expand upon in the limitations). I have expanded upon the implications of these results for my final recommendations in the final discussion.

8.4.1. Limitations

Participants with higher education were overrepresented in comparison to the general Tamil Nadu population (who may be less open to non-normative arrangements, for instance less than 1% of older people in Tamil Nadu stated that they preferred to live in an old-age home (UNFPA, 2013)). While I wished to understand the views of future generations, it means I have not heard the perspective of older people. Older Indians often cite a lack of respect and practical support as key issues in their lives - in contrast to loneliness and lack of emotional support as stated by the caregiver participants – thus the participants (in their role as caregivers) may not have been able to inform on the perceived cons of arrangements for the older individual (Jothikaran et al., 2020; Patel & Prince, 2001). Though sonless families are on the rise, the vignettes did not assess the acceptability of co-residing with a daughter (which can be stigmatised) (Allendorf, 2019). Further, though old-age homes in India cover a wide range of services, the vignettes did not clarify these differences. I focused on socioeconomic background because I am interested in the indications for policy (and for brevity), though preferences are highly complex and there are other characteristics that may also influence people's views (particularly gender) (Pinquart et al., 2018). Finally, while there is evidence that attitudes and preferences (i.e., intentions) are associated with behaviour (Pinquart et al., 2018; Taylor et al., 2007), we cannot be sure how closely they will be linked in this instance given the relatively young age of the sample. Further, it is unclear how much of participants' pessimism around their future

support and stated plans to remain independent are a strategy (e.g., lowering expectations) to deal with the potential distress if support was unavailable. There is evidence that preferences change with time and are associated with the level of support needed (Lehnert, Heuchert, Hussain, & König, 2019; Sun, Lu, Jiang, & Lou, 2020). While there is some evidence that expectations of later life living arrangements correspond with actual living arrangements (Hermalin & Yang, 2004; Pinquart et al., 2018), I propose that future research should longitudinally examine preferences, arrangements, and the resulting impact of the two on health and wellbeing outcomes.

8.5. Chapter summary

- This chapter used the primary qualitative data to explore how adults in Tamil Nadu view different support arrangements, and how they wish to be supported themselves in the future.
- Participants (across socioeconomic backgrounds) valued the family-based system as a way of providing tangible support efficiently, and as a way of demonstrating care.
- Attitudes towards residential care were consistently negative, though participants across socioeconomic backgrounds were mostly positive around formal care services.
- Many participants were pessimistic about the support available from their children in the future which led them to express preferences for independence in their later years.

9. Chapter 9: "It takes its toll on me… but I continue to do whatever best I can": Challenges of, and coping strategies for, supporting older relatives in adults of varied socioeconomic backgrounds in Tamil Nadu, India

9.1. Chapter aim

This thesis aimed to provide recommendations to ensure support for India's older population. As the conceptual framework and evidence on the availability of support from the immediate family highlight, perceived/experienced challenges that families experience can restrict the support available to older individuals. As such, this analysis aimed to explore the challenges that adults from varying socioeconomic groups in Tamil Nadu experience when supporting their older relatives (to identify particular stressors that could be targeted to improve the support provision experience) and to understand the ways in which they cope with these challenges (to identify locally relevant strategies that could be promoted). To the best of my knowledge, no studies have qualitatively assessed the challenges of caregiving in contemporary Tamil Nadu, which is a relatively distinct state (e.g., high prevalence of independent residence of older people, sonless families and small family sizes, relative gender equity and high levels of socioeconomic development), which could influence the stressors experienced (e.g., time pressures) as well as availability of informal and formal support and coping strategies.

9.2. Methods

Data collection and analysis were informed by the stress and coping theories of caregiving (Knight & Sayegh, 2010; Lazarus & Folkman, 1984; Pearlin et al., 1990). I asked participants to describe aspects of their experience that they

found 'difficult' (கஷ்டம்), which corresponds to stressors. This question was purposefully ambiguous, (for instance while I followed-up with probes around broad stressors (e.g., financial) I did not probe for other stressors that are typically conceptualised as 'caregiver burden' (Bastawrous, 2013; Zarit, Reever, & Bach-Peterson, 1980)). This is because experiences of caregiving vary by culture, and most instruments of 'caregiver burden' were developed in North American populations (Bastawrous, 2013; Knight & Sayegh, 2010). I further asked participants how they 'dealt' with these difficulties, which corresponds to mediators. Though the literature of 'caregiver burden' has informed the study, I use the term 'challenges' and 'difficulties' from hereon, as participants largely rejected the idea of being burdened by their parents (as has been noted in prior caregiver studies (Bastawrous, 2013)).

9.3. Results

9.3.1. Overview: Challenges and coping strategies

I inferred a number of challenges ('stressors') from the data that I outline in table ten and in detail below. These were role conflict, financial difficulties, difficult behaviours (of the care recipient), normative roles, and personal care. Each challenge was underscored by compounding factors that made the stressor particularly difficult and led to specific problem-focused strategies and the use of varying types of social support. Participants also used emotion-focused coping strategies to manage the emotional impact of caregiving, though these were aimed more broadly at the caregiving situation instead of specific challenges.

Table 10: Description of challenges, compounding factors, and coping strategies (problem and emotion focused).

<table>
<tr><th>Challenge</th><th>Compounding factors</th><th>Problem focused coping strategies and social support</th><th>Emotion focused coping strategies</th></tr>
<tr><td>Role-conflict
- Employment
- Childcare
- Domestic
- Other elders</td><td>Necessary and inflexible employment
Distance (non-co-resident households)
Children prioritised</td><td>Social support (formal and informal)
Leave/change employment
Live closer/together</td><td rowspan="2">Focus on motivations
Downplay difficulties
Acceptance</td></tr>
<tr><td>Financial difficulties
- Healthcare
- Children
- In-laws & parents
- Travel
- Lost wages</td><td>Quality & costs of healthcare
Difficulties saving
Public pension
Distance (non-co-resident households)</td><td>Social support (formal and informal)
Government healthcare
Live closer/together</td></tr>
</table>

Difficult behaviours - "Child-like" - Physically abusive - Refusing care - Controlling	Elder's physical & psychological health Relationship dynamics Private nature of care	Social support (informal and emotional) Live separately Institutionalisation	
Normative roles - Daughter-in-law - Daughter	Limited women's autonomy Limited household resources	Secret support	
Personal care - Toileting - Bathing - Dressing	Time intensive Physicality Embarrassment	Social support (formal and informal)	

9.3.2. Role-conflict

The most stated challenge across socioeconomic groups (particularly by women) was finding the time and energy to support older relations alongside employment, caring for children, and doing domestic tasks. While men occasionally mentioned difficulties with their conflicting roles, their primary support role was to provide financially (which is in line with employment) or help with more occasional tasks like attending healthcare visits. This led to less role conflict in comparison to women, who were expected to undertake more frequent tasks (e.g., providing food) often alongside employment. A low educated rural woman who worked for daily wages relayed a long list of her day-to-day responsibilities, finally declaring:

> "We have to finish all these and only then eat at last, after that we only clean up and by the time we are ready to sleep, it's like a machine how women are working (*other FGD members clap*)."

A handful of urban middle-higher educated participants were struggling to look after a husband's parents as well as a wife's, and sometimes other relations such as aunts and uncles. These support relationships were typically a result of older relations not having a son or child available (for instance due to migration or death). A highly educated professional in Chennai was supporting both her in-laws and parents as her only sister had migrated:

> "My husband… has denied a better job because we don't want to go away from Chennai…. I have even fought with my husband … you have denied me that opportunity. I used to scream at him. But now we have a sort of reconciled no, we cannot go. We both have our hands full."

Role conflict was compounded by the non-negotiable need for adults to work, paradoxically limited in-person support for both elders and children. Participants commonly perceived the cost of living to be high and rising, particularly in the city, and thus for dual-career households to be necessary. When asked whether she was able to work alongside caregiving, a low-educated rural woman queried:

> "I have to go, there is no other option? My husband asks me when I go to work, leaving alone my parents-in-law, 'What will happen to them?' But the field work provides for us. I can go in the morning and come back in the afternoon, provide food for them and return again. I have to do this work."

Professionals in the formal sector also found it difficult to combine work and caregiving due to inflexible hours and limited leave. Though family members were typically prioritised by their short-term needs, children's care (particularly schooling) tended to be prioritised above older relatives' needs.

Attempting to fulfil different roles resulted in stress and exhaustion for the main caregiver. Two women described direct effects on their health and delays in attending healthcare facilities for their own health. Participants consistently stated that they were not doing 'enough' for their elders, which was sometimes worsened by comments from extended family who "add fuel to the fire". Role conflict also resulted in arguments within the family, for instance because of the elder (or other family members) scolding the primary caregiver for not providing 'adequate' support, or due to the primary caregiver's high stress levels.

Participants mainly coped with their conflicting responsibilities by engaging help from other family members, particularly those that were co-resident or local, or neighbours/friends for short tasks. A handful of highly educated urban women spoke of quitting (or considering quitting) their own jobs. Nevertheless, having an older relative or child in the household was not straightforwardly linked to role conflict. In some families (of varying backgrounds), children and elders (particularly older women in good health) helped with caregiving and domestic work, which allowed some women to be employed. Urban higher-educated participants often employed domestic and formal care services to relieve the time strain - "If you can afford it then it's a lot less strain on the woman of the house" – though this often came with high financial costs. Those that struggled to care for non-co-resident elders hoped to move them into their household or nearby which was preferred over moving into the older person's household as participants perceived they could not shift their responsibilities, for example jobs or children's schools.

9.3.3. Financial difficulties

Participants across socioeconomic groups experienced difficulties in covering their elders' expenses alongside other household costs (particularly children's schooling) and other indirect costs (for instance travel costs when living separately), though the impact appeared to be greater in lower socioeconomic groups. Men in particular stated that financially supporting both parents and in-laws was challenging, perhaps demonstrating their larger role as financial providers, or the divergence from the norm of sons-in-law supporting women's parents financially. A low-educated rural man who worked for daily wages

stated "I struggled a lot to look after both my parents and in-laws… I took them to other places for treatment, but it was of no use, they died."

Rural participants of lower socioeconomic status regarded financial support as the hardest task. A rural FGD of women who worked for daily-wages described the impact on their families:

> "If they are unwell and bedridden…we cannot stay home… If they have money in their hand they can support themselves but it's not possible since we are poor, so I have to spend my money for them that time, then I'll be having no money so I have to work for extra expenses also. R: Money is a huge concern, causes a lot of tension… R: That time if we don't have money then we will be stressed, will become more anger and sometimes we also think whether to save their lives or not."

The FGD also lamented their lack of options, for instance when asked how they coped, the group responded:

> "R: Only people who have money can do whatever they want, but people like us have only 100 rupees in our hand so if that 100 rupees is spent for the hospital expenses then what we can do, nothing can be done."

Healthcare expenses (for instance hospital and medicine costs, transport) were unequivocally perceived as the highest and most difficult expense across socioeconomic groups. This was underscored by a consistently strong dislike and avoidance of government hospitals, with participants citing long waits, poor quality, and the need for bribes or contacts ("my friend's friend's friend") to receive timely care. Participants who did not struggle with financial support

had parents in good health or who had private pensions and health insurance, though some urban higher-educated participants (whose parents had health insurance) still struggled with additional costs (e.g., transport), high age-related premiums, inflated hospital expenses and rejected claims. A highly educated male retiree in Chennai explained:

> “healthcare is very expensive. Very very very expensive. Terribly expensive. I can't tell you how much. These guys swindle us… you go tell the hospital, "I have healthcare insurance" they simply blindly charge them".

Though participants rarely raised pensions (or lack of) when asked about difficulties, it was apparent that financial difficulties were worsened by a lack of public provisions. Though the government provides pensions for certain groups, only a minority of lower socioeconomic status participants’ elders received a pension. The public pension was largely perceived as impossible to live on, unreliable - sometimes stopping for months - and difficult to obtain due to the documentation required, strict eligibility rules, and time and effort needed to apply. A woman from a Chennai slum who worked at a labour union felt strongly:

> “They are giving just one thousand rupees as pension, which is insufficient for two or three days… Despite the provision of the law, they reject it pointing out some lame excuses like your name doesn’t match in both documents, there is a spelling mistake in yours.”

Families (particularly rural and of lower socioeconomic status) attempted to manage their support expenses by taking on more work, budgeting carefully,

moving their elders to a closer or the same household, using government hospitals, delaying/refusing to finance health procedures, and selling jewellery or taking loans (both formal and informal) to fund expensive and unanticipated medical emergencies. It was common for families to share healthcare expenses between adult children (mostly sons), sometimes with non-co-resident adult children providing a larger share. Nevertheless, some participants were sceptical of the financial support available from non-co-resident family, with the view that "there are financial difficulties in the family all the time." Though neighbours and friends gave practical help and occasionally lent money in the short-term (e.g., for transport during medical emergencies), financial support was strictly limited to family members.

9.3.4. Elder's behaviours

Outside of the financial and time strains of support provision, many participants spoke of the emotional impact of their elder's behaviours which they found challenging. Older people were commonly described as acting "like children" and being "past reasoning", with a handful of participants described their relatives soiling the bed, repeating questions, and losing their inhibitions (e.g., walking around unclothed). While these sound like dementia related behaviours, only a minority offered a medical diagnosis as the cause, while most attributed them to natural age-related changes (Patel & Prince, 2001; Shaji et al., 2003).

A highly educated homemaker in Chennai described emotionally supporting an older neighbour whose children lived abroad:

> "The father has Alzheimer's and the mother, she was a professor in a college but post-retirement she is taking care of uncle. She is also growing old, I can see that frustration, she has a driver she has a full-time attendance to take care of them. But still that emotional support is not there… she keeps talking, there are times she breaks down. So, I generally just go sit and talk to her, I know he's not well, he becomes violent sometimes. But there's nothing that she can do."

Members of a FGD of female housekeeping staff in Chennai had previously worked as formal carers, and described being abused (for instance hit, having items thrown at them, spat at) by their care recipients.

Some urban elders would refuse to use formal carers, preferring their adult children to look after them or balking at the perceived financial burden on their children, and assistive devices (e.g., walking sticks) due to embarrassment. Participants (of varied backgrounds) also spoke of their relations refusing medicines or healthcare visits (particularly in rural areas), refusing food (following arguments or to avoid needing the toilet) or advice regarding food. Participants felt these refusals made their support role more difficult by impacting the elder's health and thus leading to higher care needs. An urban man who worked as housekeeping staff explained:

> "Even a day's leave would affect my salary… I would have told my mother not to eat something specifically but she would eat that and finally she would have loose stools."

Some participants (mostly urban women) perceived their parents' behaviours to be demanding, attention seeking and overly controlling, which led to

arguments and feelings of resentment and guilt. Participants largely attributed this to their parents feeling insecure due to their loss of status and role in the family (for instance following retirement or moving into their child's household) and discomfort with becoming dependent. Changing relationship dynamics appeared to result in more conflict when relationships were previously authoritative. One highly-educated urban participant expressed regret of moving her mother into her household:

> "But I think if she had stayed back, I think all round there would have been far much more happiness and harmony… I understand for her having lived 28 years and for her to come suddenly be under her daughter's umbrella and having to ask me "can I go out" "will I take her", I understand… She resents the fact that she's dependent on me, and she resents the fact that she's losing her so called control".

Financial dependency was particularly noted to strain relationships and result in conflict.

Participants consistently expressed the personal and private nature of caregiving, and the perceived betrayal which would result from "washing your dirty linen in public." A tailor in a slum-resettlement colony who was looking after his mother stated "I suffered a lot. But we shouldn't tell that outside. She only gave birth to us. What are we going to do by pointing out her mistake?" Nevertheless, some occasionally used emotional support from family or close friends to cope with the emotional strains of caregiving. Alternatively, one participant (an urban professional) relayed a story of another family, whose nieces and nephews placed their (childless) uncle into a private old-age home,

as he was "very difficult to live with" (for instance stealing money). This was the only example we heard of institutionalization as a strategy for coping with the challenges of support provision, likely because it is rare (this is a fairly unusual family dynamic and situation) but perhaps also because of the stigma around old age homes (particularly for those with family in government or NGO funded institutions).

9.3.5. Normative support roles

Women experienced difficulties with the social expectations of the support that women should, or should not, provide to aging in-laws and parents. Gendered support norms dictate that daughters-in-law undertake caregiving and domestic work. As a result, some rural less educated women revealed their husbands refused to help them with these tasks, regardless of whether they were also employed. Women also stated that their in-laws would expect help with tasks that they were capable of completing themselves, or that their in-laws were never satisfied, easily angered, and complained if support did not fulfil their expectations, resulting in increased time strains and stress on the daughter-in-law, and conflict within the family.

On the other hand, while some women (mostly urban and higher educated) were caring for their parents (despite sometimes having brothers), a few rural less educated women were prevented by their affinal families (husband and in-laws) from helping their parents, though they wished to. Women were expected to prioritise, respect, and serve their in-laws above their parents, which could cause conflict during visits and prevent co-residence. In particular, rural and less educated women were prevented from giving money to their parents, as

the household income was perceived to be their in-laws' right. This stood for women whose parents had no sons, resulting in guilt, distress, and resentment towards their affinal families, as women watched their parents struggle to support themselves. Some attempted to manoeuvre this by secretly saving and giving money to their parents. A FGD of rural women who worked for daily-wages became emotional when describing their parents' circumstances:

> "R: If I give 100 rupees to my parents, then I cannot do that with the knowledge of my in-laws or husband. They are my parents, they depend on me yet I cannot give them the money. R: Since marriage, it's been 13 years and yet I cannot help my parents… R: They have suffered so much, when they didn't even have money. Now when they are old and want even 30 rupees I cannot give it to them (*crying*)."

Their inability to support their parents was likely underscored by a lack of household resources (meaning families were less willing/able to share) and low female autonomy. Strategies for coping were therefore limited.

9.3.6. Personal care

Personal care (for instance dressing, bathing, toileting, washing soiled clothes) was consistently stated as difficult, partly due to feelings of disgust and embarrassment resulting from the nature of the tasks. Care recipients needed this assistance when they were in very poor health (for instance immobile following a stroke) therefore providing personal care alongside other forms of support could take up a lot of time, and certain tasks (e.g., toileting) were sporadic and affected carers' sleep patterns or resulted in embarrassment for the elder. Urban middle-higher educated participants' families purchased

products to help with this, for example Western style toilets, grab rails, and adult diapers. Poorer families did not have this option, as a rural man who was caring for his father explained:

> "He was unable to work and so if he had to pass urine or motion I may have to carry him on my shoulders and take him there. Especially during the night, and I used to sleep with him."

Participants used support from family (or formal sources (e.g., carers or assistive devices) if urban and of middle socioeconomic status) to help with personal care, particularly as they often required lifting and therefore teamwork. This was especially difficult for wives and daughters-in-law when men were at work during the day. The personal nature of the tasks meant older people preferred support from family members of the same gender. As such, a lack of available men resulted in women helping older men with personal care, leading to discomfort for both parties. Nonetheless, women continuingly stated that their embarrassment subsided with time. Though urban middle-class families often employed carers, some elders (particularly men) were uncomfortable with receiving personal care from non-family, meaning certain tasks (e.g., bathing) would be completed by their adult children once they returned from work.

9.3.7. Emotion focused coping strategies

In addition to the problem-focused coping strategies, I have inferred broader emotion-focused strategies which were used to limit the emotional impact of the situation. Younger participants (i.e., those in their 20s) tended to express less stress and guilt resulting from support provision, perhaps because they

were less directly involved with supporting elder relatives (e.g., acting more as a helper to their parents, or supporting relatively health parents or in-laws).

Participants focused on their motivations for caring as a coping mechanism, particularly focusing on how their parents had raised them and supported their grandparents, or the need to set an example. A FGD of fishermen gave their thoughts when asked about difficulties:

> "R: Though it is a bit difficult, we should accept it happily. R: It was the mother who gave birth to us and brought to this level. So we have to look after them. No escape from it. If we don't take care of them then how come our children will look after us in future?"

Women often spoke of envisioning their in-law as their own parents, particularly when speaking of the discomfort of helping with personal tasks.

Participants also consistently downplayed difficulties they faced, for instance a low-educated woman from an agricultural village appeared unwilling to dwell on issues that she was unable to change:

> "R: To me, I didn't have anything (*difficulties*) like that. M: Everything was easier for you. R: Yes. I would have difficulties but whom could I tell them."

People felt supporting one's parents should not be viewed negatively as it was a child's duty to care. A highly-educated female home-maker in Chennai explained:

> "See when we grow up itself we have been seeing them taking care of their parents and all that, so we don't think of it as different for us… It's like we go to school we have to take the exam. It's like that."

Participants also described accepting that they were unable to fulfil all expectations – "We cannot help someone all the time, be with them. Our situation is like that" - and needing to mentally adjust to the situation, particularly because older people were deemed to be "like children" and thus unable to adapt themselves. No participants openly proposed retracting care or using old-age homes as a strategy for the difficulties they faced, thus outside of the problem-focused strategies, accepting shortfalls in care appeared to be the final line in their emotional defence. Nevertheless, participants held high expectations for themselves, therefore accepting one's own constraints were always countered by guilt of not doing more. The following quote of a professional woman in Chennai demonstrates this balance:

> "But since they have taken care of their parents and in-laws, we will feel guilty if we don't because they have given us the best of education. …So at least this is time to repay… So I feel I do, but I am not giving my 100%. … I have to play the role of a mother, office goer, a daughter. Sometimes it takes its toll on me and I hit the roof. I shout at them but then the next day I will feel guilty but then I continue to do whatever best I can."

9.4. Discussion

This study highlights the challenges that adults of varying socioeconomic backgrounds experience in supporting older relatives in contemporary Tamil Nadu. While the broad challenges mirror existing evidence from other

populations (for instance financial pressures or distress from problematic behaviours), some of the underlying factors were particular to the Indian context For instance, the impact of financial dependency on household budgets and inter-personal relationships was driven by high private healthcare costs and a clear dislike of public healthcare (which has been noted in Tamil Nadu previously (Dodd, King, Humphries, Little, & Dewey, 2016)), while the strains on the time and energy of daughters-in-law were underscored by the strong delineation of caregiving roles and gender and generational power dynamics (as observed in other Indian states (Ugargol & Bailey, 2018)).

I further identified certain challenges that may be particularly prevalent in Tamil Nadu. Urban and middle socioeconomic status participants spoke of the costs of, and parents' reluctance to use, formal care services. Several spoke of the additional time and financial strains that resulted from supporting parents who lived separately, and from supporting both a husband and wife's parents when there were no other adult children available to help. Conversely, rural lower socioeconomic status women were distressed when they were unable to help their sonless parents. This emotional impact has been noted previously in middle-class women in Maharashtra, though in contrast, these daughters wished to support their parents because they felt their brothers' care was inadequate, and the requests were primarily rejected by their own parents because of the perceived stigma (Dhar, 2012).

This divergence between the experience of daughters of sonless parents (i.e., being able to take on their support versus not) was the only major difference between socioeconomic groups. Other challenges were qualitatively similar

across groups, though the means of coping and thus the impact varied. The financial resources of urban middle socioeconomic status groups meant they were more able to engage problem-focused coping strategies to manage the impact of these stressors, for example by employing domestic or formal staff to relieve time strains, using assistive devices or Western toilets to ensure the elder's safety, or maintaining separate households to avoid conflict (as has been noted elsewhere in India (Patel & Prince, 2001)). Nevertheless, it should be noted that financial resources did not necessarily result in a stress-free experience as exemplified by the older woman that struggled with the emotional impact of caring for her husband with dementia, despite employing staff.

These resources and strategies were not available to lower socioeconomic groups and the resulting impact was clearly great for some families. While lower socioeconomic groups used some problem-focused strategies (e.g., working more to cover healthcare costs), they tended to rely on informal support (particularly co-resident and nearby family members) and emotion-focused strategies (e.g., accepting their constraints). The inability of rural women to go against their affinal families' wishes (in comparison to urban middle socioeconomic status women) also demonstrates the importance of less tangible resources (such as autonomy) in available coping strategies.

Interestingly, though the theory of stress and coping would predict that higher socioeconomic status groups use emotion-focused strategies less (Lazarus & Folkman, 1984), emotion-focused strategies were used by participants across socioeconomic groups. I propose two reasons behind this. First, though the

concept of "caregiver burden" in high-income Western literature tends to include concerns about the next step (Bastawrous, 2013; Zarit et al., 1980), this was not raised by the study participants. People coped with the challenges by aiming to manage (rather than avoid) their situation. Problem-focused strategies could not negate all negative outcomes, so carers of all socioeconomic groups were left with limiting the emotional impact of stressors. Second, I propose that the high social expectations of caring for parents in India –the debt that children owe to their parents is perceived to be so large that it will never be repaid (Brijnath, 2012; Lamb, 2000a; Vatuk, 1990) - leads to feelings of inadequacy across the socioeconomic spectrum. While having more financial resources limited more extreme outcomes of support provision, it also increased the options (and thus expectations) for support. Private healthcare, domestic staff, and formal care services mean the financial cost of providing support is essentially limitless. Catastrophic healthcare expenditure is actually higher in wealthier households in India (Pandey et al., 2018). Thus, I propose that the morally charged nature of parental care mean the 'goalposts' of caring are adjusting as potential options for support expand, with repercussions for families.

9.4.1. Limitations

While I aimed to understand the caregiver's viewpoint, support provision occurs across dyadic (and more complex) relationships. Future research could compare objective (e.g., observations) and subjective perceptions of challenges from multiple perspectives (including the care recipient), as well as qualitatively and quantitatively assessing these experiences in populations across India. This is a difficult subject matter and participants may have not

wished to share particular experiences or stigmatising views (for instance wishing to use old-age homes). Thus, I appreciate that there may be challenges which I have not identified. Finally, while I focused on the negatives of caregiving for brevity, participants often also reported positives (which I plan to examine separately).

9.5. Chapter summary

- This chapter used the primary qualitative data to explore the challenges that individuals experienced when supporting older relatives, in particularly aiming to (a) identify stressors that could be intervened on to improve the support provision experience, and (b) identify coping strategies that could be promoted to improve the experience.
- Results demonstrated that support provision could have a considerable impact on individuals and families providing support across the socioeconomic spectrum.
- Key stressors include inflexible employment, high out-of-pocket healthcare spending, care recipient's poor health (particularly dementia), lack of access to public pensions, interpersonal issues resulting from financial dependency, practical difficulties, and discomfort with providing personal care, patriarchal gendered support norms.
- The strategies to manage stressors varied between socioeconomic groups, with those of middle socioeconomic status being more likely to use problem focused strategies (e.g., move households, employ staff).

- Family members (outside of the primary support providers) are key sources of help with occasional tasks, as respite care, and occasionally as emotional support, which indicates that support related challenges may rise as this support is increasingly limited.

10. Chapter 10: Discussion

10.1. Recap of thesis aims and goal

This thesis had two aims: (1) to develop a nuanced understanding of the potential impact of India's demographic transition (fertility decline in particular) for social support to (and subsequent health of) older people, considering variation across populations, and (2) to recommend solutions to ensure support for India's older generations, considering preferences of the population. To achieve aim one, I assessed three assumptions around the link between family structure, support and health: (1) that receipt of support from immediate family members positively effects health outcomes, (2) that family structures have changed sufficiently to impact support, and (3) that support is available from immediate family members and unavailable from other sources. The goal is to ensure support for India's (growing) dependent older population in a sustainable and intergenerationally equitable manner.

10.2. Summary of thesis

To achieve these aims, I combined a literature review, analysis of secondary quantitative data at the India-wide and sub-national level (by state and socioeconomic background (urban/rural and socioeconomic status)), and primary qualitative data collection and analysis in the southern state of Tamil Nadu. I selected to focus on Tamil Nadu largely because of its low fertility across socioeconomic strata. I will now summarise each chapter from two onwards (chapter one outlined the aims and goal noted above):

Chapter two described the conceptual framework that underscored the research question and thesis focus, and described the theorised links between

family structure, social support, and health, and the potential influence of fertility (and to a lesser extent, mortality) decline on these pathways. I proposed that worsening functional health results in increasing tangible support needs (i.e., need for assistance with practical tasks such as moving around, personal care tasks such as bathing, financial assistance due to an inability to work), but that the support available to an individual is reliant on their family structure, family members' intentions to care (which result from the balance between their motivations and perceived/experienced challenges), and the availability of support from informal and formal sources outside of the immediate family.

Chapter three defined the 'older' population in India, described demographic (fertility and mortality) trends (highlighting differences across states and socioeconomic groups) and other potential influences on support (sociocultural, socioeconomic, and policy). It also described the results of a review of the existing evidence regarding family structures of India's older population, the relationship between support (as proxied by family and household structures) and health outcomes, current support practices and attitudes, and support related challenges. This demonstrated that there is little evidence on the relationship between family structure, social support, and health of India's older population, and a lack of detail on family structure changes and differences (particularly numbers of children/sons/daughters) from the point of view of older individuals. Regarding current support practices, it was unclear how available alternative sources of support are to older people (outside the primary sources) and the degree to which families share support tasks between varying members. Evidence on attitudes towards long-term care arrangements

was largely based on the views of the current older population (though future generations will likely have smaller families) and focused on either the co-residence arrangement or old-age homes, with little evidence on alternative arrangements (e.g., formal care services). Finally, the existing literature on support related challenges was lacking evidence on support related stressors in Tamil Nadu (despite the relatively aged population and distinct features of the state) and on the strategies that families used to cope with the challenges.

Chapter four described the three data-sources used: secondary quantitative data (2011 census and three repeated nationwide NSSO surveys (1995-96 – 2014)) and primary qualitative data from a socioeconomically diverse group of adults (aged 20-64) in rural and urban Tamil Nadu with mixed experiences of supporting older relatives. It also described the respective benefits and limitations of the data-sources and methods and of the mixed methods approach, the fieldwork process and the qualitative data collection and analysis methods.

Chapter five used 2011 census data to describe family sizes (numbers of children, sons, daughters) at the subnational level for the population of ever married women (aged 60-plus) in 2011. Average family sizes and the relationship between education and family size varied across states. Tamil Nadu stood out for its relatively small family sizes for women in the lowest socioeconomic status group in both urban and rural areas.

Chapter six used secondary quantitative data from nationally representative NSSO surveys to describe trends in family structure (number of children, sons, daughters and marital status) at the national level (between 1995-96 and 2014)

and to examine the relationship between family structure and health outcomes. Results demonstrated that though numbers of children declined (particularly daughters), it remained rare in 2014 to be childless or sonless (likely the two key issues for family-based support). Share of the older population with a spouse increased over the period for both men and women. The relationship between family structure and health tended to mirror support roles, potentially indicating that support receipt is associated with better health.

Chapter seven used the primary qualitative data to explore how families of varying socioeconomic backgrounds currently support dependent older relatives in Tamil Nadu. Results indicated that support still largely follows gendered norms, though some support types varied: living arrangements, gender-division of practical support, financial support, use of formal care services and support from daughters and non-co-resident relatives. I developed four typologies of support systems (classic patrilocal, restricted, flexible, and affluent) which varied by socioeconomic background and the predominance of patrilocal support roles. I concluded that the bulk of responsibility for support tends to fall on one proximate child and spousal unit but that larger tasks (e.g., healthcare expenses) are shared with wider family members.

Chapter eight explored attitudes and preferences towards (future) support arrangements. Results indicated that people (of varying backgrounds) viewed the co-residence arrangement most positively and old-age homes most negatively. Differences in attitudes between varying arrangements tended to be driven by concerns around tangible support as well as the need to demonstrate love and care and provide emotional support. Preferences for own support

differed from general attitudes in that participants commonly stated that they preferred a future arrangement that avoided dependence on their children.

Chapter nine explored the challenges that family members experience when supporting older relatives, and the ways in which they cope. Results indicated a range of stressors which could be intervened on to improve the support experience. The challenges experienced were qualitatively similar across socioeconomic groups, but wealthier families were more able to engage formal support and problem-focused strategies to manage the potential impact.

The following chapter will now outline my conclusions based on my results and the existing literature, describe the potential implications of these conclusions, provide policy recommendations, describe limitations of the thesis and potential avenues for future research, and finally, summarise its contributions.

10.3. Main conclusions

Aim one – to develop a nuanced understanding of the potential impact of India's demographic transition (fertility decline in particular) for social support to (and subsequent health of) older people, considering variation across populations.

(a) Fertility decline will reduce the support available to dependent older individuals that lack the resources to adapt (i.e., those of lower socioeconomic status and/or rural) with negative implications for their health as it (a) will increase the chance of being sonless (and to a lesser extent, childless), and (b) will reduce the pool of children who are both willing (motivations) and able (perceived/experienced challenges) to support.

(b) Declining widowhood and increasing propensity to live independently as a couple indicates rising importance of the spousal unit for support.

(c) Past fertility and (past and current) mortality trends have resulted in different family structures across regional and socioeconomic groups, which will influence the timing of these effects. Family-based support is likely already lacking for many lower socioeconomic status older adults regardless of their family sizes, as a result of high socioeconomic pressures on families.

(d) Lower socioeconomic status groups with small family sizes (such as those in Tamil Nadu) are doubly vulnerable as their families are impacted more by support related challenges and are less able to share support tasks with wider family networks.

Aim two – To recommend solutions to ensure support for India's older generations, considering preferences of the population

(e) The family-based system of support is valued for its practicalities as well as the value subscribed to it as a demonstration of care, though people are concerned about their own support in the future.

(f) Policy should primarily (a) aim to reduce the difficulties experienced by family carers for their own wellbeing as well as to promote the support available to (and health of) older dependent individuals. Policy should also (b) provide financial and practical support for older individuals for whom family-based support is unappealing or unavailable in a culturally acceptable manner, and (c) improve people's ability to remain financially and physically independent in their later years.

I shall now go through each of the assumptions that underscored aim one and expand upon the evidence (both my own and existing) behind the conclusions, and the potential implications.

10.4. Does support from immediate family members positively affect health outcomes?

First, is social support from immediate family members (spouse and children) associated with better health? My results indicate yes. Results of chapter 6 demonstrated that the relationship between family ties and health mirrored support roles in later life (as well as support exchanges over the lifecourse). Having a spouse was associated with better health for both men and women, while sons and daughters showed differing relationships with parents' health. Having one son was associated with better self-rated health in comparison to having no sons, while having one daughter was similarly associated with self-rated health as having none. This (mostly) mirrors evidence from other populations with different support roles. In European populations, where daughters tend to provide more support (though roles are less explicitly defined), there is evidence both that sons and daughters have similar relationships with parents health (Modig, Talbäck, Torssander, & Ahlbom, 2017), and that daughters are associated with better health outcomes (Torssander, 2013). There is some evidence from populations with similar patrilocal support roles (for instance in South and East Asia and the Middle East) that (surviving) sons are associated with better health for their parents while daughters are not associated (or associated with worse outcomes) (Engelman et al., 2010; M. O. Rahman, 1999), though there is also evidence (from similar populations) for the opposite (Mostafa & van Ginneken, 2000;

Pham-Kanter & Goldman, 2012). The differing relationship between sons, daughters, and parents' health may also indicate the importance of sons' material support and co-residence, and daughters-in-law's practical support and personal care, in comparison to the emotional support that daughters provide (Allendorf, 2012a; Lamb, 2000a). In sum, the results indicate that support (particularly more tangible forms) from immediate family members is associated with positive health outcomes for older individuals in India.

10.4.1. Potential pathways between support and health

The qualitative results shed light on potential pathways between tangible family-based support and health. One key pathway is likely the provision of financial support, particularly for healthcare costs. Participants from varying socioeconomic backgrounds perceived healthcare costs as large and often needed to share them with other family members. There is consistent evidence that cost (combined with the perceived poor quality of public healthcare in India) is a barrier to healthcare use (Dodd et al., 2016; Pandey et al., 2018; Srivastava & Gill, 2020), therefore a lack of financial support has clear implications for healthcare use (and subsequent health outcomes) of the older individual.

As has been noted, older people without a private pension (the majority of the population) are compelled to work in their later years to support themselves and their families and/or to avoid the vulnerability of not being a 'contributing' household member (UNFPA, 2012; Vatuk, 1990; M. Vlassoff & Vlassoff, 1980). Survey evidence demonstrates that 70% of older people that are working in India are doing so because of economic reasons (with the rest working by

choice), and a large share are working in manual labour jobs (UNFPA, 2012). The existing evidence on the effects of manual labour jobs is inconclusive, some studies demonstrate negative effects on physical functioning at middle and later ages while others show little difference (Hairi, Mackenbach, & Avendano, 2010; Møller et al., 2015; Palumbo, Michael, Burstyn, Lee, & Wallace, 2015; Russo et al., 2006). It may be that manual labour jobs are beneficial for some health outcomes (e.g., chronic disease) and at younger ages but detrimental for physical functioning at older ages, and also that the type of manual labour undertaken by older people in India is more detrimental for functional health than that in European countries (where much of the research focus has been (Hairi et al., 2010; Møller et al., 2015; Palumbo et al., 2015; Russo et al., 2006)). There is evidence that people perceive manual labour to have a negative impact on health in Tamil Nadu, and of faster rates of ageing in women of lower socioeconomic status in India (and other LMICs) (Dodd et al., 2016; Leone, 2019). Thus, I conclude that working in manual labour jobs at older ages (due to the lack of an alternative income) negatively impacts older people's health in India.

Outside of the theorised pathways in the conceptual framework, the primary data sample makes it difficult to shed light on how a lack of other forms of support (e.g., with practical tasks and personal care) may impact health outcomes. Nevertheless, several respondents spoke of older people (either neighbours or own parents (of daughters)) who were struggling to look after themselves alone or with their spouse if they had no children (or other relatives) willing or able to help. While I did not interview these individuals, it is

easy to imagine a situation where both a combined lack of material, practical, and emotional support could affect physical and psychological health outcomes.

10.4.2. The importance of expectations

The results on attitudes and preferences towards old-age support arrangements demonstrated the high value that people of varying socioeconomic backgrounds attached to being looked after by one's family. Thus, a lack of tangible support may also have psychological effects. Participants were consistently concerned with the potential mental health effects for an older person who lived alone or in institutional care, regardless of whether their families provided for their material needs (e.g., food and shelter) as people perceived that they would miss the emotional support and attention from their families. Evidence of lower access to healthcare and higher rates of depression in older people in (free) old-age homes care may support this assumption (though one study indicated that depression was actually lower in people living in paid old-age homes versus in the community) (Amonkar et al., 2018; Joe, 2017; Samuel et al., 2016). This additional element of support corresponds with the concept of seva, i.e., the need to also meet emotional needs and wants through demonstrating love and respect (Vatuk, 1990). Support that does not meet these expectations (whether or not it covers the basic needs of food and shelter) could itself negatively affect mental health outcomes if it is perceived as insufficient. A recent study of older people's experiences of 'traditional' and 'modern' (i.e., not co-residing with children) living arrangements in Tamil Nadu and Andhra Pradesh revealed that the arrangement itself was less important than the degree to which the individual felt connection with, and love and affection from, their families (Jothikaran et al., 2020). This was sometimes even more evident when living

separately as the effort to visit, support and communicate was more visible (ibid). There is evidence that older people in old-age homes feel abandoned by their children despite their material needs being met (Lamb, 2013). A recent study of older parents who lodged complaints against their children in maintenance courts in Kolkata concluded:

> "It was observed that maintenance in terms of provision of food, residence, clothing, medical attendance and treatment was often being provided by the children, but a zone of needs experienced by older persons remained unaddressed by the law. Such needs point to the missing seva. For instance, when an older person complained that she was not being provided tiffin or bhalomondo khabar (pleasing and toothsome food), or long had not received any saris or gifts, it indicated their desire to be constantly reassured that they still wielded importance in the family. In most cases, what they desired was not expensive material goods, but symbolic gestures of affection and respect from their children." (D. Dey, 2020)

Evidence from other cultures with strongly defined support norms demonstrates that a gap in support expectations/preferences and receipt can result in negative health outcomes (T. Chen, 2019; Dong, Li, & Hua, 2017; Mengting & Dong, 2019). In sum, I conclude that the receipt of support will positively effect health through the practical fulfilment of needs (e.g., affording healthcare), while family-based support (if perceived to be provided with love and care) will positively affect psychological health through the fulfilment of expectations and emotional needs.

10.5. Have family structures changed sufficiently to affect support provision?

10.5.1. Sharing the responsibility

The impact of family structure change depends on how families share support responsibilities. So, how is support provided? I used qualitative methods to explore the degree of task sharing between family members. While the results demonstrated differences between families (particularly of different socioeconomic backgrounds), they also demonstrated similarities. For one, most support tended to be provided by the co-resident (or nearby) child and child-in-law unit (predominantly a son and daughter-in-law). I did not come across a situation where tasks were shared equally between each son and daughter-in-law, which is in line with existing evidence that one son is perceived as enough for old age support. In 1970s rural India, men estimated that they needed 1.2 sons on average to support them in their later years, these results were repeated forty years later in a cross-state survey that demonstrated half of people preferred one son (and a quarter preferred two) for support in their older ages (Caldwell et al., 1982; UNFPA, 2012; M. Vlassoff & Vlassoff, 1980).

10.5.2. The role of son(s)

Interestingly, despite the high value placed on sons in Indian culture (C. Vlassoff, 1990; M. Vlassoff & Vlassoff, 1980), the quantitative results demonstrated no benefit to having more than one son. Rather than increasing numbers of sons being associated with increasingly better health (as has been observed in other South Asian populations (Hurt, Ronsmans, & Quigley, 2006)), having two to four sons was similarly associated with self-rated health as

having one. Thus, increasing numbers of sons may not lead to increasing amounts of support. Evidence regarding the link between numbers of children in other populations demonstrates diminishing returns of support with increasing numbers of children across varying cultures (Grundy & Read, 2012; Zimmer & Kwong, 2007), though some evidence indicates higher numbers of surviving children are associated with increased odds of receiving help (Cunningham & Yount, 2013). It may be that higher numbers of sons increase the chances of having at least one who is available and willing to support. This is backed by evidence from Tamil Nadu, which indicated that having multiple sons provided security against risk of one not providing support (financial assets were also deemed key) (Dharmalingam, 1994). A study on son preference/daughter aversion in rural Tamil Nadu also noted that people spoke of the benefits of having a son, rather than having multiple sons (Diamond-Smith et al., 2008). Evidence (from outside of India) indicates that having fewer siblings increases the chances of supporting an older parent (Herlofson & Hagestad, 2011; Stuifbergen et al., 2008), in other words, smaller family sizes increase the propensity to care from the child's point of view rather than reducing the support available from the parents' point of view. In sum, my results indicate that fertility decline will not impact family-based support considerably until it reaches the point at which individuals do not have at least one son (and daughter-in-law) willing and able to support.

10.5.3. Support to primary carers

Nevertheless, when I explored support related challenges, it was evident that help from family members (e.g., siblings) is a key strategy to minimise the potential negatives of support provision. Non-co-resident children sometimes

helped regularly (e.g., weekly) is they lived close-by (potentially more in rural areas), provided respite care if the main carer was unavailable for short periods, or provided financial help, either regularly (to compensate for not providing practical help) or on occasion for large (particularly healthcare) costs. These strategies were particularly key for families of lower socioeconomic status and/or in rural areas, who did not have the option to employ formal workers or domestic staff or purchase assistive devices. Thus, shrinking family networks may indicate a decreasing ability to share occasional tasks (particularly healthcare costs) and offload the strains of support.

10.5.4. National level trends

So how has fertility (and to a lesser degree mortality) decline affected family structures? The results of chapter 7 (using three repeated cross-sectional surveys of national-level data) demonstrated that between 1995-96 and 2014, the average number of children alive to people aged 60-plus dropped from 4.5 to 3.7. While average number of children declined, it was still rare to have zero or one child in 2014 (<5% and <10% respectively). Results from recent surveys of childlessness also indicate that around 5% of the 60-plus population are childless (Ranjan & R, 2020; UNFPA, 2012). By 2014 most older people had one daughter and one or two sons (and 7% had no sons). These results indicate that so far – and (crucially) at the national level – family structure changes have not necessarily resulted in reductions in support availability as it remains uncommon to not have a son (or child) (though other changes (e.g., economic) may do). Not only this, but widowhood had decreased for both men and women over the two-decade period, implying rising availability of spousal support (though mortality is falling faster for women so this may not continue (Dhillon

& Ladusingh, 2013)). In combination with rising prevalence of living independently as a couple (which rose 50% in the two-decade period assessed), this may indicate growing importance for the older spousal unit.

Nevertheless I should note that fertility has dropped considerably since that of the current older population, reaching below replacement in some states (Registrar General and Census Commissioner, 2016). Though it will likely remain rare to be childless for the foreseeable future, fertility decline coupled with the use of sex-selective abortions since the 1970s (Chao, Gerland, Cook, & Alkema, 2019) means it is increasingly common to have children of one gender (mostly sons). By assessing child composition of the Indian population aged 40-49 in 2005, we can estimate that roughly one-quarter of those in their 60s will not have a daughter by 2025, while over 10% will not have a son (International Institute for Population Sciences (IIPS) and Macro International, 2007). As such, fertility decline will influence how support is provided (i.e., from which sources), though this will likely vary across populations.

10.5.5. Subnational level trends

In contrast, at the subnational level, there is evidence that family structure changes may already be affecting family-based support receipt for older people in some groups. I used the 2011 census data to describe average numbers of surviving children, sons, and daughters for the 60-plus population of ever married women in 17 of the major (most populous) states and of varying socioeconomic backgrounds. In 2011, older women with graduate degrees (though this is a small proportion of this generation) in most of the southern and western states (as well as West Bengal) already had around one or less than

one son on average. Existing evidence also demonstrates that the prevalence of sonless (and more commonly daughterless) families is on the rise, particularly in lower fertility populations such as Kerala and Tamil Nadu (Allendorf, 2019).

The relationship between socioeconomic status (as proxied by level of completed education) and family size varied across the states. Those in the central and northern regions typically demonstrated negative linear relationships between family size and education. On the other hand, in many of the other states, there was a non-linear relationship between socioeconomic status and family sizes whereby those in the lowest education groups (e.g., illiterate) had similar or smaller family sizes than those with more (e.g., primary) education. I propose that this results from higher mortality in the lower socioeconomic groups, resulting in higher mortality of children through the older individual's lifecourse and thus smaller family sizes at later life. Therefore, in addition to the larger (perceived/experienced) negative impact of support provision in lower socioeconomic status families which can constrain the support provided (Vera-Sanso, 2004), lower socioeconomic status older individuals in many states are additionally disadvantaged as they have smaller family networks in which support can be shared. Family sizes were particularly low in the lowest socioeconomic status group in Tamil Nadu (both rural and urban). Nevertheless, if these differences in family sizes are a result of higher mortality of children, family sizes may not necessarily decrease with time for every population if mortality decline outpaces the effects of fertility decline.

These results, as well as the NFHS estimates (Allendorf, 2019), demonstrate that the timing at which past fertility and (past and current) mortality trends

impact support provision will vary greatly across states and socioeconomic groups.

10.5.6. The decline in number of daughters

Daughters are not the normative source of more tangible forms of support in India. Nevertheless, it should be noted that (as a result of son preference) the prevalence of daughterless families is increasing faster than sonless families (though it is possible that this is an overestimate if daughters are less likely to co-reside with older parents and therefore not be counted in surveys). Already at the national level, one in ten older people do not have a daughter. Daughters are typically thought of as reliable sources of emotional support and as potential sources of tangible support when sons are unavailable (Allendorf, 2012a; Diamond-Smith et al., 2008; Ugargol & Bailey, 2018). My results indicated that in Tamil Nadu, daughters maintain strong relationships with their parents and typically provide occasional help and visits, and in some cases (when circumstances permit) take on the primary support role (even if they have brothers). Some existing evidence indicates that not having a daughter could affect older women more than men, for instance a study of women in old-age homes indicated that they had closer relationships with daughters (in comparison to sons) and were most likely to visit their daughters' household (though after themselves, sons were the main providers of the fees) (Kalavar & Jamuna, 2011). Quantitative evidence demonstrates that daughters are more likely to care for their mothers than their fathers, though this may be a form of compensation as men are more likely to be supported by their wives (Balagopol, 2017; UNFPA, 2013). The implications of these "missing women"

has been explored in-depth elsewhere (Amartya, 2003; Bongaarts & Guilmoto, 2015; Croll, 2000).

10.6. Is support available from the immediate family and unavailable from other sources?

Finally, the premise that fertility decline could reduce support for older people also assumes that the immediate family provide support when it is needed, and that support is unavailable from other sources. My selected research methods (interviews and FGDs) and sample criteria (family members of older people) were not suited to assessing the degree to which support is provided when needed. Due to the high moral value placed on supporting older relatives in India, I propose that participants would not have felt comfortable in responding to questions about how timely or 'good' their support was, and I would instead hear reports of ideals rather than real-life support dynamics. In fact, participants often emphasised the 'good care' they gave their relatives, despite it not being a focus of the interviews/FGDs. Further, the idea of whether support is timely or good quality would likely vary greatly between parties (for instance the older individual versus the support provider) based on their expectations. As such, the qualitative methods focused more on the availability/quantity of support (i.e., who typically attends healthcare facilities with the older individual rather than how often someone attends) which I deemed to be less sensitive.

Nevertheless, existing ethnographic evidence from Tamil Nadu demonstrates that sons provide support to their parents only when they perceive they are able to, and only after providing for their nuclear family (which does not

necessarily match when their parents perceive they need assistance) (Vera-Sanso, 2004). Several scholars have critiqued the premise that high quality support has historically been readily available for older individuals and instead highlighted the financial and time pressures on families that limit their ability to support older relatives (L. Cohen, 1998; D. Dey, 2016; Lamb, 2000a; Michaels, 2020; Vera-Sanso, 2017). While my research methods were not optimal for understanding the availability of support, participants often mentioned the difficulties they experienced in supporting their elders alongside looking after their own children or employment, and how they and their elders needed to adjust and accept some shortcomings. In sum, support is not necessarily readily available from the immediate family and is likely linked to the support-related challenges that family members perceive/experience.

10.6.1. The importance of challenges

My results indicated that support provision could result in financial difficulties for the household, exhaustion, stress and (occasionally) physical health issues for the primary caregiver (largely women), restrictions on social life and (occasionally) on employment, and conflict within the family. These broad challenges mirror what is seen elsewhere in India and in other settings, though the underlying contributing factors were more context specific (and have been used to suggest potential interventions, elaborated below). While participants from varying backgrounds clearly experienced difficulties, wealthier families had more problem-focused strategies to lessen the impact on their families, while others relied more on informal support and emotional strategies. For example, when it came to the impact of healthcare costs, for urban higher educated participants, high expenses led to decisions around which private

hospital to use. For poorer participants in the villages, this led to decisions about whether to pay for healthcare, whether to sell jewellery or borrow money to finance needs, or how to balance costs with the household food budget and children's schooling.

Nevertheless, I should note that higher socioeconomic status families also experienced difficulties. Challenges resulting from contemporary family structures were particularly evident in this group, i.e., participants were more likely to be looking after both spouses' parents (as well as potentially aunts and uncles, e.g., parents of cousins who migrated abroad) as well as travelling to support older relatives who lived separately. This demonstrates the balance between each generation's needs; while daughters taking on more tangible support responsibilities would increase the support available to dependent older individuals, it may also lead to higher strains for the daughter and son-in-law unit. In a study of Keralan nurses, a respondent described "the physical exhaustion of paying attention to her parents as well as her mother-in-law during her yearly visits to Kerala" (Ahlin & Sen, 2020). Crucially, the results demonstrated the rising aspirations and expectations that come with increasing options (these have been noted previously in Tamil Nadu in terms of rising aspirations of younger generations competing with resources for elders' care (Vera-Sanso, 2007)). Healthcare, domestic staff and formal care can lead to never-ending expenses (Brijnath, 2020). This is corroborated by evidence that catastrophic healthcare expenditure is actually more common in wealthier households in India (Mohanty, Chauhan, Mazumdar, & Srivastava, 2014; Pandey et al., 2018). Higher life expectancies in wealthier groups could also translate to longer periods providing support (though this is also related to poor health,

which is lower in wealthier groups) (Asaria et al., 2019). Participants spoke of children flying monthly to spend time with parents in other Indian cities. Thus, while some changes (e.g., increasing availability of assistive devices) may make some aspects of support easier, increasing options may also add to the difficulties of support provision. In sum, my results demonstrate that support provision can have considerable effects on families of varying backgrounds (which may be worsened as a result of changing family structures), though more affluent families have more strategies to protect themselves from major implications. As such, and in line with existing evidence (Vera-Sanso, 2004), family-based support is likely less readily available in lower socioeconomic status groups as both the perceived and experienced challenges will be greater.

10.6.2. Daughters' support

According to my conceptualisation of family structure (which does not incorporate marital status of family members), daughters are members of the immediate family. Nevertheless, they are not the normative source of more tangible forms of support (e.g., co-residence, financial).

My results indicated that the support from daughters varied greatly between socioeconomic groups. In some families (largely (but not completely) urban and middle socioeconomic status), the distinct role of sons and daughters (and stigma of daughters' care) was perceived as a thing of the past, and it had shifted towards a system where couples were supporting both spouse's parents. These non-normative support arrangements have been noted in Indian migrant populations in the US and other populations with strong informal support norms (Croll, 2006; Diwan, Lee, & Sen, 2011; Gangopadhyay, 2017; Knodel,

2014; Sudha, 2014), including China which underwent a more dramatic fertility decline (Qi, 2015; Zhang, 2005). In other (rural and of lower socioeconomic status) families, daughters were unable to give financial support or co-reside with and practically support their parents as they were restricted by their husband and in-laws, despite their parents not having sons. These parents (mostly widows) were left in particularly difficult positions.

I proposed that these differences result from flexible interpretations of the patrilocal support ideal and different household resources. Those higher in the gender and patrilocal generational hierarchy and in households with fewer resources (e.g., money, space) strictly upheld 'traditional' norms to avoid the potential repercussions for themselves, in a way that could be morally and socially acceptable. In these rural and lower socioeconomic status families, women's parents also likely lacked assets (to incentive support) and women had relatively low autonomy (as a result of low education, labour market participation and low wages for rural women) (Agarwal, 1997; S. Bloom, Wypij, & Das Gupta, 2001; Monica Gupta, 1995). On the other hand, for those in households that would perhaps be less impacted by sharing resources (including women's time and energy), participants rationalised these non-normative practices by emphasising the broadly family-based and good quality support their parents received.

Nevertheless, the link between women's employment, socioeconomic status, autonomy, and support for natal parents is complex. For instance, upward social mobility for women via hypergamy may reduce the support they can provide to their parents, as it results in women moving out the labour market

and no longer having their own incomes (Kapadia, 1995; Pande et al., 2020). Survey data indicates that it is most common for daughters to be the primary source of financial support for those in the lowest wealth quintile (largely contrary to my conclusions) (UNFPA, 2012). Nevertheless, this is potentially a result of need (e.g., those in the highest quintile were more likely to be financially independent) and does not incorporate the amounts received (for example the total provided could still be higher in the wealthier quintiles). Urban educated participants suggested that women were now more able to look after their parents because they were increasingly educated, employed, and had their own incomes, but this ignores the fact that women from poor households have always worked out of necessity (D'Cruz & Bharat, 2001). Thus, it is likely that not only employment but bargaining power that is key (Agarwal, 1997). A recent study of Keralan nurses (who migrated internationally for employment) revealed that they used their higher bargaining power (gained from being the family breadwinner) to argue to financially support and visit their own parents (Ahlin & Sen, 2020). Intra-household bargaining is also related to more than just income. A study of tea plantation workers in Tamil Nadu demonstrated that men were more likely to participate in domestic tasks when their wives made similar incomes to them, but least likely to participate in domestic tasks when their wives earnt more than them (which was hypothesized to result from 'gender display' (Luke et al., 2014)). There is very little research on spouses allocations of parents' care, though a study on China indicated that women's bargaining power vis-à-vis her husbands (as measured with sex ratios at marriage i.e. 'scarcity' of women) is associated with more support for her parents versus his (Porter, 2016). This is key as support systems resulted from

negotiations between children(-in-law) and parents(-in-law), and occasionally other family members.

Further, I should state that not all women's husband's and in-laws in rural and lower socioeconomic groups were unaccepting of them helping their own parents and one rural woman explained that she lived with both parents and in-laws with minimal upset. There is evidence that the daughter-in-law/mother-in-law relationship is not always defined by conflict in India and that women who have higher quality relationships with their husbands and in-laws have better autonomy, therefore this difference may be in part linked to interpersonal relationships (Allendorf, 2012b, 2017). There is also evidence from urban low-income settlements in 1990s Tamil Nadu that mothers-in-law attempted to appease their daughters-in-law when feeling vulnerable to partitioning of the household or lack of support; similar strategies could underscore the apparent acceptance of daughters-in-law supporting their own parents (Vera-Sanso, 1999). Differences within the lower socioeconomic status group may also result from the lack of detailed information on the socioeconomic circumstances of the participants (outside of occupation, education, and settlement type), as there was likely variation within this broad category.

To summarise, evidence from the existing literature and my results indicate that support is not always readily available from the immediate family, and that it is likely linked to the degree to which the older individual can incentive support and the support related challenges that families perceive or experience.

The overall support available to an older individual nevertheless results from both support from the immediate family and other sources.

10.6.3. Extended family

My results indicate that, while extended family members could potentially step in (for instance a handful of participants were supporting aunts, uncles, or older siblings), participants were generally pessimistic about the support available outside the immediate family as they felt that each unit has their own financial and caring responsibilities to manage. Thinking back to the motivations that drive people to support (reciprocity, altruism, affection, and norms), these will most likely be weaker (apart from altruism) for extended family members and thus the support available may be less consistent, perhaps even more dependent on the potential care recipient’s own circumstances. Population structure changes mean the chances of a younger couple already supporting dependent older individuals will increase, which may limit the potential pool of support from extended relatives for those without children or without a child willing and able to support them. I interpreted that support may be more available from extended family in rural areas, but this was not clear, and I have not been able to assess this in detail. Nevertheless, evidence from a study on social networks in urban and rural Tamil Nadu demonstrated a higher prevalence of networks with an absence of local family or friends or community involvement in urban areas in comparison to rural areas (Thiyagarajan et al., 2014).

10.6.4. Formal care

In line with existing evidence (Bailey et al., 2014; Miltiades, 2002), those in urban and higher socioeconomic status families had the option to use domestic help and formal care services to supplement family support or facilitate independent residence. While I did not interview older individuals themselves (and thus cannot be sure how they felt about using formal care services), participants (from across socioeconomic groups) were very open to the idea of using in-home care services for their parents and themselves in the future. In other populations (with similar support norms), there is evidence that formal care is an increasingly key component of the support system, and can even be perceived as a mechanism for demonstrating filial piety (Sinunu et al., 2009; Wang & Wu, 2017). This was similar to the view of participants, who largely felt that in-home care services (rather than residential care) were acceptable as a middle ground to maintain family-based support while also ensuring good support for the older individual (e.g., during the daytime when family members are working). Assistance with personal care on the other hand is distinct and there was some evidence of participants' elders' preferring not to have formal carers help with personal tasks. Domestic and formal care services were clearly unavailable to lower socioeconomic status families; some participants (currently working as domestic workers) had previously worked as formal carers. In line with the literature on "global care chains", the rise in formal care suggests the question of who supports the formal carers' dependents (Ahlin & Sen, 2020).

10.6.5. Socioeconomic differences in support system flexibility

The two leading theories of structure of support systems (the hierarchal compensatory model and the task specific model) (Cantor, 1979; Messeri et al., 1993) indicate that having a range of potential support sources is beneficial as it increases the chances of having a source which is preferred or a good practical match respectively . This corresponds with my results: poorer individuals who did not have a son (or a son willing and able to support) or the financial resources/assets to incentivise support from family members (particularly a son-in-law) or employ formal care were struggling to support themselves.

On the other hand, while many urban wealthier participants had parents who had no sons (or no sons available), the availability of support from daughters (and sons-in-law) or domestic help and formal care services could act as substitute for tangible support. For some families, formal care services (as well as novel products such as assistive devices) were used as a complement to family support. Socioeconomic differences in the availability of support are also evident in populations that have more formal care provisions (Garcia-Gomez et al., 2015).

The results indicated that sources of support were influenced by practicalities (e.g., distance), preferences (e.g., by gender, relation), or both. As such, some forms of support have narrower hierarchies of sources. I therefore further propose that those types (particularly personal care but also financial assistance) will be more vulnerable to declines in comparison to those with broader hierarchies (e.g., emotional support). For instance, neighbours may be able to intermittently check on an individual’s wellbeing but would not be

expected to act as the main source of financial assistance. Daughters may be able to help during hospitalisation but not provide daily personal care over the long-term. Thus, while lower socioeconomic groups will likely have some flexibility for less intensive support needs, they may be particularly vulnerable at higher levels of need. There is evidence from Europe that informal care can decreasingly act as a substitute for formal care as health worsens (as needs rise from help with domestic tasks to nursing) (Bonsang, 2009).

In sum, people of higher socioeconomic status groups can be flexible and adapt to contemporary family structures to maintain overall support receipt (though the sources will likely change). Family-based support is likely already lacking for people of lower socioeconomic status groups as a result of the large socioeconomic pressures that restrict the help that family members can provide to each other. Declining family sizes has the potential to worsen these strains by reducing the ability of children to share support tasks, and thus to further limit support. Some older people are doubly disadvantaged (particularly those in rural Tamil Nadu) as they already have small family sizes, likely as a result of higher mortality and relatively low fertility.

Low fertility (in an LMIC setting such as India) is typically put forward as an indicator of 'success' and 'development'. The need for "population control" in India was particularly pushed by Western and global agencies and academics in the second half of the 20th century, and eventually also by Indian policy makers (Connelly, 2006; Dyson, 2018). Studies that explored older people's experiences around support from this period sometimes did so with the aim of understanding fertility motivations (potentially with the implicit aim of

developing the evidence base so these motivations could be acted on), rather than to understand the wellbeing of the older individual (C. Vlassoff, 1990; M. Vlassoff & Vlassoff, 1980). While fertility has 'successfully' declined considerably across India, the consequences for support and health will primarily be felt by poorer individuals who were likely targeted by family planning programmes across their lives but who have not been provided an alternative or assistance for their later years.

10.7. Alternative pathways between family structure, support, and health

While I have concluded that fertility decline may reduce the support available to (and thus negatively affect the health of) rural and/or lower socioeconomic status individuals, there may be additional pathways between family structure changes, support, and health of the older population.

First, adaptation of the support system may have its own health impact. For one, as predicted by the theory of hierarchal-compensatory model (Messeri et al., 1993), receipt of support from a nonnormative source (e.g., a daughter or formal carer) could impact an older individual's psychosocial and mental health outcomes (particularly given the high value placed on family/son-based support (Ahlin & Sen, 2020; Allendorf, 2012a; Dhar, 2012; C. Vlassoff, 1990)). This could result both from external influences (e.g., comments and gossip of friends and family) or from discrepancy with one's own internal expectations. Survey evidence indicates that only a minority (24%) of adults in India stated that they would consider living with a daughter if their son was unavailable and older people largely prefer to co-reside with a son (though this varies across regions and groups) (Desai, 2010; UNFPA, 2012). A study in China

demonstrated that receipt of support from a nonnormative source (personal care from a son) was associated with increased depressive symptoms while support from a normative source (personal care from a daughter) was associated with decreased depressive symptoms (Cong & Silverstein, 2008). The authors concluded that “elders will be psychologically disadvantaged unless they contemporize their expectations to match the changing social realities of Chinese society” (ibid). Evidence from other populations with strongly defined support norms demonstrates similar effects (T. Chen, 2019; Dong et al., 2017; Mengting & Dong, 2019).

In line with this evidence, I propose that negative psychological effects will result from more normatively driven types of support, for instance personal care and financial versus emotional support. The results of the quantitative analysis using the NSSO data indicated that the association between worse self-rated health and having zero sons remained even for those living with a daughter. Existing evidence demonstrates the discomfort that parents feel around receiving help from a daughter and upset from not receiving help from a son (Ahlin & Sen, 2020; Allendorf, 2012a; Bailey et al., 2014; Dhar, 2012; C. Vlassoff, 1990). The “structural lag” hypothesis proposes that values lag behind actual social changes (particularly in rapidly changing societies) though they typically adjust after a period (Bengtson, Burgess, & Parrott, 1997; Cong & Silverstein, 2012). The current older generation (estimated at 60-plus) were born and raised in the second half of the 20th century, at the earlier stages of the demographic transition and before the largescale economic changes of the 1990s. Their expectations will be shaped by what they perceived when growing up, the way their parents cared for their grandparents, the way they themselves

cared for their elders, and potentially (given theories of reciprocity) the efforts they made to raise and support their children. Given the limited public support for older people, it is perhaps unsurprising that current generations of older people have high expectations from their own children (sons). Nevertheless, as Cong and Silverstein concluded, strong adherence to these norms may be detrimental if they no longer match with practicalities of contemporary family structures, lifestyles and economic circumstances.

In addition to the potential psychological impact, a blurring of socially defined roles may confuse expectations of how and what support should be provided (Vera-Sanso, 2006). A female participant stated that her mother would not ask for help when she needed it as she felt uncomfortable being in her son-in-law's house. Parents living with their daughters may receive less support than those living with sons if it is less readily provided, and they feel less able to request it. For instance, in a study of Keralan nurses who had migrated internationally for employment, Ahlin concludes that "To mitigate the contradiction between their financial needs and the patriarchal stipulations of financial independence from daughters, the parents appealed to their daughters' emotions through activating the idioms of 'suffering' and 'sacrifice', and 'accepting' rather than 'expecting' financial support from them. Thus, as sending remittances to their own parents became a new duty for 'good daughters', the way in which this norm was enacted did not directly confront the patrilineal system" (Ahlin & Sen, 2020). Further, while older people of higher socioeconomic status may be more able to adapt for tangible support, not having a child co-resident or living nearby could affect the availability of emotional support (though this can be provided via technology (Ahlin & Sen, 2020; Miltiades, 2002)) and impact psychological

health. Studies on the effects of children's migration on parents' support in middle-class individuals have demonstrated that, while other sources typically substituted the tangible support (e.g., spouse, daughters, extended relatives), children's migration had a negative psychological impact on their parents as they missed them and felt lonely (Brijnath, 2020; Miltiades, 2002). Declining widowhood and increased independent residence may result in a greater importance of the spousal couple for support and thus increase support provision related strains on spousal caregivers, as older ages and poor health are related to caregiver burden (J. van der Lee et al., 2014).

Finally, while I have largely focused on the positive influence of support on health outcomes, the quantitative results demonstrated that having many children (more than one daughter and more than four sons) was associated with worse health. Thus, while children can be beneficial sources of support in later years, they can also be a key strain on their parents lives and wellbeing. Interestingly, the association between children and parents' health was the same for mothers and fathers, suggesting the predominance of social (rather than physiological) pathways. Assuming causality, these results suggested that fertility decline at higher parity could benefit the older populations' health. Nevertheless, this assumes that the relationship between parity and health is unchanging with time and while the quantitative results indicated this over the past two decades, this may not hold true in the future. For instance, there is evidence that parents with smaller families increase the resources they put into their children (A. M. Basu & Desai, 2016; Pande et al., 2020), which could counter the positive influence of having one son. Further, while I proposed that

financial support from children (particularly a son) will benefit socioeconomic wellbeing and access to healthcare, greater financial resources could also increase risk of chronic lifestyle related diseases. There is evidence that having a migrant son is associated with higher prevalence of hypertension, heart disease and diabetes, which has been hypothesised to result from the receipt of remittances (Falkingham, Qin, Vlachantoni, & Evandrou, 2017). In sum, while I predict that a lack of family-based support could negatively affect health of older generations in India, the relationship with family structure is not straightforward; adaptations of the support system could have detrimental health effects (via negative psychological effects, confusion of support expectations and demands, and increased strain on older carers) and receipt of financial support could negatively impact chronic health. On the other hand, declines in family sizes could potentially reduce the strains of having and raising children.

The second aim of this thesis was to recommend solutions to ensure support for India's older generations in a sustainable and intergenerationally equitable manner, considering preferences of the population.

10.8. Support attitudes and preferences

My recommendations are guided by my results and the existing evidence on attitudes towards varying long-term care arrangements and preferences for support. Existing evidence of the older generation's preferences at the national level indicates broad preference for the co-resident system, with the majority wishing to co-reside with a son and thinking that children should have the responsibility of support for the older population (Desai, 2010; UNFPA, 2012). Nevertheless, there is some variability, for instance older people in Tamil Nadu

were more likely to state that people should be independent in their later years, and a considerable proportion of older people (particularly men) preferred to live with a spouse only (UNFPA, 2013). I used qualitative methods to explore the preferences of younger generations for their future support and their attitudes towards varying arrangements. It is important to understand younger people's attitudes in their role as the future generation of older people, particularly as the (very limited) current literature on old-age support preferences has focused on the current generation of older people which (while important) does not necessarily give time for adapting and implementing policy (Panigrahi, 2010; UNFPA, 2012).

The results demonstrated that people view the co-resident child-based support system very positively. This system was perceived as a way of providing good support (meeting tangible support needs) as well as meeting an individual's emotional needs by ensuring they feel respected and cared for, strengthening family relationships, and preventing loneliness (in line with existing evidence from across India (Brijnath, 2012; Jothikaran et al., 2020; Lamb, 1999, 2006, 2009)). There were minimal differences between socioeconomic groups, though urban and higher socioeconomic status participants tended to be more favourable to independent residence (or a "living apart but together" arrangement). In contrast to this more general attitude, when asked about how they preferred and planned to be supported in the future, many participants stated that they planned to remain independent (though some (more rural and lower socioeconomic status) hoped to live with and be supported by their children). This meant living separately from their children (but with their spouse) and attempting to avoid dependence as much as possible (particularly

financial). Parents of urban and higher socioeconomic status participants already demonstrated arrangements similar to this, for instance living independently (but nearby), being financially independent (via private pensions and health insurance) and using domestic and formal care services. This is in line with the "family specialisation theory", where family members increasingly help with emotional support rather than tangible needs, and may indicate the future direction for those who can afford it (Lowenstein & Katz, 2010). A study of older people's living arrangements in Tamil Nadu and Andhra Pradesh concluded

> "it was not the nature or structure of the living arrangements (traditional or modern) per se that was the source of the positive or negative feelings that the participants experienced but rather whether they felt love and affection, a sense of belonging, and had meaningful communication with their family members that led to an enhanced sense of wellbeing. In other words, it was psychological and social factors and the availability of interchanges that defined the quality of life for older adults and not the living arrangements themselves" (Jothikaran et al., 2020).

The disconnect between general attitudes and own preferences and plans is linked to cultural perceptions of old-age and resulted largely from uncertainty and pessimism around the availability of support from children, as well as a wish to not "burden" one's own children given the perception of rising difficulties (and to a lesser extent, the perceived benefits of independence). These views mostly supported the material constraints (and to a lesser extent

the modernisation theory) of support availability trends, as participants felt their children would be both less able and less willing to support them (Aboderin, 2004b). In sum, the family-based system of support is revered for both its practical benefits and as a way to demonstrate love and respect. Nevertheless, people are conscious of the challenges that supporting an older relative can involve and are concerned about the support they will receive from their children in the future.

10.9. Policy recommendations

A second aim of this thesis was to suggest solutions to ensure support for the older population in a way that is sustainable and equitable. Major policies for India's older population (NPOP and The Maintenance Act (see chapter 3)) focus on maintaining the responsibility of old-age support within the family ("as the most cherished institution in India") (Burholt et al., 2020; Ministry of Social Justice and Empowerment India, 1999, 2007; Vera-Sanso, 2016). NPOP broadly suggests two broad routes for this, (1) to strengthen the family system through support services, and (2) to promote intergenerational bonding. The support services that NPOP suggests would encourage children to co-reside with their parents include: tax relief, rebates for healthcare expenses, encouragement for working adults to save for later-life and to use healthcare insurance, short-term stay facilities to provide respite care for carers, and counselling services to resolve "interfamilial stresses" (Ministry of Social Justice and Empowerment India, 1999). While I agree with the concept that families should be helped to support their elder relatives (see recommendation one), it is unclear how these services would achieve that goal. For instance, tax relief would only benefit the minority of the population that pay considerable amounts in tax (likely not the

sector of society where family-based support is most restricted) (Vera-Sanso, 2016). Rebates for healthcare expenses assume a degree of healthcare literacy to handle the complexities of India's healthcare system (Yellapa et al., 2017), again which is unlikely to be high in families most in need of reduced support. Counselling services for families in a setting where family issues are deemed private and where costs make even necessary healthcare services inaccessible, again seems unlikely. I discuss the limitations of other components of the policy (e.g., pensions, savings, old-age homes, healthcare) below. While NPOP was implemented in 1999 (other policies have been put forward since, but not implemented), awareness and utilisation of varying schemes remains low. For instance in 2011, around 13% of older people were aware of income tax benefits while less than 1% availed them (0% in the lowest wealth quintile, 3% in the highest quintile) (UNFPA, 2012).

NPOP also recommends strengthening "family values" and "intergenerational bonding" as a mechanism for ensuring family-based support which implies that support is unavailable because children are not motivated to support their parents. In contrast, my results indicated that participants were largely motivated to support their parents (please see below for limitations to this conclusion) and evidence from across the world (including in populations without filial laws or distinct support norms) demonstrates that children provide a large degree of support to dependent parents (Cunningham & Nielsen, 2019; Haberkern & Szydlik, 2010; Lowenstein & Daatland, 2006).

In sum, existing policies for India's older population focus on maintaining the responsibility of support on the family (children largely) with little public

assistance, at least for poorer families where support is most vulnerable (Rajan & Mishra, 2011; Vera-Sanso, 2016). The 2019 bill to amend the Maintenance Act (e.g., to increase the potential punishment for 'abandonment' or to expand the definition of 'parent' (Ministry of Social Justice and Empowerment India, 2019)) indicates the Government of India is strengthening this position. Nevertheless, given the challenges that families experience, care should be taken to not assume an endless and easy supply of support from families without a corresponding impact, particularly in the context of shrinking family support networks as well as other trends (e.g., rising chronic disease and healthcare expenditure (L. Dandona et al., 2017; Pandey, Ploubidis, Clarke, & Dandona, 2017))). While more affluent (e.g., upper-middle class professionals) people will likely be able to adapt to changing family structures, the lack of the support that the poorest older individuals currently experience could become increasingly common in the lower middle-classes who cannot easily afford formal care. Estimates indicate that the lower-middle class comprise the highest share of India's middle-class, therefore the population vulnerable to declines in support is sizeable (Aslany, 2019; Chun, 2010).

Based on these conclusions and the existing policies, I make three overarching recommendations; (1) to reduce support related strains for families (the primary recommendation), (2) to provide financial and practical support for older individuals for whom family-based support is unappealing or unavailable in a culturally acceptable manner, and (3) to promote financial and physical independence over the lifecourse.

10.9.1. Reduce support related strains for families

My primary policy recommendation for ensuring support for India's older population (in an equitable and sustainable way) is to reduce support related strains for family members. This is based on evidence (as outlined above) that people (both younger and older generations) value and largely prefer a family-focused system of support (e.g., in contrast to formal care focused), and that the support available to dependent individuals is influenced by the (potential) support providers' perceived ability to care.

I propose that family members will be more likely to support (e.g., financial, practical, co-residence) an older relative if they feel that they have adequate resources (e.g., money, time, space, own health) to do so without it negatively affecting them or their nuclear family (particularly children). This can be done by increasing support to the carers and/or to the older individual. This strategy is in line with the family support theory (which proposes that families are more likely to provide support if the burden is lessened) and the material constraints theory (which proposes that declines in support are a result of decreasing ability rather than will) (Aboderin, 2004b; Lowenstein & Katz, 2010). Crucially, reducing the potential negative impact on family members (particularly women in their typical role as primary caregivers) is also important as a standalone issue.

There is some evidence that family members are more likely to retract their support if they find the experience particularly difficult. For instance, one study in India demonstrated that cognitive impairments (which are likely linked to the 'difficult behaviours' that participants spoke of finding challenging) are

most prevalent in older people in free old-age homes (40%, double that of those in the community) (Samuel et al., 2016). Another study indicated that caregiving related stress and strains are associated with a desire to use institutional care (Sinha et al., 2017). Thus, reducing support related challenges could also reduce retraction of the support role.

The challenges analysis aimed to understand stressors that can make the support experience difficult in Tamil Nadu, which could be intervened on. Participants that felt they had no issues largely were co-residing with or supporting elders in good health who needed little (particularly financial) support (and often supported their households greatly), had multiple family members or hired help who they could share tasks with, had flexible jobs (e.g., being self-employed) which they could fit around support provision, and had good relationships with the individual. Thus, the aim should be to emulate this.

First and foremost, financial strains were stated as the biggest issue in lower socioeconomic groups and were often stated as difficult in other groups. Evidence from the current study (and others) indicates that financial dependence is viewed most negatively (Vatuk, 1990; Vera-Sanso, 2004). Large healthcare costs from private health providers were consistently stated as the biggest expense, even for more affluent urban participants who had private health insurance. I thus propose that reducing out-of-pocket healthcare costs through universal health coverage, tackling poor quality and perception of public healthcare services, and regulating private healthcare and health insurance would greatly benefit older individuals and families (Datta & Chaudhuri, 2020; Dodd et al., 2016; Zuurmond et al., 2019). Improved access

would also reduce the feedback loop between lack of healthcare access and poor health (and high support needs) in poorer sections of society (Srivastava & Gill, 2020), as well as limiting the potential effects on household budgets and younger generations (Alam & Mahal, 2014; Jaspers et al., 2014; Mahal, Engelgau, & Karan, 2010; Mahal, Karan, Fan, & Engelgau, 2013; Mohanty et al., 2014; Pandey et al., 2018).

Universal health coverage comes under Sustainable Development Goal three, which (amongst other things) aims to "Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" (Lozano et al., 2018). The Indian healthcare system currently remains far from this goal (with variation across states (Balarajan, Selvaraj, & Subramanian, 2011; Lozano et al., 2018)) and out-of-pocket costs are high (World Health Organization, 2020). India's spending on the public health system is among the lowest in the world at roughly 1% of GDP (OECD, 2021). Long-term underfunding of the public healthcare system has resulted in both poor access (particularly in rural areas) and quality of public healthcare (e.g., long waiting times, provider unavailability, limited medicines and supplies) (Balarajan et al., 2011; Bali & Ramesh, 2015). In combination with government incentivisation of the private sector, distrust and dislike of public healthcare has led to dominance of the private sector. Limited regulation of the private sector has resulted in highly varied quality of care (J. Das, Daniels, Ashok, Shim, & Muralidharan, 2020; J. Das & Hammer, 2007). The National Health Policy (2017) committed to increasing spending on the public system to 2.5% by 2025 which is a positive step, though prior governments have also made similar

pledges (Bajpai, 2018; Maurya, Virani, & Rajasulochana, 2017; Ministry of Health and Family Welfare, 2017).

Several health insurance schemes have been launched in the past decade (both by the central and state governments) which have increased insurance coverage (Ahlin, Nichter, & Pillai, 2016; Maurya et al., 2017). Prior to the Ayushman Bharat ("Modicare") scheme, the RSBY scheme introduced in 2007 was the largest step towards national health insurance. Nevertheless, issues in the scheme included non-coverage of indirect costs (e.g., travel, accommodation) or non-institutional healthcare costs (i.e., resulting in out-of-pocket costs and/or avoidance of healthcare use), low rates of enrolment (roughly only 10% of older people living below the poverty line are aware of the RSBY scheme (despite all BPL households being eligible), with only 7% availing the scheme (UNFPA, 2012)), and a narrow focus on secondary and tertiary care (leading to underuse of primary care) (Bali & Ramesh, 2015; Reddy et al., 2011). Limited governmental regulation meant both private providers and insurers could take advantage of loopholes in the system (Reddy et al., 2011).

The Ayushman Bharat scheme (introduced in 2018) subsumed the RSBY and aimed to both improve publicly provided primary care and insurance coverage for secondary and tertiary care (for roughly 40% of the Indian population classed as poor and vulnerable) (Bali & Ramesh, 2021; Chalkidou et al., 2019). Nevertheless, concerns have been raised regarding the new policy. For instance, the annual cap for secondary and tertiary care may result in a skew away from primary care, limited regulation which may result in increased expensive and unnecessary procedures, and the potentially large challenges of coordinating

between different sectors of the fragmented health system (Bali & Ramesh, 2021; Brundtland, 2018; Shroff et al., 2020).

Healthcare is decentralised and policies vary across states. Tamil Nadu typically demonstrates better than average health indicators and its healthcare system has been lauded as a model of success. Factors proposed to underlie this include: a strong and consistent political commitment to healthcare, a focus on providing primary health services through the public system (particularly for maternal and child care), use of innovative interventions (e.g., the Tamil Nadu Medical Services Corporation) or rapid implementation of new national policies (e.g., the Multipurpose Workers Scheme), and a strong focus on public health (including maintaining a public health cadre) (M Das Gupta et al., 2010; Muraleedharan, Dash, & Gilson, 2011; Parthasarathi & Sinha, 2016). Nevertheless, weaknesses in the Tamil Nadu health system have also been highlighted and some health system indicators (e.g., immunisation coverage) demonstrate worsening with time (M Das Gupta et al., 2010; International Institute for Population Sciences (IIPS), 2014; International Institute for Population Sciences (IIPS) and ICF, 2017b). This includes indicators such as antenatal care use, which was previously an indicator of success in the Tamil Nadu healthcare system (Gaitonde, Muraleedharan, San Sebastian, & Hurtig, 2019). Weaknesses in the system include a narrowly target oriented approach (focusing on a few indicators), understaffing and loss of services at the village level, a lack of community accountability and ownership, and a focus on maternal and child health to the detriment of services for adult health (M Das Gupta et al., 2010; Gaitonde et al., 2019). This is evident from estimates of life expectancy by age in Tamil Nadu; though life expectancy at birth in Tamil Nadu

is higher than that at the national level, the difference gradually decreases with age (Registrar General and Census Commissioner, 2019). My results (and existing studies from Tamil Nadu (Dodd et al., 2016; RamPrakash & Lingam, 2021)) demonstrate that distrust and dislike of public healthcare, difficulties with out-of-pocket payments, and over-charging are also important issues in Tamil Nadu. In sum, I propose that universal health coverage should be promoted as a mechanism for promoting family-based support of the older population in India. While policy pledges (e.g., to increase funding for public healthcare) are positive, evidence from prior policies has demonstrated marginal impact on out-of-pocket spending (including in Tamil Nadu) (Ahlin et al., 2016; Garg, Chowdhury, & Sundararaman, 2019; Ranjan, Dixit, Mukhopadhyay, & Thiagarajan, 2018). Therefore, there is clear progress to be made in the implementation of these schemes.

Another key challenge that family members (particularly daughters-in-law) experienced was conflict with other roles, in particular employment. For those in the formal sector, this could be improved through more flexible working (e.g., hours, leave, and remote working). A few female participants spoke of leaving their jobs (or considering leaving) to support elder relatives, so this could also potentially improve women's labour force participation. A lack of support during work hours was also stated as a perceived issue for the older individual, which led to stress for family members. For those who can afford it, there is a clear market for formal in-home care services and participants across socioeconomic groups were open to their use. Nevertheless, these need to be regulated for wellbeing of both the carers (participants who had previously worked as carers spoke of being physically abused by their care recipients) and

the care recipient. This has been provided for in the Maintenance Bill (2020), though the speed and degree to which this might be actioned is uncertain. A handful of participants mentioned that their relative's carers had previously worked for the family in another capacity (e.g., as domestic staff), as has been noted in elsewhere in India, and there is evidence that formal carers can be treated as fictive kin (Bailey et al., 2014; Brijnath, 2020; Kõu et al., 2017). The employment of domestic staff is fairly common in middle-class families in India and may indicate an opportunity (with the necessary training, legal protection, and compensation) for support of older people in the middle-class. For example in China, domestic helpers have become key workers in the long-term care system (Wang & Wu, 2017).

On the other hand, how to ensure that most the older population (who live in rural areas and/or cannot afford private services) receive in-person tangible support is a more difficult question. Time is a limited resource in these communities (a FGD of rural women told me how they worked like "machines") as economic circumstances obligate adult members of the household to work to support the household, and innovations of modern, urban life are largely unavailable. While neighbours may be able to provide some support, it is unlikely they can provide ongoing intensive practical help for those with higher support needs. One potential option could be community day-care centers where older individuals spend time together during the day. These could be designed to be culturally appropriate, for instance to focus around religious or spiritual centers or involve culturally relevant activities such as yoga (which also has health benefits) (Gangopadhyay, 2019; Gangopadhyay, Bapna, Jain, & Kapur, 2018). Nevertheless, while respondents consistently deemed community

centers as a positive and appropriate idea, this came from their perspective as care providers. I may have received a different response if I had interviewed older people themselves, for instance if they were viewed (similar to old-age homes) as abandonment, and embarrassment and avoidance of duty. Nevertheless, from the point of view of reducing family member's stresses and increasing their propensity to co-reside and take on the supportive role, community centers could be beneficial. Improved access to assistive devices would also greatly benefit people with functional health issues to be more secure (though participants sometimes mentioned their elders' rejection of them due to embarrassment).

Participants often mentioned their elders' 'difficult behaviours', which in part appeared to result from dementia related symptoms (Patel & Prince, 2001). Nevertheless, dementia was very rarely stated as the cause, rather these behaviours (e.g., acting "childlike") were described as normal ageing. Improved identification of dementia cases, dementia knowledge, and social support for caregivers could all reduce the strains related to these behaviours. Strategies have been designed for India and other low resource settings, though they have not been implemented on scale (Dias et al., 2008; Hinton, Tran, Nguyen, Ho, & Gitlin, 2019; Prince, Acosta, Castro-Costa, Jackson, & Shaji, 2009).

Some participants felt that conflict and interpersonal issues resulted from their parents feeling insecure and dependent after moving into their household or feeling like they were losing their role in the family, which was suggested to be particularly poignant for those who were financially dependent. This corroborates existing evidence from India (and elsewhere) of the discomfort,

guilt, and loss of status (particularly men) that people feel if they are deemed to not be contributing to the household (Vatuk, 1990; Vera-Sanso, 2004). Thus, measures to reduce financial dependency (e.g., reducing healthcare costs, improving access to pensions (HelpAge International, 2008; Jothi, Lakshminarayanan, Ramakrishnan, & Selvaraj, 2016; Tran, Kidd, & Dean, 2019)) could limit this, while helping to maintain positive relationships.

Discomfort and physical difficulties around providing personal care was also stated as an issue. Assistive devices (e.g., handrails, adult nappies) could reduce these difficulties. In fact, a FGD of urban high educated women stated that it was much easier to support older people nowadays because of these products. People typically require personal care assistance when they have very high support needs. Long-term models of homebased palliative care services for individuals with high needs have been developed in Kerala, based on a system of trained volunteers (Philip, Philip, Tripathy, Manima, & Venables, 2018; Philip, Venables, Manima, Tripathy, & Philip, 2019; T. Singh & Harding, 2015; UNFPA, 2017). Several models of palliative care have been developed for low-resource settings (Potts, Cartmell, Nemeth, Bhattacharjee, & Qanungo, 2018). Caregiver support groups or helplines may also be beneficial for people looking after people with high needs (e.g., dementia patients), though the support experience was generally stated as private and not something that should be shared.

I should highlight that, the above (and later) solutions take the current economic circumstances of much of the population as a starting point, where adults are compelled to work in low (and often unequally (in terms of age and gender in particular) paid jobs to struggle to afford living costs. While I focused

on demographic changes, the importance of economic circumstances was evident during fieldwork. Though the issue of how to support older relatives appeared to be high in people's consciousness and concerns, for those in rural (particularly remote) and poor communities, it was one issue among many. The difficulties of supporting older people were embedded within the wider context in these communities; hospitals were far away and difficult to reach during emergencies, public transport was limited, and elders had to be carried on bicycles to the hospital, high healthcare costs and lost income impacted household's budgets and had to be balanced with children' schooling, and participants perceived a strong apathy from local politicians and leaders. When asked about the knowledge and use of public pensions in their community, participants of a scheduled tribe community explained how they had struggled to petition for the basics (a supply of electricity and water and housing) from local leaders. Pensions were not their main priority. These issues (which I broadly conceptualised as "perceived/experienced difficulties") are highly concentrated in poorer and/or other marginalised groups which can sever the link between having children and receiving support at later ages (though there was no evidence for an interaction with wealth quintile in chapter six (this model may have been underpowered)).

More widespread social and economic reforms are required to reduce the extensive financial and time pressures experienced by much of the population and to lessen the structural issues that depletes people's resources (across generations) (Vera-Sanso, 2016, 2017; Vera-Sanso et al., 2010). Nevertheless, care should be taken to ensure that poverty alleviation policies are sensitive to the needs of older individuals. In their critique of the NPOP, Rajan and Mishra

recommend 'mainstreaming ageing in development', in other words moving from developing policies for older people to incorporating older people's views and concerns in the policy making process (Rajan & Mishra, 2011). Vera--Sanso et al. also recommended the need to move towards "integrated generational analysis of all economic and social policy fields" and highlighted prior policies which that have negatively impacted older generations (Vera-Sanso et al., 2010). They highlighted the need for greater research and emphasis on older people's role in the economy, as well as protection for street vendors and an end to mass slum evictions to the outskirts of the city (to benefit the urban poor) (ibid).

10.9.2. Provide financial and practical support for older individuals in a culturally acceptable manner

While improving the support provision experience may benefit some older individuals and their families, there are certain groups who are particularly vulnerable to a lack of support, particularly those of lower socioeconomic status. Some lower socioeconomic status groups are doubly vulnerable as they have relatively small families. There are also people for whom the support available is unappealing (e.g., if it ties older people to family members with whom they have difficult relationships) (Burholt et al., 2020).

Government funded support for older people should cover both financial support - in term of social pensions for day-to-day costs and measures to prevent out-of-pocket spending for healthcare – and practical support, through both in-home help and residential care for those with the highest needs. The influence of non-health related needs (e.g., women's financial needs as a result

of gender norms around employment) should also be considered. There are several volunteer based home-based care models that have been implemented on scale in other LMIC settings (Lloyd-Sherlock, Pot, Sasat, & Morales-Martinez, 2017). The design of these models is fairly similar to the system of ASHA workers in India (i.e., a lay community member being provided basic training and covering a section of the local community) and thus could indicate a potential solution for these groups. As with in-home services, the quality of residential care homes needs to be improved, as they are perceived very negatively and there are reports of poor quality and low quality of life for residents (Amonkar et al., 2018; Samuel et al., 2016). Again, the Indian government has provided for basic requirements of these homes in recent policy, but how and when this will translate to increased quality is unclear. For instance, the Tamil Nadu government issued minimum standards for old-age homes in 2016 (UNFPA, 2017), though recent studies have demonstrated stubbornly low perceptions of quality of care (Anil & Hemamala, 2018; Johnson, Madan, Vo, & Pottkett, 2018).

Further, the amount, awareness of, and access to social pensions needs to be improved. India's spending on health and social care is very low, including in comparison to other LMICs (Help Age India, 2018; Matthews et al., 2020). The pot for pensions at the state level is lower than the amount necessary for its defined beneficiaries (Vera-Sanso, 2016). This can mean one person starting to receive the public pension results in the pension stopping for another. Participants were largely pessimistic about the existing social pension, stating the small amount offered, lack of awareness in the older generations, heavy bureaucracy in availing the pension, and chances of it stopping. These issues

have previously been noted across India (UNFPA, 2017). Several civil society organisations (such as Pension Parishad) are campaigning for a transformation of the current pension system, demanding a universal non-contributory pension, of higher amounts, and with varying age requirements (Help Age India, 2018; Vera-Sanso, 2016). I should highlight that I do not recommend targeting public provisions to people based on their family structure as the existence of family does not necessarily equate to support when socioeconomic circumstances limit the time, energy, and finances that families can provide to their older relatives. As such, an older person whose children are struggling to support themselves and their nuclear families may be less likely to receive less tangible support than an individual with one well educated and paid son.

Though some of the recommendations above are already being provided for in government policy and legislation, study participants often reported that they were unaware of / their relatives did not receive any public provisions (except a handful of households who received rations). Those whose relatives had received public pensions complained of the difficulty of accessing them, the perceived strict eligibility criteria, and the chances of the pension stopping randomly. As such, there is clear improvements to be made in the development and implementation of existing policies (Agewell Foundation, 2019; Burholt et al., 2020; Vera-Sanso, 2016).

10.9.3. Improve people's ability to remain independent in their later years.

My third overarching recommendation is to provide people with the tools to stay independent over their lifecourse and at older ages for those that prefer reduced dependence on their families and/or those that do not have family-

based support available. While participants were most positive about a family focused model of support, they commonly stated that they planned to stay independent as much as possible in their later years and were concerned about the support available from their children. While this may result in part from cultural views on the need for decreased dependence in later ages (Vatuk, 1990), support is not always available from families, therefore an increased ability to support oneself could a beneficial safety net.

Public health will be a key component. The chronic disease burden is rising rapidly in India (L. Dandona et al., 2017), which will lead to rising financial (healthcare) needs without universal health coverage, as well as practical needs. My quantitative results demonstrated little change in both functional and self-rated health over the past two decades. Though this indicates that support needs are not changing, these results are potentially surprising given that each cohort was increasingly educated and raised in a country with better public health and healthcare services (Christensen et al., 2009). Key contributors to functional dependence at older ages in India are dementia (in particular), stroke, and depression (Sousa et al., 2009). A recent report outlines potentially modifiable risk-factors which account for a population attributable fraction of 45% of dementia cases in India (higher than in HICs) (Livingston et al., 2020). Nevertheless, key risk-factors such as obesity and overweight and diabetes are rising rapidly in India (Luhar et al., 2020), so these (potentially modifiable) factors represent both an opportunity and point of concern. Contextual factors linked to disability (e.g., environment) could also be targeted to improve functional health (World Health Organization, 2002).

Participants commonly stated that they hoped to maintain strong family relationships based on affection rather than dependence and maintaining strong and close family relationships was consistently stated as a key goal. The literature on intergenerational solidarity demonstrates the importance of two-way exchanges of support and affection (Bengtson et al., 2002), therefore improving functional health could also improve these relationships. Poor functional health inhibits exchanges of support in India and elsewhere. In a study using nationwide Indian data, grandparenting and participation in household financial matters were both greatly reduced in older people with a ADL dependence (A. Visaria & Dommaraju, 2018). There is evidence (from outside India) that chronic disease related disabilities reduce the financial help that older parents provide their children, and increase the practical support provided by children (Cunningham & Nielsen, 2019). Thus, better functional health at older ages would not only reduce support needs and dependence but also potentially improve family relationships (Bengtson et al., 2002; Tran et al., 2019). This could have further population effects; several female participants spoke of being able to work because of the childcare and domestic work their parents(-in-law) undertook. The unpaid household-based work (as well as domestic tasks) that older relatives so can in turn free up younger female relatives to participate in the labour market (Vera-Sanso et al., 2010). A study of graduate women in Kolkata indicated that close presence of 'healthy' (though healthy was not defined) grandparents was associated with mothers working, though this finding did not hold for a survey using nationwide data and co-residence as an indicator of support (likely demonstrating the importance of

health and reasons for co-residence for exchanges of support) (Husain & Dutta, 2015).

In addition to liveable pensions, the Indian government and third sector should also promote savings schemes over the lifecourse (which should consider the needs of India's large Muslim minority, as Islam has restrictions on certain savings (Akhtar & Azeez, 2012)). Nevertheless, lower socioeconomic status participants often spoke of the impossibility of saving while also raising children, paying for their schooling and marriages, as well as paying for unexpected and high health expenses. This demonstrates the importance of wider socioeconomic policy, as well as the major role for universal health coverage.

10.10. Research impact

To reach an academic audience, I hope to publish my summarised conclusions in a widely read Indian journal (Economic and Political Weekly) and plan to share my results at relevant conferences in India (COVID-19 permitting) to target an Indian academic audience. To engage policy makers, I have shared a policy brief with NITI Aayog (and we plan to meet to speak over the results), and I plan to share summaries of my results and conclusions with contacts at HelpAge India, other local Tamil Nadu NGOs that helped with fieldwork, potentially other groups advocating for India's older population (e.g., Pension Parishad), and if possible, Tamil Nadu's Social Welfare Department and State Planning Commission. To engage a wider audience, I plan to share summarised results of each paper via Twitter and write a blog post. In the future, I plan to work with an intergenerational cohort of adults in another southern state (the

Andhra Pradesh Children and Parents' Study (ACPAPS)) to build on the findings of this thesis and begin to develop patient and family focused interventions to limit the impact of poor health on older adults and their households.

10.11. Limitations

I shall now outline limitations of this thesis, including the overall focus, generalisability issues, potential drawbacks of the methods used, the sample studied, and the definitions.

10.11.1. Focus

This thesis focused on the potential impact of changing family structures for the availability of support to, and health of, India's older population. This is not to say that fertility and mortality decline are the only influences on support availability. For instance, I focused on Tamil Nadu due to its low fertility, but there may be higher fertility states where families are under more financial pressures on average, and where support to older relatives is less available. Evidence indicates that older people in Tamil Nadu tend to spend less of their life with tangible support needs in comparison to those in other states (Banerjee et al., 2019), who again may be in more difficult situations on average despite having larger family sizes.

Further, this thesis aimed to understand how support is provided currently and to assess how this might be affected by family structure changes. This implicitly suggests that the existing status-quo is sufficient, despite my results and existing evidence demonstrating that this is likely untrue for poorer individuals. While I propose that changing family structures may worsen the availability of

support, policy makers should tackle the existing structural barriers to family-based support provision.

I did not assess migration (though it is key) because of the lack of quantitative data of migration and family structures of older people over time, and the (relatively) high number of studies on migration and older people (Miltiades, 2002; Ugargol & Bailey, 2018, 2020). Further, while I recruited participants in both rural and urban areas and used varying settlement types in Chennai as proxies for socioeconomic status, I have not examined these community differences in detail. When we asked about the effects of resettlement on family dynamics, participants in slum resettlement colonies reported that their families had been moved together and it had not affected support. Further, while I created a socioeconomic status 'attribute' in NVivo for assessing potential patterns, this was based on a combination of employment and settlement type, and education. This was to reduce the length of the sociodemographic questionnaire (for instance I did not use an asset index or ask about spouse's occupation/education). Nevertheless, the socioeconomic status variable was relatively broad, and I likely missed some of the nuances and diversity of experiences within these groups which should be explored in future work.

I prioritised examining socioeconomic background over other characteristics (e.g., religion, caste, and gender (in detail)) as I felt that it would be difficult to examine the influence of multiple characteristics together, particularly given the mixed methods approach which depended on the availability of specific variables in the secondary data. I also aimed for the results to be policy relevant

and felt socioeconomic background was more translatable to policy recommendations (e.g., the existing IGNOAPS scheme is targeted at people below the poverty line). Nevertheless, there is a wealth of evidence on the disparate experiences of old-age between men and women in India which this thesis largely did not explore (Gangopadhyay, 2019; Lamb, 2000b). Further, while I did not focus on caste, a woman in a rural scheduled tribe community explained how 'higher' caste villagers had tried to discourage her from educating her sons to college-level (proposing that they should instead "work on the land"). This could have aided her (at least financial) support in later life. Thus, though caste and socioeconomic status are correlated, people from marginalised caste groups can experience additional discrimination across their lifecourse and various aspects of their lives (e.g., education, health, access to services)(Coffey, Deshpande, Hammer, & Spears, 2019; Desai & Dubey, 2012; Haddad, Mohindra, Siekmans, Mk, & Narayana, 2012; Shaikh, Miraldo, & Renner, 2018; Vera-Sanso, 2017), all of which will influence both practical and financial support needs and availability in later life (if constraining resources and/or reducing the chances of children living till their parents need support) (M. Kumari & Mohanty, 2020). India has many policies that aim to improve the socioeconomic wellbeing of marginalised caste groups. By focusing on class over caste I have missed the opportunity to assess the interaction between the two, to provide policy recommendations regarding caste, and thus to promote the support for, and improve the wellbeing of, particularly marginalised groups.

Throughout the thesis I have attempted to strike the balance between assessing potential declines in support for people with needs (which could have serious implications) without painting older adults as a homogenous population of

"dependents" with zero agency. This was not helped by the sample focusing on younger generations. I initially planned for the challenges analysis to combine positives and negatives of support within one paper to give a more fair and balanced view of the situation but was unable to provide the detail within the word count. I plan to look at these more positive experiences, including the key support that older individuals provide their families, in a future paper and to engage older generations in future research.

Finally, the quantitative methods examined past trends and existing (2011) family structures, even though the largest changes in family structure are yet to come. As such, the timing of the potential impact of changing family structures largely remains unclear. Family structures at older ages are a result of prior fertility and prior/current mortality trends and thus could be projected for future generations and for varying sub-populations (as could household structures or potential numbers of older people with disability) (Hu, 2019; Pickard, Wittenberg, Comas-Herrera, King, & Malley, 2012; Yi Zeng, Land, Wang, & Gu, 2013).

10.11.2. Generalisability: Tamil Nadu versus the rest of India

I explored the support practices, challenges, attitudes, and preferences of a sample of adults from one geographically small area of one relatively distinct state, to inform on the rest of the state and country. Tamil Nadu stands out from other states (to different degrees) in terms of its kin structure (consanguineous and endogamous marriage), relative gender equity (women's health, education, employment, autonomy), socioeconomic development (literacy, GDP), culture and politics (history of anti-casteism and social activism, Dravidian culture), as

well as demography (which I have examined in detail) (Desai, 2010; Pande et al., 2020; Suryanarayana et al., 2011; L. Visaria, 2012). Further, individuals with higher education were overrepresented in the sample in comparison to the rest of Tamil Nadu (and India). It is important to assess how these issues might affect the relevance of the conclusions for other Indian populations. Generalisability will be based on qualitative differences (i.e., do the identified experiences exist in other populations) and quantitative differences (i.e., how common are the experiences in other populations in comparison to the study sample).

I propose that there will be more quantitative than qualitative differences in support experiences when comparing Tamil Nadu to much of India, given the key role of patrilocal and patrilineal support norms in shaping support provision and attitudes. Though Tamil Nadu is fairly distinct in some ways, populations are heterogenous within India's regions and states, which was clearly demonstrated by the diverse experiences and attitudes in the geographically small study sample. For instance, while the 'North-South' distinction is often made, quantitative evidence demonstrates variation within these groups. In the South, 30% of women in Tamil Nadu marry a relative versus 3% in Kerala (Desai, 2010). In the North, roughly 30% of women in Uttarakhand would expect financial help from a daughter in the absence of a son, versus 6% in Punjab (ibid). Further, some of the more distinct aspects of Tamil Nadu culture (e.g., consanguineous and endogamous marriage, lack of dowry and son preference) have been decreasing with time (Diamond-Smith et al., 2008; Pande et al., 2020). In sum, it is difficult to identify qualitative

differences when comparing the state of Tamil Nadu to other regions, given the heterogeneity and change occurring within the state.

Due to the qualitative approach for the support practices, challenges, and attitudes analyses, I can only broadly estimate quantitative differences based on the distribution of potential underlying causes. Given the overrepresentation of people with higher education in the sample, some of the issues raised (relatively small and widespread family networks, common use of assistive devices, domestic help, and formal care, well paid but inflexible formal sector careers, financially independent parents) will be relatively less important in much of the Tamil Nadu and Indian population. Quantitative evidence demonstrates that older people in Tamil Nadu hold relatively non-normative views around support in comparison to other states in India (UNFPA, 2012). In combination with the highly educated sample, this may have led to a greater perception of flexible support practices and plans for independence in later life than is relevant for the majority Indian (and Tamil Nadu) population. I cannot see a clear way that Tamil Nadu's politics might affect its support system. Nevertheless, if I had assessed characteristics such as religion or caste (rather than socioeconomic background) (de Jong, 2011), this may have been more evident, as despite Tamil Nadu's history of anti-casteism activism, caste rigidities do exist (there is evidence of the impact of casteism on intergenerational relationships in 1980s Tamil Nadu and similar issues may still stand (Vincentnathan & Vincentnathan, 1994)).

Nevertheless, there may be some qualitative differences within groups of similar socioeconomic backgrounds, with Tamil Nadu lying on one end of the

spectrum and some states (e.g., Punjab) lying on the other. The most key issue is likely the role of kin structure and gender equity. The physical proximity of daughters to their parents may have fostered stronger relationships which made them more motivated to support their parents. To illustrate, in Haryana less than 5% of women marry in their village or marry a relative (versus around 30% of women in Tamil Nadu), while around 40% live close to their natal family (versus 86% of women in Tamil Nadu) (Desai, 2010). Daughter's motivations (reciprocal) and ability (higher incomes) to support may also be strengthened if parents place higher resources (e.g., education) into raising their daughters in Tamil Nadu versus states with higher son preference (Grundy, 2005; Kaul, 2018). There is evidence from China that higher input into children (following the one child policy) has resulted in stronger reciprocal and affectionate relationships (Zhang, 2005). The stigma around daughter-based care may be even stricter in the North, which appears to be corroborated by nationwide survey evidence on support expectations (Desai, 2010). This may also underlie the results of a previous study on the effects of children on parents' health, which demonstrated positive effects of daughters on fathers' health in South India (Sudha et al., 2007). Populations with stricter adherence to classic patrilocal norms than Tamil Nadu could be particularly vulnerable to losses of support, for example Punjab tends to demonstrate strong son preference and aversion to daughters' support and has even lower fertility than Tamil Nadu (though behaviours related to son preference have resulted in a relatively low share of parents with only daughters (Allendorf, 2019; Desai, 2010; International Institute for Population Sciences (IIPS) and ICF, 2017a; Jha et al., 2011). Nevertheless, it was evident that Tamil Nadu's kin structure did

not translate into easy availability of support from daughters in rural lower socioeconomic groups, thus demonstrating the variation within Tamil Nadu as well as likely between Tamil Nadu and other states (for instance there is evidence that women maintain strong ties with their natal families even in more exogamous cultures in North India and Bangladesh (Perry, 2017; Vera-Sanso, 1999)). Interestingly, other southern states (as well as the North-East and Assam) appear to have more flexible attitudes towards support in comparison to Tamil Nadu (Desai, 2010). My conclusions may also not be relevant to the matrilineal cultures in the North-East and Kerala (Hossain, 2019) (though there is evidence for a decline in matrilineal practices (Abraham, 2017; Ahmed, Ali, & Begum, 2010; Narzary & Sharma, 2013)).

10.11.3. Sample inclusion criteria

A major limitation of this thesis is that, though the older generation were the main focus, I interviewed younger generations in their role as support providers, key stakeholders in the system of old-age support in India, and due to a relative lack of evidence on their views (versus those of the older population (UNFPA, 2012)). This means I did not hear the point of view of older people themselves, for instance how they view themselves and their role within the family and society, how they wish the support system to work, and how they wish to spend their later years. This is both an ethical issue ("nothing about us without us") and a practical issue (Bridges, 2001). For instance, I suggested that improving functional health would mean older people can increasingly contribute to grandchild care (and improve intergenerational relationships). But do people want to do this? Is that what would benefit their health and wellbeing? There is evidence that older middle-class individuals in

India find meaning from activities outside of their family, for instance through their peers and participating in clubs (Dhal, 2017; Gangopadhyay, 2019; Gangopadhyay et al., 2018). Some of the issues that participants suggested as difficulties in their older relatives' lives (e.g., loneliness) do not match with what emerges from interviews with older people, for instance issues of abuse, disrespect and lack of tangible support (Bhan et al., 2017; A. Cohen et al., 2016; Jothikaran et al., 2020; Patel & Prince, 2001; Shankardass & Rajan, 2018). Thus, while family members are key stakeholders in the system of old-age support in India, they may not be able to accurately inform on issues from the point of view of the support recipient (particularly if that issue involves them).

Further, while I aimed to understand the point of view of spouses in support, the average age of the sample was 40 years and largely represented the point of view of children. The few older participants (e.g., retirees and/or in their 60s) had spouses who were largely in good health and the care provided tended to not go beyond what is typical of exchanges within a couple in India. Wives and husbands are key sources of (different types of) support (10/66 Dementia Research Group, 2004; Help Age India, 2015; Prasad & Rani, 2007; UNFPA, 2012), and declines in widowhood and rising propensity to live independently (as a couple) indicate an increasingly important role of the spousal unit in later life support, which was further indicated by the primary data. Older carers may be particularly vulnerable to experiencing support related difficulties (J. van der Lee et al., 2014). In combination, these issues mean the lack of exploration of spouse's views and experiences is a key limitation.

Further, there is evidence that the 'intergenerational contract' may be changing in India (and in Indian immigrants to the US), meaning the flow of resources (e.g., financial, help with domestic tasks) is increasingly moving from older people to younger generations (Gangopadhyay & Samanta, 2017; Patel & Prince, 2001; Sharma & Kemp, 2012; Vera-Sanso, 1999). The importance (and potential rises) in downward flows of support has been noted in other cultures (Grundy, 2005). Older people can feel overburdened by these tasks (Patel & Prince, 2001). In line with the WHO's strategy on ageing and health, I proposed that a support system for the older population should aim for intergenerational equity, meaning that the needs and wants of younger generations (as potential support providers) should also be considered. While this is key, it falls into the idea of older people as dependent and consumers of resources in contrast to considerable evidence of the key role and support older people provide their family members (UNFPA, 2012; A. Visaria & Dommaraju, 2018). Given the importance of downward and sideward flows of support from older generations, their voices and views as both support providers and recipients (and often both) should be accounted for in future research and when planning policy for an equitable system.

As the sample was composed of younger adults (partly in their roles as support providers), I have also been unable to really examine the inverse (lack) of support as its unlikely that participants would openly share not helping their relatives. For instance, during fieldwork I attended a day center for older women in Chennai held by a local NGO and asked the women whether I could be put in contact with their family members to understand the reasons behind them using these clubs. The women told the field team that their children would

not want to speak to us because of the shame of using the centers, which demonstrates the sensitivity of the topic. It is very likely that participants' decisions to participate (knowing the study subject matter) was linked to whether they felt they were supporting their elders 'properly'. The primary data results led me to conclude that family members are highly motivated to support their elders and have largely supported material constraints theories of support decline, versus modernisation and ageing theory, which is likely (at least in part) linked to this selection into the study.

I explored the attitudes and preferences for support of these younger age-groups in their position as the future generation of older people. Nevertheless, it means that they were not at the stage where they needed support. There is evidence that support expectations change across the life-course and are associated with rising needs (Lehnert et al., 2019; Sun et al., 2020), and while many participants hoped to remain independent in their later years, very few had a plan or had started to prepare. Stated expectations are fluid and may not match exactly with concrete plans. Older people were concerned around the availability of support from children in the second half of the 20th century (Dharmalingam, 1994; M. Vlassoff & Vlassoff, 1980) at the early stages of the demographic transition, though time has demonstrated that the son-based system (at least co-residence) still predominates (UNFPA, 2012). It is thus difficult to assess how expectations from children may change at a later stage when needs rise, particularly if people do not have the resources to remain independent (given the difficulties people experience saving money). It is also difficult to understand how current support practices may have changed with

time given the cross-sectional sample and often rosy view of the past (D. Dey, 2016).

Finally, while I used qualitative methods as they were more conducive to the research questions, the nonrepresentative and relatively small sample meant I was unable to assess some hypotheses that arose during data collection.

10.11.4. Defining "support needs" and "support provision"

The primary data collection used both in-depth interviews and FGDs. I initially planned for these methods to explore two topics, the FGDs to focus on experiences of support and the interviews to focus on attitudes towards support. As a result, the inclusion criteria varied for the two: for FGDs the criteria included experience with supporting an older relative in the past five years. This was kept purposefully vague to capture experiences outside of the (largely daughter-in-law) primary carer role; any type of support (including financial) and any relative (including a grandparent for instance). This was because (a) I felt different relatives would be able to better inform on different areas of support provision and (b) I aimed to avoid only interviewing people in more challenging roles and purporting the idea that support provision is unanimously a negative and difficult experience.

As attitudes can be held by anybody, I did not include the recent experience criterion for the interviews. Nevertheless, there was a lot of overlap in the results because (a) the topic guides were simply a guide and topics that were not covered by the guide were often raised naturally, and (b) following piloting, it became evident that many people had some experience of supporting an older relative (given the broad definition), so the interview topic guide was amended

to include questions on experiences. As such, the methods were analysed together. When analysing the interview transcripts, 22 of 25 participants had considerable experience of supporting an older relative (e.g., main financial provider, daily practical and personal care help). Three (of the younger) participants had little experience outside of more 'typical' exchanges that occur between adult relatives, as they had in-laws or grandparents who were in good health and working. Given this variation, and the more considerable experience of the majority of sample, I have defined the sample as 'adults with varying experiences of supporting older relatives.' Nevertheless, given the high prevalence of intergenerational households in India and the importance of the extended family, I note that this broad definition of support experience could hypothetically encompass much of the population (e.g., a grandson that occasionally picks up medicine for his grandmother, a daughter-in-law who cooks for the household, including her in-laws). Defining what support is, or who a caregiver is, is complicated and has been noted previously within and outside of India. Definitions likely vary across cultures according to expectations (Bastawrous, 2013; Ghosh et al., 2016). It may be particularly difficult to define in India as support is primarily informal and expected within families (the qualitative data demonstrated how people perceived it as a normal part of life) (Ghosh et al., 2016).

I also need to update how I have conceptualised support needs, based on my results, further reading (particularly outside the public health literature), and time spent in India. My original conceptualisation was based on a functional health (and positivist, public health driven) definition and supposed that that worsening health reduces the ability to conduct day-to-day tasks which

increases the need for practical support, personal care, and financial assistance as a result of being unable to work. First, perceived needs can be defined by issues outside of physical functioning. The cultural (generational and life-phase based) definition of being old does not necessarily match with functional health (Vera-Sanso, 2006). Several participants (daughters-in-law) complained of how their in-laws expected help with tasks which they could (i.e., had the functional health to) conduct themselves and that this made their life more difficult. On the other hand, existing literature reveals that older people often feel unsupported and disrespected by younger generations (Bhan et al., 2017; A. Cohen et al., 2016; Jothikaran et al., 2020; Patel & Prince, 2001). While I did not explore dyadic perceptions of support, it is easy to imagine a situation where both parties feel hard done by as a result of these mixed expectations, with potential implications for health and wellbeing of both. Second, objective needs do not necessarily only result from declines in functional health. Norms around employment mean women are far less likely to be employed across their lifetime and at later ages. Older women are therefore likely to have financial needs (UNFPA, 2012), due to gender norms rather than a physical inability to work (though the functional health of a woman's husband is key). Conversely, participants repeatedly stated that older men were less able to look after themselves (particularly if living alone) as they were not used to cooking or doing domestic tasks. This has been noted previously in Tamil Nadu (Vera-Sanso, 2004). Third, perception of need is key, meaning two individuals with different characteristics but similar objective levels of health may receive different degrees of support. For instance, spending on older women's healthcare needs tends to be lower in comparison to older men's (Brinda et al.,

2015; Maharana & Ladusingh, 2014; Saikia et al., 2016). Class, caste and gender have been highlighted as key factors related to the tasks that an individual is expected to undertake (e.g., in relation to employment or domestic roles) and are thus linked to need (i.e., inability to fulfil expected role) (Vera-Sanso, 2006). These issues demonstrate the importance of factors outside of health which may lead to support needs, highlight a potential cause of contrasting perceptions of support, and indicate the importance of the subjective element of support.

10.11.5. Research methods

While I primarily aimed for a socioeconomically diverse sample (and this has been the primary focus of the analyses), I also initially aimed for a diverse sample in terms of age, caste category, and religion. Nevertheless, though this was achieved, these characteristics have not been assessed in detail (as I felt it was too complicated to examine in addition to socioeconomic differences). Therefore, this may have been an unnecessary step. In hindsight I would have removed the questions around caste category from the sociodemographic questionnaire because they are sensitive and because I have not focused on these and they were thus redundant.

I conducted the bulk of the coding myself (for time and resource reasons) and it is possible that someone else could have come to different conclusions and suggested different recommendations. This is a feature of qualitative analysis in general. Nevertheless, I propose that the descriptive approach and minimal inference means that my results are fairly aligned to how the participants responded. This is supported by the participant validation that I undertook,

though this could have been influenced by acquiescence bias (i.e., the likelihood of someone agreeing with what we were saying). As I mentioned in the section on reflexivity, it is likely that my background characteristics and life history influenced the solutions that I recommended. For instance, I recommended the promotion of independence and this is often described as more of a Western ideal (Brosius & Mandoki, 2020; Lamb, 2006, 2013). I have described the separate limitations to each of the data sources in chapter four.

10.12. Future research

While the literature on support for older people in India (and other LMICs) is fairly limited in comparison to the size and heterogeneity of the population (Lloyd-Sherlock, 2014), it is (positively) receiving increasing attention, in terms of both publications and available secondary data. My qualitative analyses have generated many hypotheses which could be examined using the relatively new quantitative surveys that focus on India's older population (appendix L). My suggestions for future research fall into four categories: detailed descriptions and projections of family structures and support dynamics across India, studies examining the effects of support (including non-normative) practices on health and wellbeing outcomes of the older individual and their families, studies exploring the views and experiences around support of varied populations across India, and the development of interventions to limit the potential negative impact of poor health/support provision.

1. Demographic descriptions could describe (and project when feasible) family structures (including proximity to children) and support practices, for instance assessing motivations behind support (e.g., the

importance of reciprocal exchanges or consanguineous relationships), and assess healthy-life expectancies across socioeconomic groups to examine how differences in health and mortality interact to influence support needs.

2. The health effects of support receipt (different types from different sources, e.g., including non-normative sources such as daughters, or public provisions) could be assessed using the new survey data which has more detailed measures of family structure and support than were available in the NSSO surveys (appendix L). The health (including psychological) effect of support preferences versus realities, or the impact of providing support or working at older ages, could also be examined.
3. Studies could explore support practices, motivations, norms, attitudes, and experiences across populations (e.g., regional, socioeconomic, religion, caste, gender) in India, for instance within dyadic support relationships to understand varying perceptions, or across generations to understand potential changes over time (Aboderin, 2004a). It would be particularly informative to compare Tamil Nadu to other low fertility states such as Kerala and Punjab to observe how these differing family structures play out within different sociocultural structures. For instance, though it is similar in terms of its socioeconomic, gender and demographic outcomes, Kerala does not demonstrate high shares of independent residence as observed in Tamil Nadu (UNFPA, 2012). Punjab has stronger son preference attitudes than Tamil Nadu (Chao &

Yadav, 2019; Desai, 2010) therefore it would be interesting to assess how people are adapting to small family sizes.

4. Further research into the difficulties experienced when providing (and receiving) support of people of a range of ages could be used to develop interventions to limit any negative impact of poor health on support providers and recipients.

Finally, I plan to write at least two additional papers based on my primary qualitative data. One focusing on motivations to support, which is important for understanding how support provision might change with time with social changes, and the other focusing on the positive experiences of support relationships and the role that older people play within their families.

10.13. Summary of thesis contribution

The strength of this thesis lies in its combined macro (at the national and subnational level) and micro approach, and the socioeconomically diverse qualitative sample. I aimed for this thesis to go beyond typical broad and negative depictions of population ageing that focus on the impact of the growing older population on economic growth, rather than the implications of these changes for older people themselves. My results indicated that over the past 20-years, the share of the older population (at the national level) with a spouse has risen, which may imply increasing importance and availability of spousal support, while being childless currently remains relatively uncommon. These trends imply rising (or unchanging) levels of support.

Nevertheless, this thesis has also demonstrated that the availability of support (and the potential impact of family structure change) likely diverges widely

across socioeconomic strata. The qualitative results demonstrated that, though challenges are experienced by families across socioeconomic strata, lower socioeconomic status families had fewer practical strategies for handing support-related stressors and were impacted greater. These support providers were also more reliant on engaging help from wider family members to manage support-related strains. Contrary to what might be expected (based on fertility trends), my results demonstrated relatively small family sizes in the lowest socioeconomic status groups in several states (particularly in urban and rural Tamil Nadu), likely because of higher mortality. There is already evidence that support for lower socioeconomic status individuals is highly limited by the socioeconomic pressures that their families experience. As such, lower socioeconomic status individuals are doubly disadvantaged. In contrast, the results demonstrated the varied options available to affluent urban families who can adapt to contemporary family structures. I propose that in-between lie the lower-middle classes, where formal care is largely unaffordable and for whom support may be reduced by family structure changes (e.g., increasing the chances of not having a child/son willing or able to support as they are decreasingly able to share the strains of support with family members (as well as influenced by wider socioeconomic pressures)).

While the Indian Government is promoting intergenerational solidarity and aiming to uphold the responsibility of old-age support on families, my results indicated a strong motivation of family members to care for their older relatives. Thus, this may be an inefficient target. My results highlighted the support related challenges that will become increasingly prevalent with current family/household structure trends; the difficulties of supporting someone who

lives separately, the extra challenge of supporting several elders (e.g., parents, in-laws, aunts, and uncles), the negative implications of not having a son (or child) available to help, and the difficulties of paying for high out-of-pocket healthcare costs (without sharing with other family members). Thus, the Government's current strategy could have negative implications for many families without additional provisions to support them and dependent older individuals. I have provided practical recommendations for policy makers, which could be used to ensure support for the older population as well as for reducing the potential impact of support provision for families. Financial dependence (with healthcare costs as the largest and most difficult cost) was consistently raised as a key cause of struggle, conflict, and tension in families of varying socioeconomic backgrounds. As such, this thesis also provides strong evidence for placing the broader ageing and old-age support discourse into the movement for universal health coverage.

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12. Appendices

12.1. Appendix A: Ethical approvals

12.1.1. LSHTM approval for secondary data analysis (NSSO)

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
United Kingdom
Switchboard: +44 (0)20 7636 8636

www.lshtm.ac.uk

Observational / Interventions Research Ethics Committee

Ms. Judith Lieber
LSHTM

8 July 2019

Dear Judith

Submission Title: Changing family structures and self-rated health of India's older population (1995-96 to 2014)

LSHTM Ethics Ref: 14490

Thank you for responding to the Observational Committee Chair's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

Approval is dependent on local ethical approval having been received, where relevant.

Approved documents

The final list of documents reviewed and approved is as follows:

Document Type	File Name	Date	Version
Investigator CV	CV	03/09/2017	1
Protocol / Proposal	Protocol LEO	24/06/2019	1
Investigator CV	Sanjay CV	24/06/2019	1
Covering Letter	Clarificaion ethics	02/07/2019	1

After ethical review

The Chief Investigator (CI) or delegate is responsible for informing the ethics committee of any subsequent changes to the application. These must be submitted to the committee for review using an Amendment form. Amendments must not be initiated before receipt of written favourable opinion from the committee.

The CI or delegate is also required to notify the ethics committee of any protocol violations and/or Suspected Unexpected Serious Adverse Reactions (SUSARs) which occur during the project by submitting a Serious Adverse Event form.

An annual report should be submitted to the committee using an Annual Report form on the anniversary of the approval of the study during the lifetime of the study

At the end of the study, the CI or delegate must notify the committee using the End of Study form.

All aforementioned forms are available on the ethics online applications website and can only be submitted to the committee via the website at: http://leo.lshtm.ac.uk.

Further information is available at: www.lshtm.ac.uk/ethics.

Yours sincerely,

Professor Jimmy Whitworth
Chair

ethics@lshtm.ac.uk
http://www.lshtm.ac.uk/ethics/

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12.1.2. IITM approval for primary data collection

INSTITUTIONAL ETHICS COMMITTEE
INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI 600 036

Telephone: 044-22574929 e-mail: iec@iitm.ac.in

Dr. SubbulakshmyNatarajan
Chairperson

Dr.Madhulika Dixit
Member Secretary

To Whomsoever It May Concern

The following research project for the given objectives has been approved by the Institutional Ethics Committee, IIT Madras based on the submitted revisedapplication and associated documents. The Institute Ethics Committee of IIT Madras expects to be informed about any severe adverse events (SAE), any changes in the study protocol and/or the volunteer information/informed consent process. It is mandatory for the principal investigator to submit the annual reports highlighting the progress of the approved project. Failure to do so, will lead to automatic cancellation of the approval. The IEC committee also instructs the investigator to provide the committee with a copy of the final report upon completion of the project.

Project No:	IEC/2018/01/BT/15
Principal Investigator:	Dr.BinithaThampi
Project title:	Attitudes towards elderly care in Tamil Nadu, India
Objectives:	1. Identify common themes regarding experiences and challenges of elderly care within urban and rural communities, and different employment groups in Tamil Nadu (ages 20-69). 2. Identify common themes regarding attitudes of elderly care within a socially and economically diverse group of Tamil Nadu residents (ages 20-59).

Validity: 01/05/2018 to 31/08/2018

Signature:

Chairperson

Dr. Subbulakshmy Natarajan
Chairman
Institutional Ethics Committee
IIT Madras, Chennai - 600 036.
Tel: 044-2257 4929, E-mail: iec@iitm.ac.in

[Member Se]cretary

Dr. Madhulika Dixit
Member Secretary
Institutional Ethics Committee
IIT Madras, Chennai -600 036.
Tel: 044-22574929 E-mail: iec@iitm.ac.in

12.1.3. LSHTM approval for primary data collection

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
United Kingdom
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Observational / Interventions Research Ethics Committee

Ms. Judith Lieber
LSHTM

11 May 2018

Dear Judith,

Study Title: Attitudes towards elderly care in Tamil Nadu, India

LSHTM Ethics Ref: '14583 - 1'

Thank you for your letter responding to the Observational Committee's request for further information on the above amendment to research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above amendment to research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

Approval is dependent on local ethical approval for the amendment having been received, where relevant.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document Type	File Name	Date	Version
Other	Study protocol - amendment	11/04/2018	1
Other	Consent form v1 - FDG	11/04/2018	1
Other	Participant information sheet focus groups v1	11/04/2018	1
Other	Consent form v3 - interviews tracked	11/04/2018	3
Other	Participant information sheet interviews v5 - tracked	11/04/2018	5
Other	Focus group topic guide v3	11/04/2018	1
Other	Participant information sheet focus groups v2	03/05/2018	2
Other	Participant information sheet interviews v6 - tracked	03/05/2018	6
Other	Consent form v2 - FDG	03/05/2018	2
Other	Consent form v4 - interviews tracked	03/05/2018	4
Other	Focus group topic guide v4 tracked	03/05/2018	4
Other	Study protocol - amendment v2	03/05/2018	2
Covering Letter	Resubmission_coverletter2	03/05/2018	1

After ethical review

The Chief Investigator (CI) or delegate is responsible for informing the ethics committee of any subsequent changes to the application. These must be submitted to the Committee for review using an Amendment form. Amendments must not be initiated before receipt of written favourable opinion from the committee.

The CI or delegate is also required to notify the ethics committee of any protocol violations and/or Suspected Unexpected Serious Adverse Reactions (SUSARs) which occur during the project by submitting a Serious Adverse Event form.

An annual report should be submitted to the committee using an Annual Report form on the anniversary of the approval of the study during the lifetime of the study.

At the end of the study, the CI or delegate must notify the committee using an End of Study form.

All aforementioned forms are available on the ethics online applications website and can only be submitted to the committee via the website at: http://leo.lshtm.ac.uk

Additional information is available at: www.lshtm.ac.uk/ethics

Page 1 of 2

Yours sincerely,

Professor John DH Porter
Chair

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http://www.lshtm.ac.uk/ethics/

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12.2. Appendix B: Chapter 5 – Supplementary material

Table 11: Share of the Tamil Nadu population of women aged 60-plus by completed level of education, comparing NSSO (2014) and census (2011) data-sources

Data source	**% by completed level of education (Tamil Nadu) (95% CI)**							**% (N)**
	Illiterate	**Literate, below primary**	**Primary**	**Middle**	**Secondary**	**Graduate**	**Missing**	
Census (2011)	65.7	5.1	12.0	5.4	6.8	1.4	3.7	100 (3,792,133)
NSSO (2014)	72.3 (65.4-78.3)	9.0 (5.6-13.9)	7.0 (4.1-11.6)	4.4 (2.2-8.7)	4.1 (2.4-6.9)	3.3 (1.1-9.0)	0 (0)	100 (903)
NSSO National Sample Survey Organisation; CI confidence interval								

Figure 18: Number of surviving children to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (urban population)

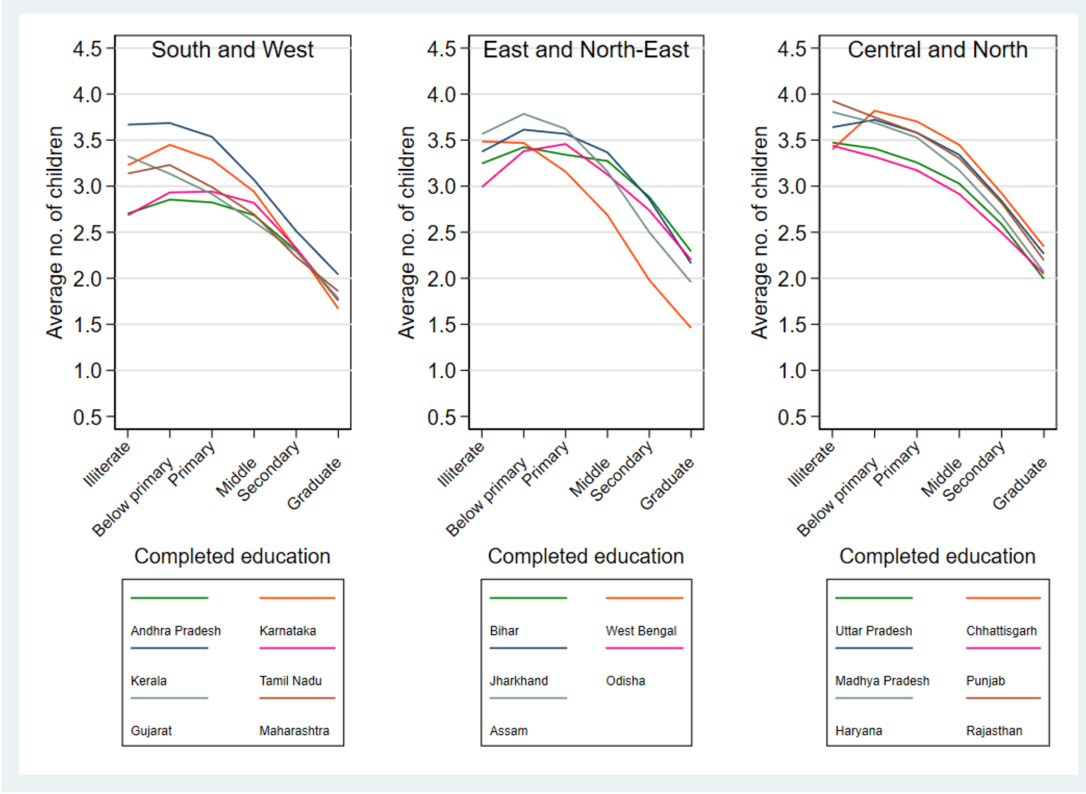


Figure 19: Number of surviving sons to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (urban population)

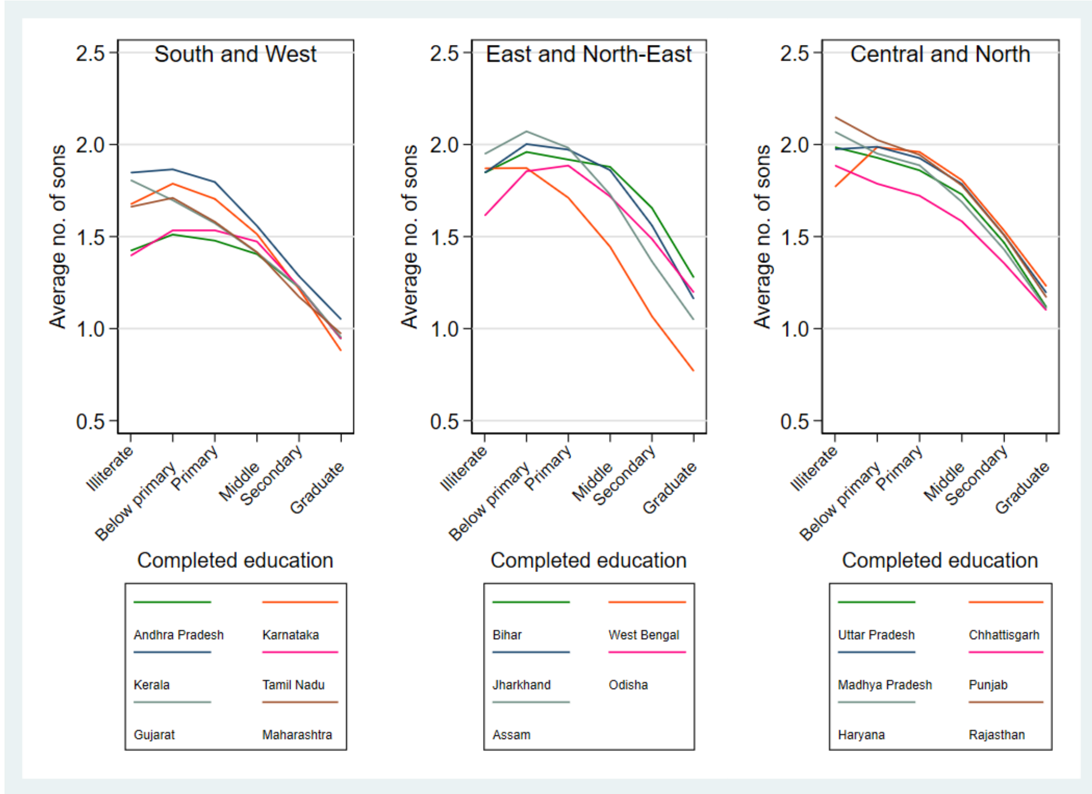


Figure 20: Number of surviving daughters to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (urban population)

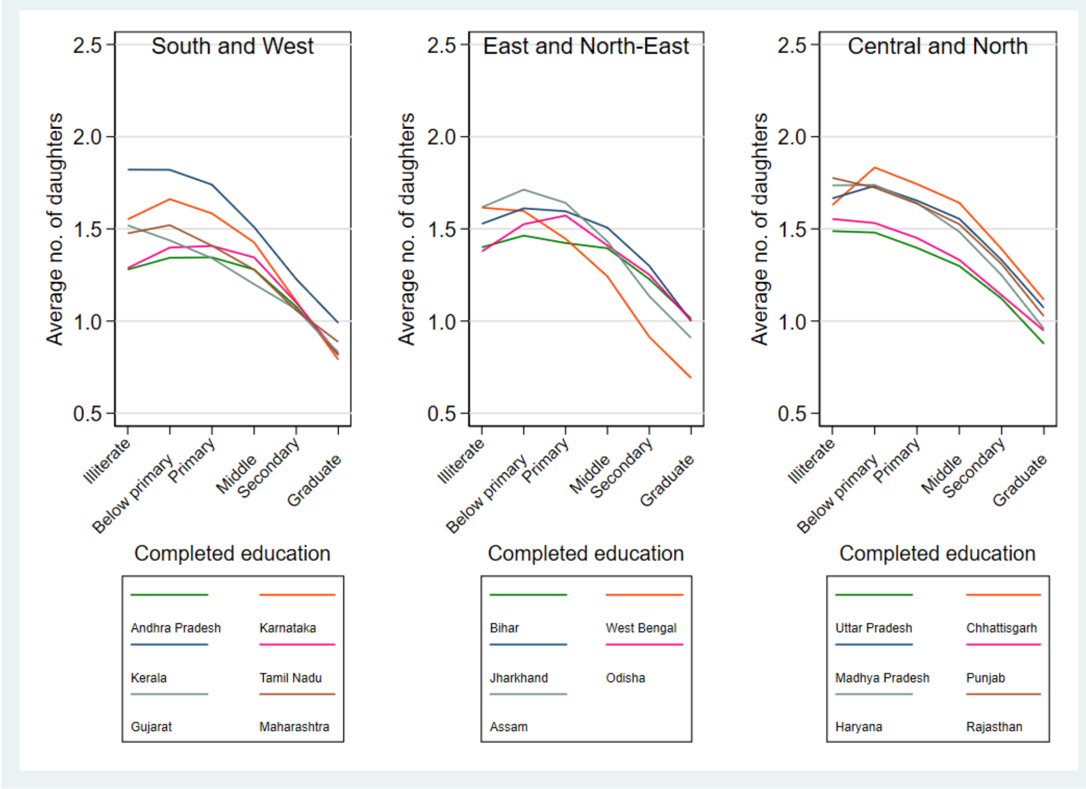


Figure 21: Number of surviving children to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (rural population)

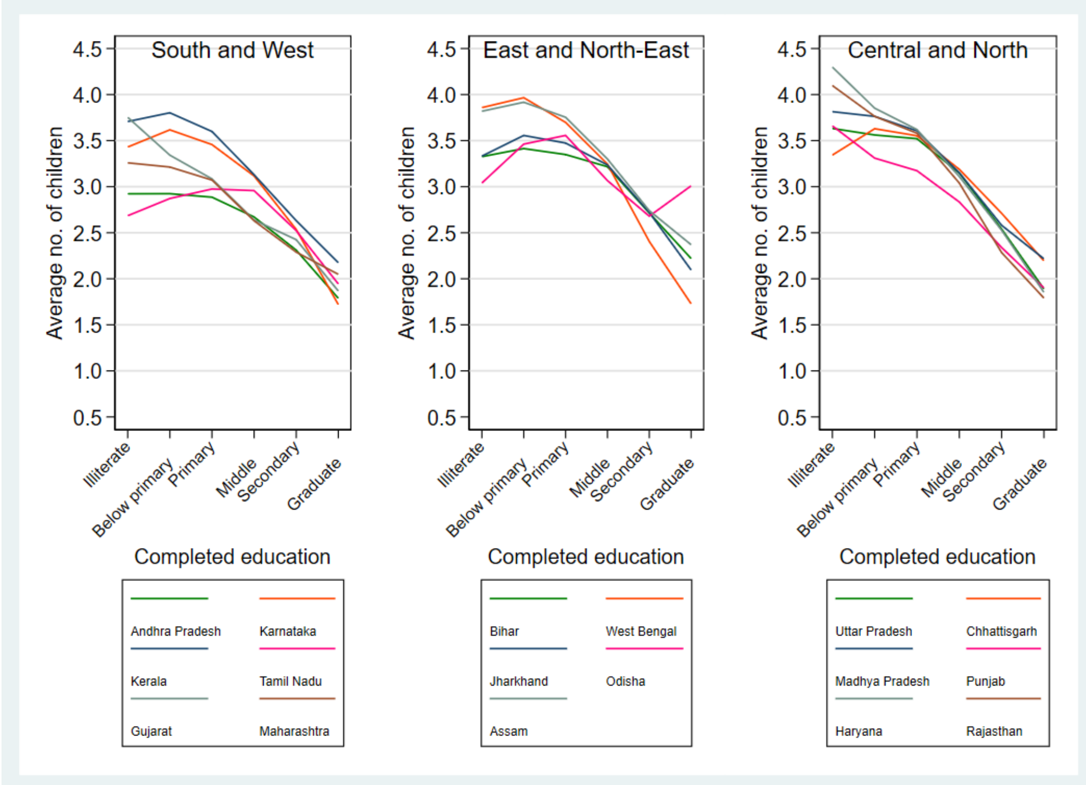


Figure 22: Number of surviving sons to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (rural population)

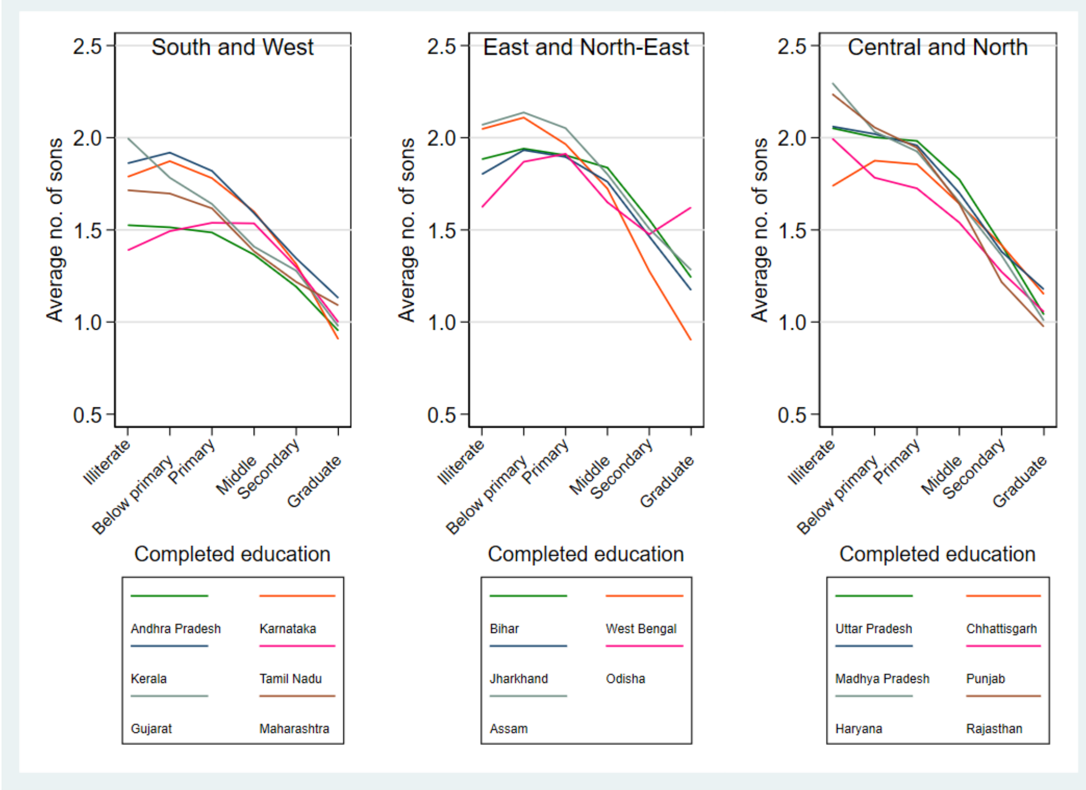
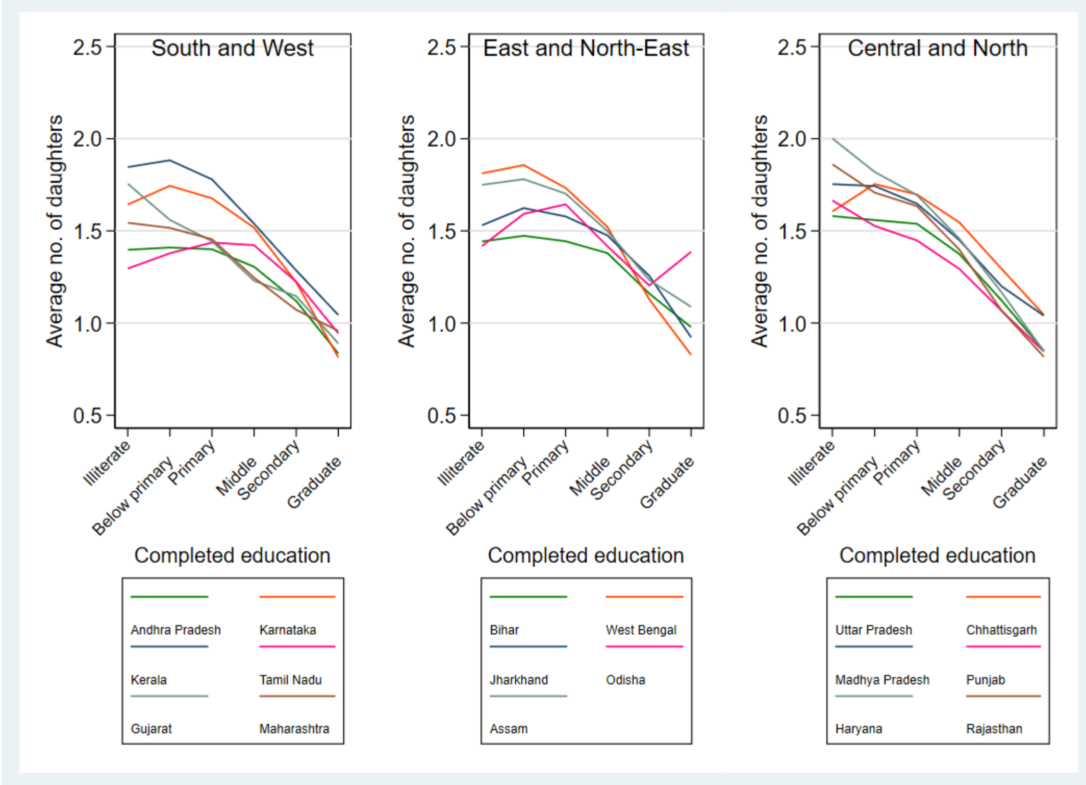


Figure 23: Number of surviving daughters to ever married women aged 60-plus in India by level of completed education, by region (2011 census) (rural population)



12.3. Appendix C: Chapter 6 – Supplementary material

Figure 24: Trends in functional health of the India's older population, by gender (1995-96-2014) (standardised to 1995-96 age structure)

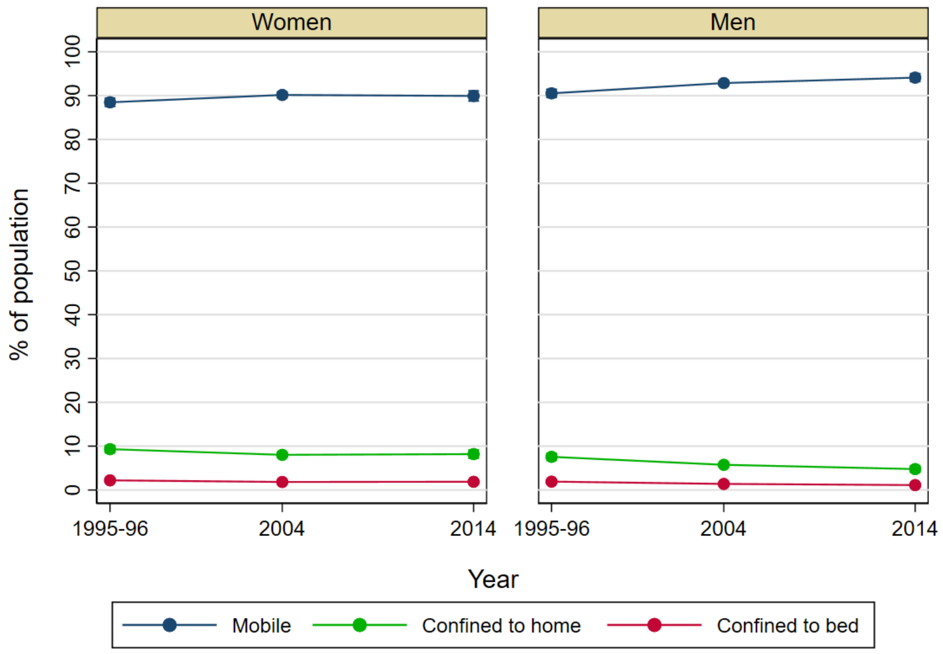


Table 12: Percent distribution of the older Indian population according to their background characteristics, by survey year

	% (95% CI)		
Characteristics	1995-96	2004	2014
Age (years)			
60-64	31.8 (30-9-32.8)	36.3 (35.5-37.0)	36.0 (34.7-37.4)
65-69	30.7 (29.8-31.5)	29.1 (28.4-29.7)	28.5 (27.3-29.7)
70-74	19.7 (19.0-20.5)	18.7 (18.1-19.3)	18.6 (17.5-19.6)
75-79	8.6 (8.0-9.1)	7.6 (7.2-7.9)	8.7 (7.9-9.5)
80+	9.2 (8.6-9.8)	8.4 (8.0-8.9)	8.2 (7.5-8.9)
Female	50.6 (49.8-51.3)	50.0 (49.4-50.6)	50.8 (49.7-51.9)
Education			
Below primary	80.9 (79.9-81.8)	76.4 (75.5-77.3)	68.6 (67.1-70.0)
Primary	8.1 (7.6-8.7)	9.1 (8.6-9.5)	9.4 (8.5-10.2)
Middle to secondary	9.2 (8.6-9.8)	11.5 (10.9-12.1)	16.1 (15.1-17.1)
Above secondary	1.8 (1.6-2.0)	3.0 (2.7-3.3)	6.0 (5.3-6.7)

Quintile of socioeconomic status			
1 - lowest	21.5 (20.4-22.6)	29.4 (28.4-30.4)	20.7 (19.3-22.2)
2	22.1 (21.1-23.2)	19.1 (18.4-19.9)	15.1 (13.9-16.3)
3	19.6 (18.6-20.5)	17.1 (16.4-17.9)	16.9 (15.6-18.2)
4	19.4 (18.4-20.3)	16.0 (15.3-16.7)	19.6 (18.3-21.0)
5 - highest	17.4 (16.3-18.5)	18.3 (17.4-19.2)	27.6 (26.0-29.1)
Living arrangements			
Alone	3.5 (3.2-3.9)	4.8 (4.4-5.1)	3.8 (3.3-4.4)
Spouse only	9.7 (8.9-10.5)	11.7 (11.1-12.3)	15 (13.7-16.3)
Children and grandchildren	60.5 (59.4-61.7)	57.7 (56.9-58.6)	58 (56.3-59.7)
Children	19.3 (18.4-20.2)	19.7 (19.1-20.4)	18.8 (17.4-20.2)
Others	6.9 (6.4-7.5)	6.0 (5.6-6.5)	4.4 (3.6-5.1)
Region			
South	24.9 (23.0-26.8)	25.4 (24.1-26.7)	28.8 (27.0-30.7)
West	15.7 (14.2-17.2)	16.1 (14.8-17.3)	14.2 (13.0-15.5)

Central	25.9 (24.1-27.8)	23.1 (21.8-24.3)	20.1 (18.5-21.6)
East/North-East	21.6 (20.0-23.2)	22.7 (21.5-23.9)	23.4 (21.7-25.1)
North	11.9 (10.7-13.1)	12.8 (11.8-13.8)	13.4 (12.2-14.7)
CI confidence interval			

Table 13: Ordinal regression of self-rated health and family structure (number of sons, daughters, and marital status) in India's older population, by survey year (1995-96, 2004, 2014)

		OR 95% CI					
		Model 1			Model 2		
		1995-96	2004	2014	1995-96	2004	2014
Characteristic							
No. of children	0	1.30 0.89-1.91	0.99 0.73-1.35	1.34 0.89-2.01	1.40 0.95-2.07	1.06 0.76-1.47	1.21 0.79-1.85
	1	1.39 0.96-2.00	1.04 0.83-1.30	1.23 0.92-1.65	1.38 0.95-2.00	1.06 0.84-1.32	1.16 0.87-1.56
	2	1	1	1	1	1	1
	3	1.26 0.98-1.62	1.09 0.96-1.25	1.37** 1.12-1.69	1.26 0.98-1.62	1.07 0.94-1.23	1.34** 1.09-1.65
	4	1.21 0.96-1.52	1.09 0.95-1.25	1.12 0.89-1.42	1.21 0.96-1.53	1.08 0.94-1.23	1.06 0.84-1.35

	5	1.22 0.97-1.53	1.16* 1.01-1.33	1.27* 1.01-1.60	1.21 0.97-1.52	1.12 0.97-1.29	1.14 0.90-1.44
	6	1.33* 1.03-1.72	1.23* 1.05-1.44	1.39* 1.04-1.87	1.31* 1.01-1.70	1.18* 1.01-1.38	1.26 0.94-1.69
	7	1.13 0.86-1.49	1.10 0.93-1.30	1.78** 1.29-2.47	1.13 0.86-1.48	1.06 0.89-1.26	1.51* 1.10-2.08
	8+	1.21 0.95-1.56	1.06 0.88-1.28	2.47** 1.72-3.56	1.24 0.96-1.60	1.03 0.85-1.25	2.13** 1.49-3.06
	Linear test for trend §	1.01 0.98-1.04	1.02* 1.00-1.04	1.07** 1.04-1.11	1.01 0.98-1.04	1.01 0.99-1.04	1.05* 1.01-1.09
No. of sons	0	0.99 0.74-1.34	0.93 0.79-1.11	1.32* 1.02-1.72	1.04 0.77-1.41	0.98 0.82-1.17	1.30 0.99-1.70
	1	1	1	1	1	1	1
	2	1.00 0.85-1.17	0.98 0.89-1.08	1.09 0.92-1.29	1.00 0.85-1.17	0.98 0.89-1.08	1.08 0.91-1.27
	3	1.05	0.94	1.01	1.03	0.94	0.92

		0.90-1.23	0.84-1.05	0.82-1.25	0.88-1.20	0.84-1.05	0.75-1.14
	4	1.05 0.85-1.31	1.07 0.93-1.23	1.33 0.98-1.79	1.05 0.84-1.31	1.06 0.92-1.22	1.16 0.86-1.57
	5+	1.02 0.82-1.27	1.07 0.92-1.26	1.51 0.98-2.35	1.03 0.82-1.28	1.05 0.89-1.23	1.36 0.88-2.10
	Linear test for trend §	1.01 0.97-1.06	1.01 0.98-1.05	1.08* 1.00-1.16	1.01 0.97-1.06	1.00 0.97-1.04	1.03 0.96-1.11
No. of daughters	0	1.16 0.90-1.51	1.00 0.86-1.16	1.02 0.83-1.25	1.16 0.89-1.51	1.06 0.91-1.23	0.99 0.80-1.21
	1	1	1	1	1	1	1
	2	1.04 0.90-1.21	1.16** 1.05-1.27	1.25* 1.04-1.49	1.04 0.90-1.20	1.12* 1.02-1.23	1.21* 1.02-1.45
	3	1.09 0.92-1.28	1.07 0.95-1.20	1.10 0.87-1.38	1.07 0.91-1.27	1.04 0.93-1.17	1.08 0.85-1.36
	4	1.25* 1.03-1.52	1.08 0.93-1.26	1.38** 1.05-1.81	1.24* 1.02-1.51	1.08 0.92-1.25	1.29 1.00-1.68
	5+	0.88	1.04	1.78**	0.92	1.04	1.61**

		0.70-1.11	0.87-1.24	1.25-2.53	0.72-1.16	0.87-1.24	1.13-2.30
	Linear test for trend §	1.02 0.97-1.07	1.02 0.98-1.05	1.11** 1.04-1.18	1.02 0.97-1.07	1.01 0.98-1.05	1.09* 1.02-1.16
Married		0.77** 0.69-0.87	0.88** 0.81-0.96	0.79** 0.69-0.91	0.76** 0.68-0.86	0.89* 0.82-0.98	0.81** 0.70-0.94
	Number of children modelled separately to number of sons and daughters; model one controls for age, gender and marital status, model 2 additionally controls for education, socioeconomic status, living arrangement, region; *p<0.05, **p<0.01; OR odds ratio; CI confidence interval; § restricted to population with 1-plus children/sons/daughters.						

Table 14: Ordinal regression of self-rated health and family structure (number of children and marital status) in India's older population 1995-96 - 2014, by gender

		OR **95% CI**					
		Model 1			Model 2		
Characteristic		Women	Men	Total	Women	Men	Total
Age (years)	60-64	1	1	1	1	1	1
	65-69	1.39** 1.28-1.50	1.39** 1.28-1.50	1.39** 1.28-1.51	1.41** 1.30-1.53	1.41** 1.30-1.53	1.41** 1.30-1.53
	70-74	2.23** 2.03-2.45	2.23** 2.03-2.45	2.23** 2.03-2.45	2.28** 2.07-2.50	2.28** 2.07-2.50	2.27** 2.07-2.50
	75-79	2.91** 2.56-3.31	2.91** 2.56-3.31	2.91** 2.55-3.31	3.05** 2.68-3.46	3.05** 2.68-3.46	3.04** 2.68-3.46
	80+	4.70** 4.18-5.28	4.70** 4.18-5.28	4.70** 4.18-5.27	5.00** 4.44-5.63	5.00** 4.44-5.63	5.00** 4.44-5.62

Male				0.77** 0.72-0.82			0.82** 0.77-0.88
Education	Below primary				1	1	1
	Primary				0.81** 0.71-0.92	0.81** 0.71-0.92	0.81** 0.71-0.92
	Middle to secondary				0.67** 0.60-0.74	0.67** 0.60-0.74	0.66** 0.60-0.74
	Above secondary				0.49** 0.40-0.60	0.49** 0.40-0.60	0.49** 0.40-0.60
Quintile of socioeconomic status	1 - lowest				1	1	1
	2				0.91 0.82-1.01	0.91 0.82-1.01	0.91 0.82-1.01
	3				0.83** 0.74-0.93	0.83** 0.74-0.93	0.83** 0.75-0.93

	4				0.81** 0.73-0.91	0.81** 0.73-0.91	0.81** 0.72-0.91
	5 - highest				0.78** 0.69-0.87	0.78** 0.69-0.87	0.78** 0.69-0.87
Living arrangements	Alone				0.82* 0.69-0.98	0.82* 0.69-0.98	0.82* 0.69-0.98
	Spouse only				1.14* 1.01-1.29	1.14* 1.01-1.29	1.14* 1.01-1.29
	Children and grandchildren				1	1	1
	Children				0.89* 0.81-0.98	0.89* 0.81-0.98	0.89* 0.81-0.98
	Others				0.89 0.77-1.02	0.89 0.77-1.02	0.89 0.77-1.02
Year	1995-96				1	1	1
	2004				1.51**	1.51**	1.51**

					1.40-1.63	1.40-1.63	1.39-1.63
	2014				1.42** 1.29-1.57	1.42** 1.29-1.57	1.42** 1.29-1.57
Region	South				1	1	1
	West				0.57** 0.51-0.65	0.57** 0.51-0.65	0.57** 0.51-0.65
	Central				1.03 0.92-1.15	1.03 0.92-1.15	1.03 0.92-1.15
	East/North-East				1.34** 1.20-1.50	1.34** 1.20-1.50	1.34** 1.20-1.50
	North				0.76** 0.67-0.86	0.76** 0.67-0.86	0.76** 0.67-0.86
No. of children	0	1.19 0.88-1.62	1.23 0.88-1.73	1.21 0.96-1.53	1.27 0.91-1.76	1.10 0.78-1.56	1.20 0.93-1.54
	1	1.03	1.47**	1.20	1.01	1.40*	1.16

		0.84-1.28	1.11-1.95	0.99-1.45	0.82-1.25	1.05-1.85	0.96-1.40
	2	1	1	1	1	1	1
	3	1.23* 1.04-1.46	1.27** 1.08-1.49	1.25** 1.11-1.41	1.24* 1.05-1.46	1.24** 1.06-1.46	1.24** 1.10-1.40
	4	1.12 0.96-1.32	1.13 0.96-1.34	1.13 0.99-1.28	1.13 0.95-1.33	1.09 0.92-1.29	1.11 0.97-1.26
	5	1.20* 1.03-1.41	1.22* 1.03-1.44	1.21* 1.07-1.36	1.18* 1.01-1.38	1.14 0.96-1.35	1.16* 1.02-1.31
	6	1.26* 1.05-1.52	1.35** 1.12-1.61	1.30** 1.13-1.50	1.26* 1.04-1.52	1.25* 1.04-1.50	1.25** 1.09-1.45
	7	1.13 0.93-1.37	1.51** 1.15-1.97	1.29* 1.10-1.52	1.11 0.90-1.35	1.38* 1.06-1.78	1.22* 1.04-1.44
	8+	1.40** 1.11-1.76	1.39** 1.14-1.70	1.40** 1.19-1.64	1.41** 1.12-1.78	1.34** 1.09-1.64	1.38** 1.17-1.62
	Linear test for trend §	1.03** 1.01-1.06	1.03* 1.01-1.06	1.03** 1.01-1.05	1.03* 1.01-1.06	1.02 1.00-1.05	1.03** 1.01-1.05

Marital status	Married	0.82** 0.76-0.88	0.82** 0.76-0.88	0.82** 0.76-0.88	0.82** 0.75-0.89	0.82** 0.75-0.89	0.82** 0.75-0.89
p<0.05, **p<0.01; OR odds ratio; CI confidence interval; § restricted to population with 1-plus children/sons/daughters.							

Table 15: Ordinal regression of self-rated health and family structure (number of sons, daughters, and marital status) in India's older population 1995-96 - 2014, by gender

		OR **95% CI**					
		Model 1			Model 2		
Characteristic		Women	Men	Total	Women	Men	Total
Age (years)	60-64	1	1	1	1	1	1
	65-69	1.39** 1.28-1.51	1.39** 1.28-1.51	1.39** 1.28-1.51	1.41** 1.30-1.53	1.41** 1.30-1.53	1.41** 1.30-1.53
	70-74	2.23** 2.03-2.45	2.23** 2.03-2.45	2.23** 2.03-2.44	2.27** 2.07-2.50	2.27** 2.07-2.50	2.27** 2.07-2.49
	75-79	2.92** 2.57-3.32	2.92** 2.57-3.32	2.92** 2.56-3.32	3.05** 2.69-3.47	3.05** 2.69-3.47	3.05** 2.68-3.47
	80+	4.69** 4.18-5.27	4.69** 4.18-5.27	4.70** 4.18-5.28	4.99** 4.44-5.62	4.99** 4.44-5.62	4.99** 4.44-5.62

Male				0.77** 0.73-0.82			0.82** 0.77-0.88
Education	Below primary				1	1	1
	Primary				0.81** 0.71-0.93	0.81** 0.71-0.93	0.81** 0.71-0.93
	Middle to secondary				0.67** 0.60-0.74	0.67** 0.60-0.74	0.67** 0.60-0.74
	Above secondary				0.49** 0.40-0.60	0.49** 0.40-0.60	0.49** 0.40-0.60
Quintile of socioeconomic status	1 - lowest				1	1	1
	2				0.91 0.83-1.01	0.91 0.83-1.01	0.91 0.83-1.01
	3				0.83** 0.74-0.93	0.83** 0.74-0.93	0.83** 0.74-0.93

	4				0.81** 0.73-0.91	0.81** 0.73-0.91	0.81** 0.73-0.91
	5 - highest				0.78** 0.69-0.87	0.78** 0.69-0.87	0.78** 0.69-0.87
Living arrangements	Alone				0.81* 0.68-0.97	0.81* 0.67-0.96	0.81* 0.67-0.96
	Spouse only				1.12 0.99-1.28	1.13 1.00-1.28	1.13 1.00-1.28
	Children and grandchildren				1	1	1
	Children				0.90* 0.82-0.98	0.90* 0.82-0.98	0.90* 0.82-0.98
	Others				0.86* 0.75-1.00	0.86* 0.75-1.00	0.86* 0.75-1.00
Year	1995-96				1	1	1
	2004				1.51**	1.51**	1.51**

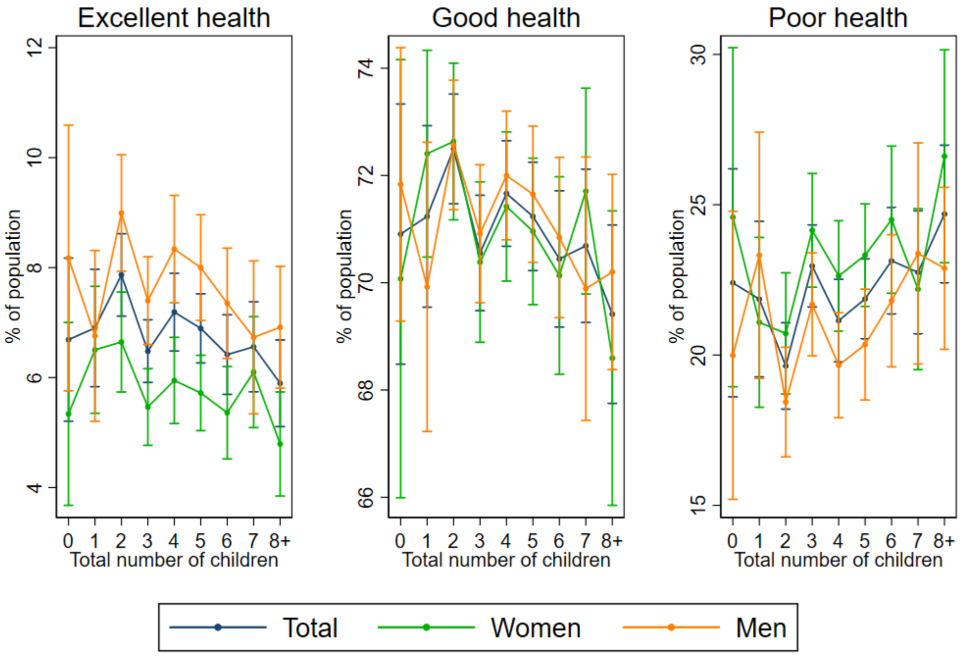
					1.39-1.63	1.39-1.63	1.39-1.63
	2014				1.42** 1.29-1.57	1.42** 1.29-1.57	1.42** 1.29-1.57
Region	South				1	1	1
	West				0.58** 0.51-0.65	0.58** 0.51-0.65	0.58** 0.51-0.65
	Central				1.03 0.92-1.15	1.03 0.93-1.15	1.03 0.93-1.15
	East/North-East				1.35** 1.20-1.50	1.35** 1.21-1.51	1.35** 1.21-1.51
	North				0.76** 0.67-0.87	0.76** 0.67-0.87	0.76** 0.67-0.87
No. of sons	0	1.05 0.86-1.28	1.25* 1.01-1.54	1.13 0.97-1.32	1.10 0.90-1.36	1.20 0.96-1.50	1.15 0.97-1.35

	1	1	1	1	1	1	1
	2	0.98 0.87-1.10	1.09 0.97-1.23	1.03 0.94-1.13	0.99 0.88-1.12	1.07 0.95-1.21	1.03 0.94-1.13
	3	0.96 0.84-1.09	1.03 0.90-1.19	0.99 0.89-1.10	0.94 0.82-1.07	0.98 0.85-1.13	0.96 0.86-1.07
	4	1.19* 1.01-1.40	1.09 0.90-1.33	1.14 0.99-1.31	1.18* 1.00-1.38	1.02 0.83-1.25	1.10 0.95-1.26
	5+	1.14 0.92-1.40	1.17 0.95-1.44	1.15 0.98-1.35	1.15 0.94-1.42	1.11 0.90-1.38	1.13 0.96-1.34
	Linear test for trend §	1.03 0.99-1.08	1.03 0.98-1.07	1.03 1.00-1.06	1.03 0.99-1.08	1.01 0.96-1.05	1.02 0.99-1.06
No. of daughters	0	1.02 0.87-1.20	1.04 0.88-1.24	1.03 0.91-1.18	1.01 0.85-1.19	1.03 0.86-1.22	1.02 0.89-1.16
	1	1	1	1	1	1	1
	2	1.14*	1.16**	1.15**	1.14*	1.14*	1.14**

		1.01-1.29	1.03-1.31	1.05-1.26	1.01-1.29	1.01-1.28	1.04-1.25
	3	1.04 0.90-1.20	1.12 0.96-1.30	1.08 0.96-1.20	1.05 0.91-1.21	1.09 0.94-1.27	1.07 0.95-1.20
	4	1.16 0.98-1.37	1.30 1.05-1.61	1.22** 1.07-1.39	1.16 0.97-1.37	1.26* 1.03-1.55	1.20** 1.06-1.37
	5+	1.15 0.94-1.41	1.21 0.98-1.49	1.18* 1.01-1.38	1.17 0.95-1.43	1.18 0.95-1.46	1.17* 1.00-1.37
	Linear test for trend §	1.03 0.99-1.07	1.06** 1.02-1.11	1.05** 1.02-1.08	1.04 1.00-1.08	1.06* 1.01-1.11	1.05* 1.02-1.08
Marital status	Married	0.84** 0.77-0.92	0.79** 0.70-0.89	0.82** 0.76-0.89	0.84** 0.76-0.93	0.80** 0.71-0.90	0.82** 0.76-0.90

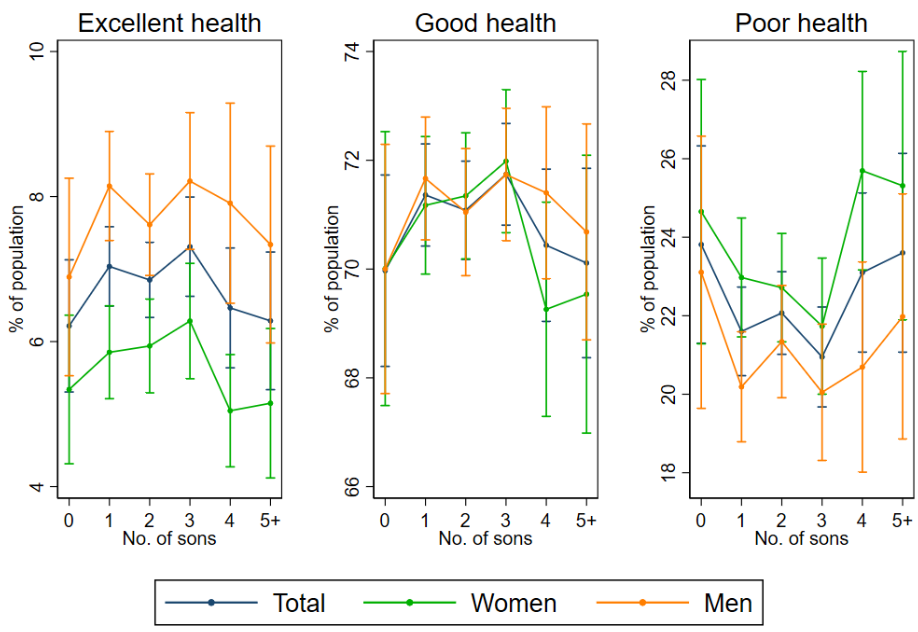
p<0.05, **p<0.01; OR odds ratio; CI confidence interval; § restricted to population with 1-plus children/sons/daughters.

Figure 25: Predicted probabilities of self-rated health by number of children in India's older population 1995-96 - 2014, by gender



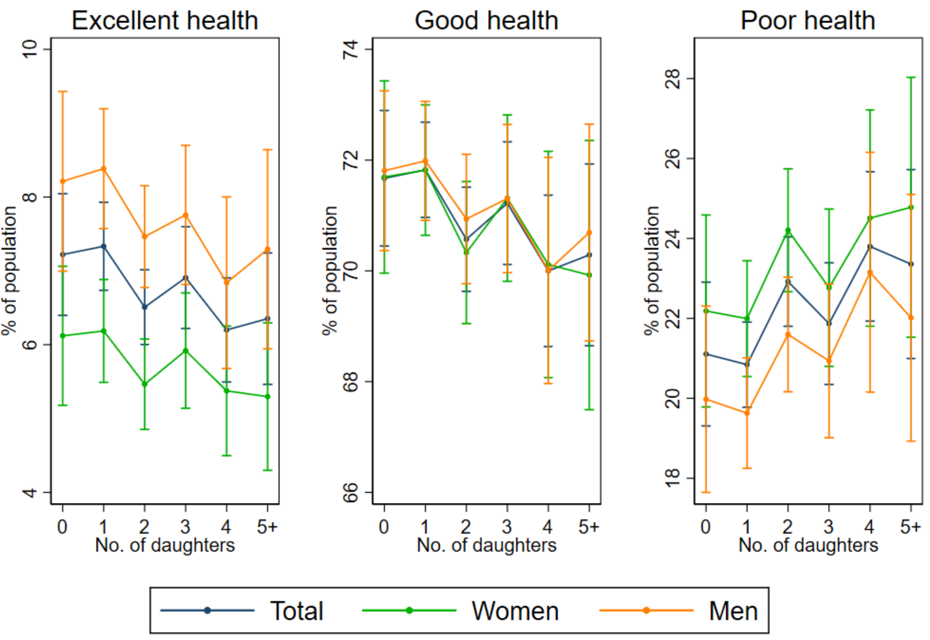
Ordinal model controlling for age, gender, marital status, education, socioeconomic status, living arrangement, region, and survey year. Please see table 14 for results presented as odds ratios. Please note that the predicted probabilities have been multiplied by 100 to estimate 'predicted prevalence'.

Figure 26: Predicted probabilities of self-rated health by number of sons in India's older population 1995-96 - 2014, by gender



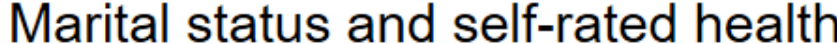
Ordinal model controlling for age, gender, number of daughters, marital status, education, socioeconomic status, living arrangement, region, and survey year. Please see table 15 for results presented as odds ratios. Please note that the predicted probabilities have been multiplied by 100 to estimate 'predicted prevalence'.

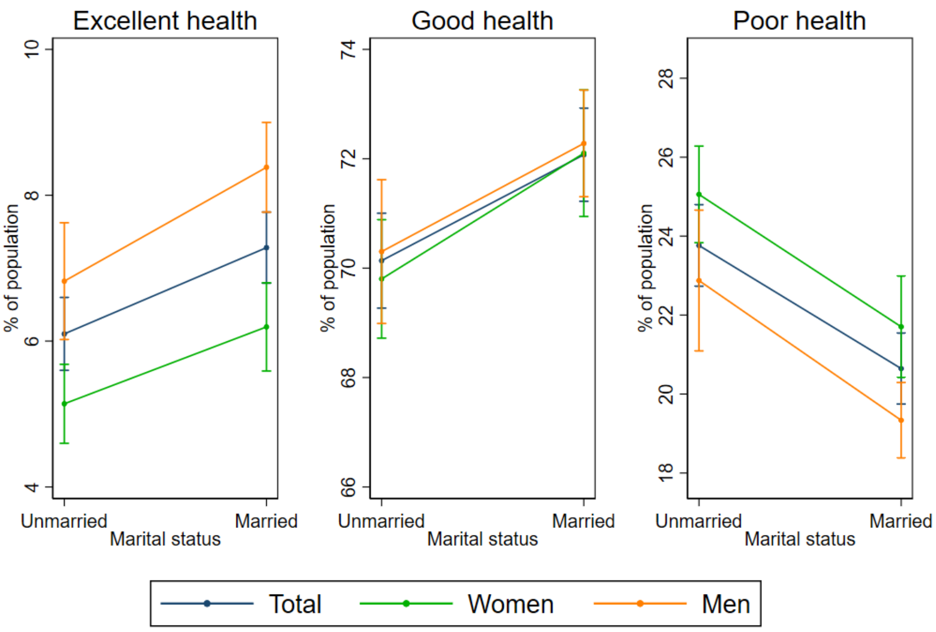
Figure 27: Predicted probabilities of self-rated health by number of daughters in India's older population 1995-96 - 2014, by gender



Ordinal model controlling for age, gender, number of sons, marital status, education, socioeconomic status, living arrangement, region, and survey year. Please see table 15 for results presented as odds ratios. Please note that the predicted probabilities have been multiplied by 100 to estimate 'predicted prevalence'.

Figure 28: Predicted probabilities of self-rated health by marital status in India's older population 1995-96 - 2014, by gender





Ordinal model controlling for age, gender, number of sons, number of daughters, education, socioeconomic status, living arrangement, region, and survey year. Please see table 15 for results presented as odds ratios. Please note that the predicted probabilities have been multiplied by 100 to estimate 'predicted prevalence'.

Table 16: Ordinal regression of functional health and family structure in India's older population 1995-96 – 2014, by gender

		OR **95% CI**					
		Model 1			Model 2		
		Women	Men	Total	Women	Men	Total
No. of children	0	1.59 0.91-2.79	0.74 0.46-1.19	1.30 0.83-2.03	1.86* 1.06-3.24	0.77 0.48-1.25	1.44 0.93-2.25
	1	1.00 0.70-1.42	1.02 0.61-1.72	1.01 0.75-1.37	0.98 0.69-1.40	0.99 0.59-1.67	0.99 0.73-1.34
	2	1	1	1	1	1	1
	3	1.12 0.86-1.46	1.32 0.97-1.78	1.19 0.97-1.47	1.08 0.83-1.41	1.26 0.93-1.71	1.15 0.93-1.42
	4	1.17 0.91-1.51	1.23 0.90-1.68	1.19 0.98-1.45	1.14 0.88-1.47	1.15 0.84-1.57	1.14 0.94-1.39

	5	1.13 0.87-1.47	1.43* 1.06-1.91	1.24* 1.02-1.52	1.07 0.81-1.39	1.29 0.96-1.74	1.16 0.94-1.42
	6	1.33 1.00-1.77	1.43* 1.00-2.04	1.36* 1.07-1.73	1.26 0.94-1.68	1.29 0.90-1.83	1.27 0.99-1.61
	7	1.09 0.79-1.50	1.28 0.90-1.82	1.16 0.90-1.49	1.01 0.73-1.40	1.12 0.80-1.59	1.06 0.82-1.36
	8+	1.11 0.78-1.59	1.56* 1.09-2.23	1.29 0.99-1.67	1.04 0.72-1.51	1.38 0.96-1.98	1.18 0.90-1.54
	Linear test for trend §	1.02 0.98-1.05	1.06** 1.02-1.11	1.04* 1.01-1.07	1.01 0.97-1.04	1.04* 1.00-1.09	1.02 0.99-1.05
No. of sons	0	1.20 0.89-1.61	1.11 0.77-1.60	1.17 0.92-1.50	1.28 0.95-1.73	1.16 0.80-1.67	1.24 0.97-1.59
	1	1	1	1	1	1	1
	2	1.04	1.18	1.09	1.04	1.16	1.09

		0.88-1.24	0.96-1.45	0.95-1.26	0.87-1.24	0.95-1.43	0.94-1.25
	3	1.12 0.91-1.36	1.19 0.96-1.47	1.14 0.97-1.33	1.09 0.89-1.34	1.13 0.91-1.39	1.10 0.94-1.28
	4	1.00 0.79-1.27	1.27 0.96-1.69	1.10 0.90-1.35	0.97 0.77-1.24	1.19 0.90-1.58	1.06 0.86-1.30
	5+	1.22 0.88-1.69	1.10 0.83-1.47	1.16 0.92-1.47	1.18 0.84-1.65	1.03 0.77-1.38	1.11 0.87-1.41
	Linear test for trend §	1.03 0.97-1.10	1.05 0.99-1.11	1.04 0.99-1.09	1.02 0.96-1.09	1.03 0.97-1.09	1.02 0.98-1.07
No. of daughters	0	0.93 0.71-1.20	0.63** 0.45-0.88	0.81* 0.66-0.99	0.97 0.74-1.25	0.65* 0.47-0.91	0.84 0.68-1.03
	1	1	1	1	1	1	1
	2	1.05 0.87-1.26	0.89 0.74-1.08	0.98 0.85-1.13	1.03 0.86-1.24	0.86 0.71-1.03	0.96 0.83-1.10
	3	0.91	1.09	0.99	0.90	1.05	0.96

		0.73-1.14	0.86-1.39	0.83-1.17	0.72-1.12	0.82-1.33	0.81-1.14
	4	1.05 0.80-1.38	1.13 0.84-1.53	1.08 0.87-1.35	1.03 0.78-1.36	1.07 0.80-1.44	1.05 0.84-1.30
	5+	1.05 0.78-1.40	1.08 0.78-1.49	1.06 0.84-1.33	1.02 0.76-1.37	1.02 0.73-1.41	1.02 0.81-1.28
	Linear test for trend §	1.00 0.94-1.06	1.04 0.97-1.11	1.02 0.97-1.07	0.99 0.93-1.06	1.02 0.96-1.10	1.01 0.96-1.05
Marital status	Married	0.70** 0.60-0.81	0.73** 0.62-0.86	0.71** 0.63-0.80	0.72** 0.61-0.85	0.75** 0.63-0.89	0.73** 0.64-0.84

Number of children modelled separately to number of sons and daughters; model one controls for age, gender and marital status, model 2 additionally controls for education, socioeconomic status, living arrangement, region, and survey year; *p<0.05, **p<0.01; OR odds ratio; CI confidence interval; § restricted to population with 1-plus children/sons/daughters.

Table 17: Age structure of the older population (aged 60-plus) (national-level), 2011 census

	%		
	Women	**Men**	**Total**
Age (years)			
60-64	36.3	36.6	35.9
65-69	25.5	25.3	25.6
70-74	18.5	18.9	18.1
75-79	8.9	8.8	9.0
80+	10.9	10.3	11.4

Table 18: Ordinal regression of self-rated health and family structure (number of sons, daughters, and marital status) in India's older population, by wealth quintile (1995-96, 2004, 2014)

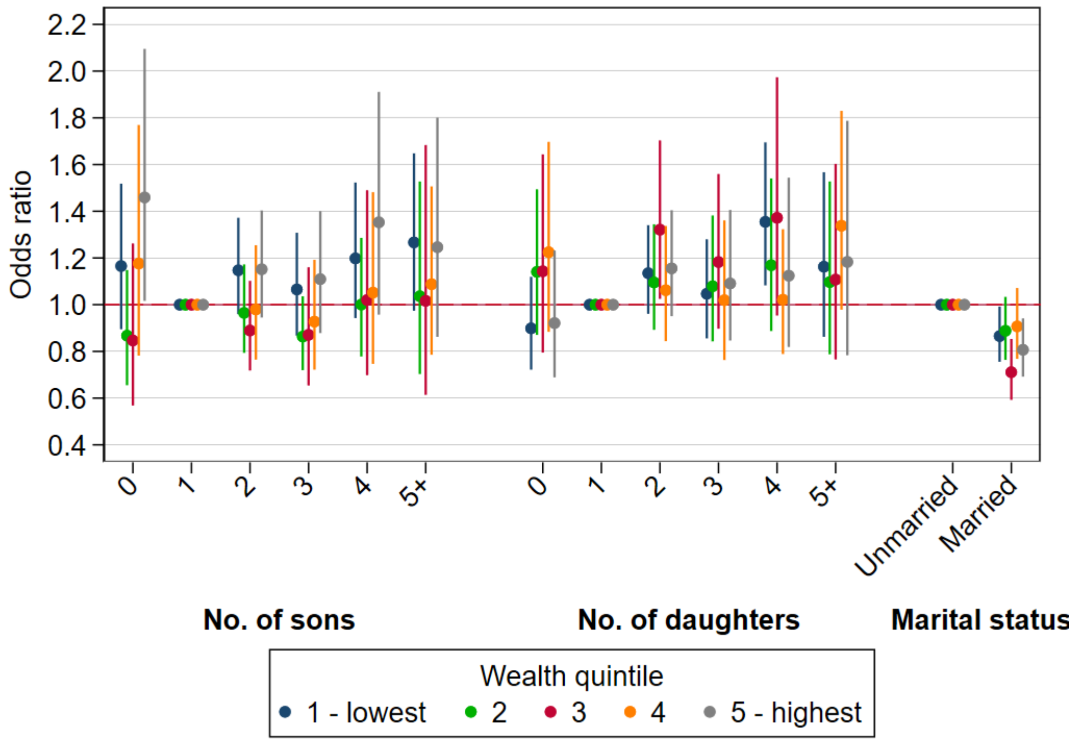
		OR **95% CI**				
		Wealth quintile				
		1	2	3	4	5
Characteristic						
No. of children	0	0.87 (0.59-1.30)	1.36 (0.83-2.23)	1.32 (0.74-2.36)	1.46 (0.82-2.60)	1.09 (0.52-2.32)
	1	1.10 (0.78-1.54)	1.27 (0.88-1.81)	1.27 (0.77-2.08)	1.28 (0.76-2.16)	1.13 (0.76-1.70)
	2	1	1	1	1	1
	3	1.19 (0.94-1.51)	1.44* (1.09-1.90)	1.28 (0.92-1.78)	1.26 (0.91-1.76)	1.13 (0.87-1.47)
	4	1.06 (0.84-1.35)	1.09 (0.84-1.40)	1.09 (0.77-1.56)	1.13 (0.83-1.55)	1.25 (0.93-1.68)
	5	1.23	1.28	1.18	0.93	1.32

		(0.98-1.55)	(1.00-1.64)	(0.84-1.65)	(0.69-1.26)	(0.99-1.77)
	6	1.40* (1.07-1.83)	1.28 (0.95-1.72)	1.38 (0.91-2.10)	1.21 (0.86-1.70)	1.16 (0.85-1.56)
	7	1.32 (0.97-1.80)	1.08 (0.74-1.58)	1.37 (0.96-1.97)	1.15 (0.81-1.62)	1.45* (1.03-2.05)
	8+	1.42* (1.05-1.91)	1.45* (1.03-2.03)	1.31 (0.83-2.07)	1.33 (0.94-1.90)	1.42 (0.91-2.22
No. of sons	0	1.17 (0.89-1.52)	0.87 (0.65-1.15)	0.85 (0.57-1.26)	1.18 (0.78-1.77)	1.46* (1.02-2.10)
	1	1	1	1	1	1
	2	1.15 (0.96-1.37)	0.96 (0.79-1.17)	0.89 (0.72-1.10)	0.98 (0.76-1.25)	1.15 (0.95-1.40)
	3	1.07 (0.87-1.31)	0.86 (0.72-1.04)	0.87 (0.65-1.16)	0.93 (0.72-1.19)	1.11 (0.88-1.40)
	4	1.20	1.00	1.02	1.05	1.35

		(0.94-1.52)	(0.78-1.29)	(0.70-1.49)	(0.75-1.48)	(0.96-1.91)
	5+	1.27 (0.97-1.65)	1.04 (0.70-1.53)	1.02 (0.61-1.68)	1.09 (0.79-1.51)	1.25 (0.86-1.80)
No. of daughters	0	0.90 (0.72-1.12)	1.14 (0.87-1.49)	1.14 (0.79-1.64)	1.22 (0.88-1.70)	0.92 (0.69-1.23)
	1	1	1	1	1	1
	2	1.13 (0.96-1.34)	1.10 (0.89-1.34)	1.32* (1.02-1.70)	1.06 (0.84-1.34)	1.16 (0.95-1.40)
	3	1.05 (0.86-1.28)	1.08 (0.84-1.38)	1.18 (0.90-1.56)	1.02 (0.76-1.36)	1.09 (0.85-1.41)
	4	1.35** (1.08-1.69)	1.17 (0.89-1.54)	1.37 (0.95-1.97)	1.02 (0.79-1.32)	1.12 (0.82-1.54_
	5+	1.16 (0.86-1.57)	1.10 (0.79-1.53)	1.11 (0.77-1.60)	1.34 (0.98-1.83)	1.18 (0.78-1.79)
Married		0.87* (0.76-0.99)	0.89 (0.76-1.03)	0.71** (0.59-0.85)	0.91 (0.77-1.07)	0.81** (0.69-0.94)

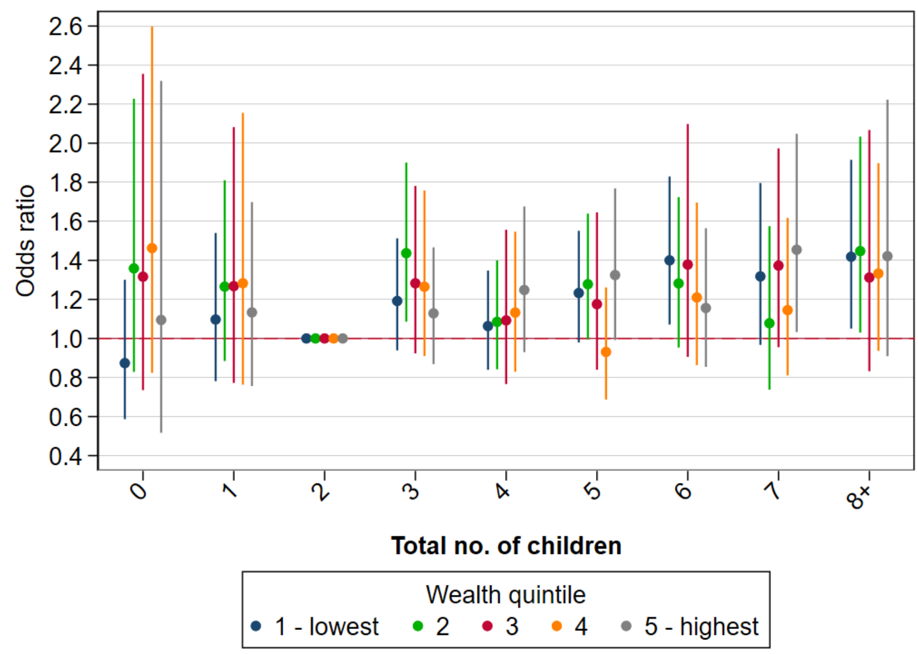
	Number of children modelled separately to number of sons and daughters; model controls for age and gender; *p<0.05, **p<0.01; OR odds ratio; CI confidence interval

Figure 29: Ordinal regression of self-rated health and family structure (number of sons, daughters, marital status) in India's older population 1995-96 - 2014, by wealth quintile



Ordinal model controlling for age, gender. Please see table 18.

Figure 30: Ordinal regression of self-rated health and family structure (total number of children) in India's older population 1995-96 - 2014, by wealth quintile



Ordinal model controlling for age, gender, marital status. Please see table 18.

12.4. Appendix D: Participant information sheets and consent forms

12.4.1. Interview consent form

பங்கேற்பாளர் ஒப்புதல் படிவம் – நேர்காணல்
Participant's consent form – Interview

ஆராய்ச்சியின் பெயர் : தமிழ் நாட்டில் முதியோர் பராமரிப்பு பற்றிய மனப்பான்மை

Name of Study: Attitudes towards elderly care in Tamilnadu

ஆராய்ச்சியாளரின் பெயர் : ஜூடித் லீபெர் Name of the researcher: Judith Lieber

அறிக்கை **Statement**	தயவுசெய்து கையொப்பம் அல்லது குறியீடு போடவும் **Please either sign it or mark it.**
நான், இந்த ஆராய்ச்சிக்கான 03/05/2018 தேதி இடப்பட்ட (பதிப்பு 6) தகவல் ஆவணத்தை படித்துள்ளேன் என்று உறுதிப்படுத்தி தெரிவித்துக் கொள்கிறேன். எனக்கு இத்தகவலை தெரிவிப்பதன் மூலம், கேள்விகள் கேட்பதற்கும் பதில் பெறுவதற்கும் சந்தர்ப்பம் கிடைத்துள்ளது. I confirm that I have read the information document dated 03/05/2018 (Version 6). Suggesting this information to me, I got an opportunity to ask questions and get answers for the same அல்லது OR இத்தகவலை எனக்குப் புரியும் மொழியில் ஆய்வுப் பணியாளரால் தெளிவாக எடுத்துரைக்கப் பட்டுள்ளது. எனக்கு இத்தகவலை தெரிவிப்பதன் மூலம், கேள்விகள் கேட்பதற்கும் பதில் பெறுவதற்கும் சந்தர்ப்பம் கிடைத்துள்ளது. These information were clearly explained to me by the researcher in a language I understand well. Suggesting this information to me, I got an opportunity to ask questions and get answers for the same	
இதில் பங்கேற்பது எனது விருப்பமே, அதே போல் நான் எப்பொழுது வேண்டுமானாலும் காரணமின்றி விலகிக்கொள்ளலாம் என்று புரிந்துகொள்கிறேன் Participating in this is my choice, also I understand I can decline at any time without citing any reasons.	
இந்த ஆய்வில் என் பங்கு எங்கு வருகின்றதோ , அதில் சேர்க்கப் பட்ட தகவல்கள் லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டலம் மருத்துவப் பள்ளி மற்றும் ஐஐடி சென்னையால் நியமிக்கப்பட்ட நபர்களால் பார்க்க படும் என்று நான் புரிந்துகொள்கிறேன். இந்த நபர்கள் என் பதிவுகளைப் பயன்படுத்த நான் ஒப்புக்கொள்கிறேன். Wherever my role appears in this research, I understand that the information entered in it will be seen by people who were assigned by London School of Hygiene & Tropical Medicine and IIT, Chennai. I agree that these people can use my registrations (information provided).	
இந்த ஆய்விற்குப் பொருந்தும் வகையில், (பெயர் குறிப்பிடப்படாமல்) சேர்க்கப்பட்ட தகவல்கள் மேற்கூறிய ஆராய்ச்சியாளரின் அனுமதியுடன் மற்ற தகுதியான ஆராய்ச்சியாளர்களிடம் பகிர்ந்துகொள்ளப்படும் என்று நான் புரிந்துகொண்டேன். I understand that, as suitable for this study, information entered anonymously will be shared to other eligible researchers, with consent from the above mentioned researcher.	

இந்த தகவலறிந்த ஒப்புதல் வடிவத்தின் பிரதி பங்கேற்பாளரிடம் கொடுக்கப்பட்டுள்ளது
A copy of this informed consent document has been provided to the participant.

[தகவலறிந்த பங்கேற்பாளர் ஒப்புதல் பாரபட்சமற்ற சாட்சியின் முன்னிலையில்_03.05.2018_வ4] ([Informed Consent for Participant with Impartial witness_03.05.2018_v4])

பங்கேற்பாளர் ஒப்புதல் படிவம் – நேர்காணல்
Participant's consent form – Interview

எனதுப் பேட்டியை ஆடியோவில் பதிவு செய்யவும் என் மேற்கோள்கள் என்னைச் சார்ந்தவை எனத் தெரிவிக்காத நிலையில் என்னிடம் சேகரிக்க பட்ட தகவல்கள் பொது வேலைகளில் பயன்படுத்தவும் நான் சம்மதம் தெரிவித்துக்கொள்கிறேன். I consent to my interview being audio-recorded and direct quotes being used in publicly available work, dependent on me not being identifiable from them	
இந்த ஆராய்ச்சியில் பங்கேற்க எனக்குச் சம்மதம். I agree to participate in this study/research	
இந்த ஆய்வின் சம்பந்தமாக கூடுதல் நேர்முகம் தேவைப் பட்டால் என்னைத் தொடர்புகொள்ள ஒப்புக்கொள்கிறேன். I agree you can contact me if further interview is required as part of this study	

பங்கேற்பாளரின் அச்சிடப்பட்டப் பெயர் Printed name of the participant

பங்கேற்பாளரின் கையொப்பம் Signature/ thumb print of the participant தேதி Date

பாரபட்சமற்ற சாட்சியின் அச்சிடப்பட்டப் பெயர்* Printed name of the unbiased witness*

பாரபட்சமற்ற சாட்சியின் கையொப்பம்* Signature of the unbiased witness* தேதி Date

இந்த ஆய்வின் தகவலை தெளிவாகவும் துல்லியமாகவும் ------------------------ மொழியில் தெரிவித்து, என்னைப் பொறுத்தவரைப் பங்கேற்பாளரால் புரிந்துகொள்ளப்பட்டுள்ளேன் , மேலும் அவர் மேற்கூறியப் பாரபட்சமற்ற சாட்சியின் முன்னணியில் பங்கேற்க முழுமனதுடன் சம்மதம் தெரிவித்துள்ளார் (எங்குத் தேவையோ)

The clear and precise information of this study/research is handed over in ....
As far as I understand the participant has clearly understood it all, moreover he/she has willingly consented to participate before the above mentioned unbiased witness (Wherever necessary)

ஒப்புதல் பெறுபவரின் அச்சிடப்பட்டப் பெயர் Printed name of the person who receive the consent

ஒப்புதல் பெறுபவரின் கையொப்பம் Signature of the person who receive consent

தேதி Date

(*பங்கேற்கும் நபர் எழுதவும் படிக்கவும் இயலவில்லை என்றால் மட்டுமே இதை நிரப்பவும்)
(*Fill up this only if the participant is an illiterate)

இந்த தகவலறிந்த ஒப்புதல் வடிவத்தின் பிரதி பங்கேற்பாளரிடம் கொடுக்கப்பட்டுள்ளது
A copy of this informed consent document has been provided to the participant.

[தகவலறிந்த பங்கேற்பாளர் ஒப்புதல் பாரபட்சமற்ற சாட்சியின் முன்னிலையில்_ 03.05.2018_வ்4] ([Informed Consent for Participant with Impartial witness_03.05.2018_v4])

12.4.2. Interview information sheet

பங்கேற்பாளர் தகவல் தாள்

Information sheet of participant

ஆராய்ச்சியின் பெயர்: தமிழ் நாட்டில் முதியோர் பராமரிப்பு பற்றிய மனப்பான்மை
Name of Study: Attitudes towards the care of the elderly in Tamilnadu

முறை : நேர்முகம்
Mode: Interview

முன்னுரை Introduction

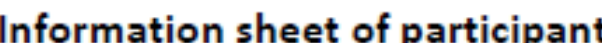
யுனைட்டெட் கிங்க்டமை சேர்ந்த லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டல மருத்துவப் பள்ளி மற்றும் ஐஐடி, சென்னையைச் சேர்ந்த ஒரு ஆராய்ச்சியாளர் தனது பீஎச்.டி பட்ட படிப்பு தொடர்பாக தமிழ் நாட்டில் ஒரு ஆராய்ச்சியில் ஈடுபட்டிருக்கிறார். இந்த ஆய்வின் நோக்கம் – முதியோர் பராமரிப்பு பற்றிய மக்களின் மனப்பான்மை என்னவென்று அறிதல். நீங்கள் இதில் பங்கேற்கும் பட்சத்தில், இந்த ஆய்வைப் பற்றிய விவரங்களையும் இது உங்களை எப்படிப் பாதிக்கும் என்பதும் தெரிந்துகொள்ளவேண்டும். இதில் பங்கு கொள்வது முற்றிலும் தங்கள் விருப்பமே. இந்த விவரத் தாளை எங்கள் குழுவிலிருந்து ஒருவர் உங்களுக்கு எடுத்துரைப்பதோடு உங்களுக்குக் கேள்விகள் இருந்தால் பதில் அளிப்பார். இதில் ஏதேனும் விவரம் தெளிவாக இல்லையென்றாலோ உங்களுக்கு மேலும் விவரம் தேவை பட்டாலோ தாராளமாக கேட்கலாம். இந்த ஆய்வை பற்றி மற்றவர்களுடன் தாராளமாக நீங்கள் கலந்து பேசலாம். இதில் பங்கேற்பதை பற்றி நேரம் எடுத்து யோசித்து முடிவெடுங்கள்.
A researcher at the London School of Hygiene and Tropical Medicine (LSHTM), based in the UK, and the Indian Institute of Technology Madras (IITM) is carrying out a research study as part of their PhD project in Tamil Nadu. The aim of the study is to understand the attitudes of adults regarding care of elderly family members. Before you decide whether you want to take part, it is important that you understand the purpose of the study and what taking part would mean for you. Taking part is completely up to you. One of our team will go through this information sheet with you and answer any questions you may have. Ask questions if anything you read is not clear or you would like more information. Please feel free to talk to others about the study if you wish. Take time to decide whether or not to take part.

இந்த *0B86*ய்வின் நோக்கம் என்ன? What is the aim/objective of this study?

இந்தியாவில், முக்கியமாக தமிழ்நாட்டில், நிறையச் சமூக மாற்றங்கள் ஏற்படுகின்றன, உதாரணத்திற்கு இளைஞர்களின் குடும்பங்கள் சிறியதாகிவிட்டன, இவர்கள் வேலையைத் தேடி நகரங்களுக்குச் செல்கிறார்கள். அதே சமயத்தில் மக்களின் ஆயுள் காலம் அதிகரித்து உள்ளது. இந்த ஆய்வின் மூலம், வயதானவர்களிடம் மக்களின் மனப்பான்மையைப் புரிந்து கொள்ள நாங்கள் விரும்புகிறோம்; தற்பொழுது இந்தியாவில் இந்த தலைப்பை பற்றிக் குறைவான தகவலே உள்ளது. இந்த ஆய்வின் அடிப்படை நோக்கம் வயதானவர்களுக்குத் தரமான பராமரிப்பு அளிப்பதற்கு வயதானோர் மற்றும் அவர்களை பராமரிப்போர் இருவருக்கும் ஏற்ற வழிகளை அமைத்துக் கொடுப்பது தான்.

In India, especially in Tamilnadu, a lot of social changes are taking place, for instance the families of the youngsters turned nuclear, as they move to cities in search of jobs. At the same time life expectancy of people also have increased. With this study, we wish to learn about the attitude of people about caring for older persons; at present there is little information available about this topic. The basic objective of this study is to enable better ways to care for both for the elderly and their caregivers.

நான் இதில் பங்கேற்க ஏன் அழைக்கப்பட்டுள்ளேன்? Why I have been invited to participate in this?



Information sheet of participant

நீங்கள் தமிழ்நாட்டில் வாழ்ந்து வருகிறீர்கள், 20 மற்றும் 59 வயதிற்கு உட்பட்டவர்கள் என்பதால் இந்த ஆய்வில் கலந்து கொள்ள அழைக்கப்பட்டுள்ளீர்கள். இந்த வயதினரைச் சேர்ந்தவர்கள் எதிர்கால பராமரிப்பாளர்களையும் பெறுநர்களையும் உள்ளடக்கியவர்கள். இது தற்போதைய நபர்களையும் கொண்டிருக்கக்கூடும். மொத்தத்தில், 25 பேர் இந்த ஆய்வில் கலந்துகொள்வார்கள்.

You have been invited to participate in this study for you belong to the 20 to 59 years age group of people residing in Tamilnadu. People who belong to this age-group includes the future caregivers and recipients. This may contain the present persons as well. Altogether, 25 people will participate in this study.

நான் பங்கேற்க வேண்டுமா? Do I have to take part?

இந்த ஆய்வில் பங்கு கொள்வது முற்றிலும் தங்கள் விருப்பமே. நீங்கள் இதற்கு ஒப்புக்கொண்டால் எழுத்துமூலம் சம்மதம் தர கேட்டுக் கொள்ளப்படுவீர்கள். இதன் மூலம் இந்த ஆய்வில் உங்கள் பங்கு என்னவென்று உங்களுக்குப் புரிந்து இதில் பங்கேற்க சம்மதம் என்று தெரிவிக்கிறீர்கள்.
It is entirely your choice whether you take part in the study. If you wish to take part, you will be asked to provide written consent. Providing consent means that you understand what participation will consist of, and that you wish to take part.

நான் என்ன செய்ய வேண்டும்? What will I have to do?

இந்த ஆய்வில் பங்கேற்க எங்கள் குழுவின் ஒரு ஆய்வாளருடன் ஒரு பேட்டியில் கலந்து கொள்ள வேண்டியிருக்கும். இந்தப் பேட்டி சுமார் ஒரு மணி நேரத்திற்கு நடக்கும், இதில் நீங்களும் பேட்டிகாண்பவரும் ஒருவருக்கு ஒருவர் பேசிக்கொள்வீர்கள், இது உங்களுக்கு வசதியான இடத்திலும் நேரத்திலும் நடக்கும். நீங்கள் சொல்வதை சரியாகக் குறித்துக்கொள்ள உங்கள் அனுமதியுடன் இந்தப் பேட்டி ஆடியோ பதிவு செய்யப் படும். வயதான பெற்றோரை கவனித்துக்கொள்வதன் மூலம் உங்கள் எண்ணங்களையும் அனுபவங்களையும் இந்த கேள்விகள் அடக்கும்."உங்களுடைய ஆரம்ப நேர்காணலுக்குப் பிறகு எதிர்காலத்தில் உங்களை மீண்டும் பேட்டி காண விரும்புகிறோம், இது உங்களுடைய விருப்பமாகும், மேலும் உங்களைத் தொடர்பு கொள்ள எங்களுக்கு விருப்பமான முறையை நீங்கள் தேர்வு செய்யலாம்.
Taking part in the study will involve an interview with a researcher from our team. The interview will take approximately one hour, be conducted one-to-one with yourself and the interviewer, and take place at a location and time of your choice. With your permission, the interview will be audio-recorded so that what is said is accurately noted. The questions will cover your thoughts and experiences around caring for elderly parents. We may want to interview you again in the future, after your initial interview. This is your choice and you can choose your preferred method for us to contact you.

இதன் சாத்தியமான அபாயங்களும் குறைபாடுகளும் என்ன? What are the possible risks and disadvantages?

அநேகருக்கு, குடும்பப் பராமரிப்பு தனிப்பட்ட பிரச்சினை, மேலும் இது சம்பந்தப்பட்ட கேள்விகளுக்கு பதில் கூறுவது சில அசௌகரியங்களை உருவாக்கலாம்.

To many, family care is a personal issue and you may feel some discomfort in answering related questions.

இதன் நன்மைகள் என்னவாக இருக்கக் கூடும்? What are the advantages of this?

இந்த ஆய்வு உங்களுக்கு நேரடியாகப் பயனளிக்கும் என்று எங்களால் உறுதியளிக்க முடியாது, ஆனால் இதன் மூலம் நாங்கள் பெறும் தகவல்கள் முதியோர்களைப் பார்த்துக்கொள்ள மக்களின் விருப்பங்களை

நாங்கள் புரிந்துகொண்டு பராமரிப்பாளர் மற்றும் பயன் பெறுபவர் நலனைப் பற்றி முடிவுகள் மேற்கொள்ளலாம்.
We can't assure you that this interview will have direct benefits for you, but the data we gather with this will help us take decisions about benefits for care takers and beneficiaries.

இதில் பங்கேற்க எனக்குச் சன்மானம் உண்டா? Will I be paid to take part?

இதில் கலந்து கொள்ள தங்களுக்கு பணம் கொடுக்க படாது.

We cannot provide any compensation for you to take part.

இதில் தவறு ஏதேனும் நடந்தால்? If anything goes wrong?

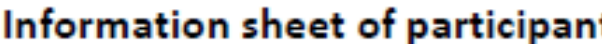
இந்த ஆய்வை பற்றி ஏதேனும் சன்தெகம் இருந்தால், எங்கள் ஆய்வாளர்களிடம் நீங்கள் தாராளமாகக் கேட்கலாம். அவர்கள் உங்கள் சந்தேகங்களை போக்கத் தக்க முயற்சிகள் மேற்கொள்வார்கள் (ஜூடித் லீபெர், *Judith.lieber1@lshtm.ac.uk; +917358476031, +447743102453*). உங்களுக்கு இன்னும் மீறி குறைகள் ஏதும் இருந்தால் நீங்கள் பாட்ரீசியா ஹென்லீ என்பவரை *rgio@lshtm.ac.uk* அல்லது *+44 (0) 20 7927 2626* யில் தொடர்பு கொள்ளலாம்.
If at all you are concerned about this study, you may please feel free to ask questions to our researchers. They will take efforts to clear your doubts (Judith Lieber, Judith.lieber1@lshtm.ac.uk;+917358476031, +447743102453). If at all you have more grievances you may contact Patricia Henley at rgio@lshtm.ac.uk or +44 (0) 20 7927 2626.

இதில் பங்கேற்பதை பற்றி நான் மனம் மாற முடியுமா? Can I change my mind about my participation in this?

இந்த ஆய்வில் பங்குகொள்ள சம்மதம் கூறியபின் விலக நினைத்திர்கள் என்றால் நீங்கள் எப்பொழுது வேண்டுமானாலும் விலகலாம். விலகுவதற்குக் காரணம் ஏதும் சொல்ல தேவை இல்லை. நீங்கள் விலக நினைத்தால், இதுவரை நீங்கள் அளித்திருக்கும் தகவலை நாங்கள் உபயோகிப்பது உங்கள் விருப்பமே.
If you choose to take part but then do not want to carry on with the study, you are free to withdraw at any time. You do not have to provide a reason for withdrawing. If you choose to withdraw, it is your choice as to whether we can use the data collected so far.

என்னைப் பற்றி சேகரித்த தகவல்களுக்கு என்ன நடக்கும்? What will happen to information collected about me?

நீங்கள் அளிக்கும் தகவல்கள் முற்றிலும் இரகசியமாக வைத்திருக்கப்படும். நீங்கள் அளித்திருக்கும் தகவலில் உங்களை அடையாளும் காட்டும் விஷயம் ஏதேனும் இருந்தால் (உதாரணத்திற்குப் பெயர்கள்), அவை எங்கள் தரவு தொகுப்பிலிருந்து நீக்கப் பட்டு இந்த இரகசியமான தரவு தொகுப்பு பாதுகாப்பாகச் சேமிக்கப்படும், இத்தகவலை எங்கள் ஆய்வுக் குழு மட்டுமே காண முடியும். நீங்கள் அளிக்கும் தகவல் உரை ஆவணமாக ஒரு பாதுகாப்பான கணினியில் சேமிக்கப்படும். மற்ற பங்கேற்பாளர்கள் அளித்திருக்கும் பேட்டிகளுடன் சேர்த்து எங்கள் தலைமை ஆராய்ச்சியாளரால் பகுப்பாய்வு செய்யப்படும். எதிர்காலத்தில், உங்கள் அனுமதியுடன், தலை ஆராய்ச்சியாளர்ப் பெயரிடப்படாத நேர்முக தரவுத் தொகுப்புகளை (தங்களுடையதும் சேர்த்து) மற்ற தகுதியான ஆராய்ச்சியாளர்களிடம் பங்கு கொள்ளலாம். இதில் உங்களது விருப்பத்தை நீங்கள் தெரிவிக்கலாம், வேண்டுமென்றால் இந்த ஆய்வுக் குழு மட்டும் உங்கள் நேர்முக தகவலை ஆராய நீங்கள் குறிப்பிடலாம்.



பங்கேற்பாளர் தகவல் தாள்

Information sheet of participant

All the information that you provide will be kept strictly confidential. Any information that you provide that could potentially identify you (for instance names) will be removed from the data-set, the anonymised data-set will be stored securely, and only the research team will have access to the data. The information you provide will be stored in a text document on a secure computer, with all identifying information removed. This will be analysed by the lead researcher, alongside the interviews of other participants. In the long-term, with your permission, the lead researcher will make the anonymised data-set of all the interviews (including yours) available to other researchers who they deem appropriate. This is completely optional, you can choose for only the study team to have access to your interview data.

இந்த ஆய்வின் முடிவுக்கு என்ன நடக்கும்? What will happen to the results of this study?

எங்கள் தலைமை ஆராய்ச்சியாளர் ஆய்வு முடிவுகளை ஒரு அறிவியல் பத்திரிக்கையில் வெளியிடுவார் மற்றம் மாநாட்டில் முன்வைப்பார் . பெயர் விவரங்கள் வெளியிடப்படாது. உங்களுக்கும் இந்த முடிவுகளுக்கும் எந்தத் தொடர்பும் காண இயலாது.

The lead researcher will write the results in their PhD thesis, publish them in a paper in a scientific journal and present them at conferences, with all the data completely anonymized. There is no way that you would be identifiable from the results.

இந்த ஆய்வை யார் ஏற்பாடு செய்து நிதி வழங்குகிறார்? Who funds and organize this study?

லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டலப் பள்ளி இந்த ஆய்விற்குத் தேவையான நிதி வழங்குவதுடன் இந்தத் திட்டத்திற்கான தரவு சேகரிப்பு, சேமிப்பு மற்றும் பகுப்பாய்வு வேலைகளை பார்த்துக் கொள்கிறது. இதன் நிதி இரண்டு கழகங்களால் வழங்கப்பட்டுள்ளது – அவை யூனைட்டெட் கிங்கடமின்க ஆராய்ச்சி கழகம் மற்றும் லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டல மருத்துவப் பள்ளி.
London School of Hygiene & Tropical Medicine will provide the funds required for this study and will take care of collection of data, saving and reviewing of the same. The fund is provided by two corporations – they are the Economic and Social Research corporation of the United Kingdom and the London School of Hygiene & Tropical Medicine.

இந்த ஆய்வில் யார் சோதனை செய்தார்? Who has checked this study?

மனித பங்கேற்பாளர்கள் இருக்கும் அனைத்து ஆராய்ச்சிகளும் உங்கள் நலனைக் கருதி "ஆராய்ச்சி நெறிமுறைகள் குழு" என்னும் ஒரு தனிப்பட்ட குழுவால் மதிப்பாய்வு செய்யப்படும். இந்த ஆய்வு லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டலப் பள்ளியின் ஆராய்ச்சி நெறிமுறைகள் குழுவாலும், இந்திய தொழில்நுட்ப கழகத்தின் ஆராய்ச்சி நெறிமுறைகள் குழுவாலும் மதிப்பாய்வு செய்யப்பட்டு இரண்டு குழுக்களும் எங்களுக்கு மக்களை இந்த ஆராய்ச்சியில் பங்கேற்க அழைப்பதற்கு அனுமதி வழங்கியுள்ளன.
For your safety, all research that includes human participants will be reviewed by a separate team the "Research ethics team". This research will be reviewed by the ethics team of both London School of Hygiene & Tropical Medicine and Indian Institute of Technology. Both teams have granted us permission to invite people to participate in this research.

மேலும் விவரங்கள் மற்றும் தொடர்புக்கு Contact for more details

Judith.lieber1@lshtm.ac.uk; +447743102453; +7358476031

இந்த விவர தாளை படித்ததற்கு நன்றி. நீங்கள் இந்த ஆய்வில் பங்கேற்பதாக இருந்தால் இந்த ஒப்புதல் படிவத்தை படித்து கையொப்பம் இடவும்.

Thanks for reading this data sheet. If you are to participate in this study you may read this consent form and sign it.

12.4.3. Focus-group consent form

பங்கேற்பாளர் ஒப்புதல் படிவம் – குழு நேர்காணல்
Participant's consent form – group interview

ஆய்வின் பெயர் : தமிழ் நாட்டில் முதியோர் பராமரிப்பு பற்றிய மனப்பான்மை

Name of Study: Experience towards the care of the elderly in Tamilnadu

ஆராய்ச்சியாளரின் பெயர் : ஜூடித் லீபெர் Name of the study's researcher: Judith Lieber

அறிக்கை **Statement**	தயவுசெய்து கையொப்பம் அல்லது குறியீடு போடவும் **Please either sign it or mark it.**
நான், இந்த ஆராய்ச்சிக்கான 03/05/2018 தேதி இடப்பட்ட (பதிப்பு 2) தகவல் ஆவணத்தை படித்துள்ளேன் என்று உறுதிப்படுத்தி தெரிவித்துக் கொள்கிறேன். எனக்கு இத்தகவலை தெரிவிப்பதன் மூலம், கேள்விகள் கேட்பதற்கும் பதில் பெறுவதற்கும் சந்தர்ப்பம் கிடைத்துள்ளது. I confirm that I have read the information document dated 03/05/2018 (Version 2). Suggesting this information to me, I got an opportunity to ask questions and get answers for the same அல்லது OR இத்தகவலை எனக்குப் புரியும் மொழியில் ஆய்வுப் பணியாளரால் தெளிவாக எடுத்துரைக்கப் பட்டுள்ளது. எனக்கு இத்தகவலை தெரிவிப்பதன் மூலம், கேள்விகள் கேட்பதற்கும் பதில் பெறுவதற்கும் சந்தர்ப்பம் கிடைத்துள்ளது. These information were clearly explained to me by the researcher in a language I understand well. Suggesting this information to me, I got an opportunity to ask questions and get answers for the same	
இதில் பங்கேற்பது எனது விருப்பமே, அதே போல் நான் எப்பொழுது வேண்டுமானாலும் காரணமின்றி விலகிக்கொள்ளலாம் என்று புரிந்துகொள்கிறேன் Participating in this is my choice, also I understand I can decline at any time without citing any reasons.	
இந்த ஆய்வில் என் பங்கு எங்கு வருகின்றதோ , அதில் சேர்க்கப் பட்ட தகவல்கள் லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டலம் மருத்துவப் பள்ளி மற்றும் ஐஐடி சென்னையால் நியமிக்கப்பட்ட நபர்களால் பார்க்க படும் என்று நான் புரிந்துகொள்கிறேன். இந்த நபர்கள் என் பதிவுகளைப் பயன்படுத்த நான் ஒப்புக்கொள்கிறேன். Wherever my role appears in this research, I understand that the information entered in it will be seen by people who were assigned by London School of Hygiene & Tropical Medicine and IIT, Chennai. I agree that these people can use my registrations (information provided).	
இந்த ஆய்விற்குப் பொருந்தும் வகையில், (பெயர் குறிப்பிடப்படாமல்) சேர்க்கப்பட்ட தகவல்கள் மேற்கூறிய ஆராய்ச்சியாளரின் அனுமதியுடன் மற்ற தகுதியான ஆராய்ச்சியாளர்களிடம் பகிர்ந்துகொள்ளப்படும் என்று நான் புரிந்துகொண்டேன். I understand that, as suitable for this study, information entered anonymously will be shared to other eligible researchers, with consent from the above mentioned researcher.	
எனதுப் பேட்டியை ஆடியோவில் பதிவு செய்யவும் என் மேற்கோள்கள் என்னைச் சார்ந்தவை எனத் தெரிவிக்காத நிலையில் என்னிடம் சேகரிக்க பட்ட தகவல்கள் பொது வேலைகளில் பயன்படுத்தவும் நான் சம்மதம்	

இந்த தகவலறிந்த ஒப்புதல் வடிவத்தின் பிரதி பங்கேற்பாளரிடம் கொடுக்கப்பட்டுள்ளது
A copy of this informed consent document has been provided to the participant.

[தகவலறிந்த பங்கேற்பாளர் ஒப்புதல் பாரபட்சமற்ற சாட்சியின் முன்னிலையில்_03.05.2018_வ2] ([Informed Consent for Participant with Impartial witness_03.05.2018_v2])

பங்கேற்பாளர் ஒப்புதல் படிவம் – குழு நேர்காணல்
Participant's consent form – group interview

தெரிவித்துக்கொள்கிறேன். I consent to my interview being audio-recorded and direct quotes being used in publicly available work, dependent on me not being identifiable from them	
இந்த ஆராய்ச்சியில் பங்கேற்க எனக்குச் சம்மதம். I agree to participate in this study/research	

பங்கேற்பாளரின் அச்சிடப்பட்டப் பெயர் Printed name of the participant
பங்கேற்பாளரின் கையொப்பம் Signature/ thumb print of the participant
தேதி Date

பாரபட்சமற்ற சாட்சியின் அச்சிடப்பட்டப் பெயர்* Printed name of the unbiased witness*
பாரபட்சமற்ற சாட்சியின் கையொப்பம்* Signature of the unbiased witness*
தேதி Date

இந்த ஆய்வின் தகவலை தெளிவாகவும் துல்லியமாகவும் ------------------------ மொழியில் தெரிவித்து, என்னைப் பொறுத்தவரைப் பங்கேற்பாளரால் புரிந்துகொள்ளப்பட்டுள்ளேன் , மேலும் அவர் மேற்கூறியப் பாரபட்சமற்ற சாட்சியின் முன்னணியில் பங்கேற்க முழுமனதுடன் சம்மதம் தெரிவித்துள்ளார் (எங்குத் தேவையோ)

The clear and precise information of this study/research is handed over in ....
As far as I understand the participant has clearly understood it all, moreover he/she has willingly consented to participate before the above mentioned unbiased witness (Wherever necessary)

ஒப்புதல் பெறுபவரின் அச்சிடப்பட்டப் பெயர் Printed name of the person who receive the consent
ஒப்புதல் பெறுபவரின் கையொப்பம் Signature of the person who receive consent
தேதி Date

(*பங்கேற்கும் நபர் எழுதவும் படிக்கவும் இயலவில்லை என்றால் மட்டுமே இதை நிரப்பவும்)
(*Fill up this only if the participant is an illiterate)

இந்த தகவலறிந்த ஒப்புதல் வடிவத்தின் பிரதி பங்கேற்பாளரிடம் கொடுக்கப்பட்டுள்ளது
A copy of this informed consent document has been provided to the participant.

[தகவலறிந்த பங்கேற்பாளர் ஒப்புதல் பாரபட்சமற்ற சாட்சியின் முன்னிலையில்_03.05.2018_வ2] ([Informed Consent for Participant with Impartial witness_03.05.2018_v2])

12.4.4. Focus group information sheet

பங்கேற்பாளர் தகவல் தாள்

Information sheet of participant

ஆராய்ச்சியின் பெயர்: தமிழ் நாட்டில் முதியோர் பராமரிப்பு பற்றிய அனுபவம்
Name of Study: Experiences towards the care of the elderly in Tamilnadu

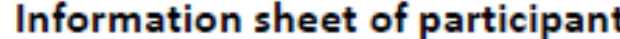
முறை : நேர்முகம்
Mode: Group Interview

முன்னுரை / **Introduction**

யுனைட்டெட் கிங்க்டமில் உள்ள லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டல மருத்துவப் பள்ளி மற்றும் ஐஐடி, சென்னையைச் சேர்ந்த ஒரு ஆராய்ச்சியாளர் தனது பீஎச்.டி பட்ட படிப்பு தொடர்பாக தமிழ் நாட்டில் ஒரு ஆராய்ச்சியில் ஈடுபட்டிருக்கிறார். இந்த ஆய்வின் நோக்கம் – வயதான குடும்ப உறுப்பினர்களின் கவனிப்பு தொடர்பான வயது வந்தோரின் அனுபவங்களை புரிந்து கொள்வதே ஆகும். நீங்கள் பங்கேற்க விரும்புவதற்கு முன்னர் தீர்மானிக்கப்படுவதற்கு முன்னர், ஆய்வுக்கான நோக்கம் என்ன என்பதைப் புரிந்துகொள்வதும், பங்கேர்பதற்கான அர்த்தம் அறிவது முக்கியம். இதில் பங்கு கொள்வது முற்றிலும் உங்கள் விருப்பமே. இந்த விவரத் தாளை எங்கள் குழுவிலிருந்து ஒருவர் உங்களுக்கு எடுத்துரைப்பதோடு உங்களுக்குக் கேள்விகள் இருந்தால் பதில் அளிப்பார். இதில் ஏதேனும் விவரம் தெளிவாக இல்லையென்றாலோ உங்களுக்கு மேலும் விவரம் தேவை பட்டாலோ தாராளமாக கேட்கலாம். இந்த ஆய்வை பற்றி மற்றவர்களுடன் தாராளமாக நீங்கள் கலந்து பேசலாம். இதில் பங்கேற்பதை பற்றி நேரம் எடுத்து யோசித்து முடிவெடுங்கள்.
A researcher at the London School of Hygiene and Tropical Medicine (LSHTM), based in the UK, and the Indian Institute of Technology Madras (IITM) is carrying out a research study as part of their PhD project in Tamil Nadu. The aim of the study is to understand the experiences of adults regarding care of elderly family members. Before you decide whether you want to take part, it is important that you understand the purpose of the study and what taking part would mean for you. Taking part is completely up to you. One of our team will go through this information sheet with you and answer any questions you may have. Ask questions if anything you read is not clear or you would like more information. Please feel free to talk to others about the study if you wish. Take time to decide whether or not to take part.

இந்த ஆய்வின் நோக்கம் என்ன? **What is the aim/objective of this?**

இந்தியாவில், குறிப்பாக தமிழ்நாட்டில், பெரிய சமூக மாற்றங்கள் நடைபெறுகின்றன, உதாரணமாக பல இளைஞர்கள் சிறிய குடும்பங்களைக் கொண்டிருப்பதோடு, வேலைக்காக நகரங்களை நோக்கி நகர்கின்றனர். அதே நேரத்தில், மக்கள் நீண்ட மற்றும் நீண்ட காலம் வாழ்கின்றனர். இந்த மாற்றங்களின் விளைவாக, குடும்பங்கள் தங்கள் வயதான உறவினர்களுக்கான கவனிப்புகளை வழங்குவதற்கு இது மிகவும் கடினமாகி வருகிறது. இந்த ஆய்வின் மூலம், வயதான குடும்ப உறுப்பினர்களுக்கான கவனிப்புப் பற்றி வயது வந்தவர்கள் அனுபவிக்கும் அனுபவங்களைப் புரிந்துகொள்ளாம் என்று நாங்கள் நம்புகிறோம், ஏனெனில் இந்தியாவில் இந்த தலைப்பை பற்றி தற்போது மிகவும் குறைவான அளவிலேயே தெறியவந்துள்ளது. முதியவர்களுக்கு தரமான பராமரிப்பு வழிகளை உருவாக்குவதுற்கு இந்த தகவலைப் பயன்படுத்துவதே இறுதி நோக்கமாகும். அவை இரண்டும் பராமரிப்பு வழங்குபவருக்கும், கவனிப்பு பெறுவருக்கும் உதவும்.



Information sheet of participant

In India, and Tamil Nadu in particular, big social changes are happening, for instance many young people are having smaller families and moving to the cities for work. At the same time, people are living longer and longer. As a result of all these changes, it is becoming increasingly difficult for families to provide care for their elderly relatives. Through this study, we hope to understand the experiences that adults have around caregiving for elderly family members, as very little is currently known on this topic in India. The ultimate goal is to use this information to establish ways of maintaining a quality system of care for older people, that works for both those providing and receiving care.

நான் இதில் பங்கேற்க ஏன் அழைக்கப்பட்டுள்ளேன்? Why I have been invited to participate in this?

நீங்கள் தமிழ்நாட்டில் வசிக்கின்றீர்கள் என்பதால், நீங்கள் வயதான குடும்ப உறுப்பினரை கவனித்துக் கொள்ளும் தற்போதைய அல்லது சமீபத்திய அனுபவத்தைக் கொண்டிருப்பதால், இந்த ஆய்வில் பங்கேற்க அழைக்கப்பட்டுள்ளீர்கள், மேலும் 20 மற்றும் 69 வயதிற்கு உட்பட்டவராக உள்ளீர்கள்.வயதான குடும்ப உறுப்பினர்களுக்கு உங்கள் சமூகத்தில் அக்கறை இருப்பதைப் பற்றி அறிய விரும்புகிறோம், மற்றும் உங்கள் சொந்த அனுபவங்கள் காரணமாக உங்களிடம் ஒரு நல்ல யோசனை இருக்கும் என்று நினைக்கிறேன்.
You have been invited to participate in the study because you are living in Tamil Nadu, have current or recent experience of caring for an aging family member, and are aged between 20 and 69. We wish to learn about how people in your community care for aging family members, and feel you will have a good idea due to your own experiences.

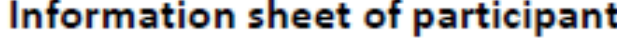
நான் பங்கேற்க வேண்டுமா? Do I have to take part?

இந்த ஆய்வில் பங்கு கொள்வது முற்றிலும் தங்கள் விருப்பமே. நீங்கள் இதற்கு ஒப்புக்கொண்டால் எழுத்துமூலம் சம்மதம் தர கேட்டுக் கொள்ளப்படுவீர்கள். இதன் மூலம் இந்த ஆய்வில் உங்கள் பங்கு என்னவென்று உங்களுக்குப் புரிந்து இதில் பங்கேற்க சம்மதம் என்று தெரிவிக்கிறீர்கள்.
It is entirely your choice whether you take part in the study. If you wish to take part, you will be asked to provide written consent. Providing consent means that you understand what participation will consist of, and that you wish to take part.

நான் என்ன செய்ய வேண்டும்? What will I have to do?

இந்த ஆய்வில் பங்கெடுப்பது எங்கள் குழுவினரிடமிருந்து இரண்டு ஆராய்ச்சியாளர்களுடன் ஒரு குழு நேர்காணலையும், உங்கள் சமூகத்தில் இருந்து ஏறத்தாழ 7 மற்ற ஆண்கள் / பெண்களையும் உள்ளடக்கியது. பேட்டி ஏறக்குறைய ஒரு மணி நேரம் எடுக்கும், மற்றும் உங்கள் உள்ளூர் சமூகத்தில் உள்ள பொருத்தமான தனியார் இருப்பிடத்தில் நடைபெறும், உங்களுக்கும் மற்றும் மற்றவர்களுக்கும் வசதின நேரத்தில் பேட்டி எடுக்க படும். உங்கள் அனுமதியுடன், நேர்காணல் ஆடியோ பதிவு செய்யபடும் என்பதால், என்ன சொல்லப்படுகிறது என்பது துல்லியமாக குறிப்பிடப்படும். உங்கள் சமுதாயத்தில் வயதான உறவினர்களுக்காக மக்கள் எவ்வாறு அக்கறை காட்டுகிறார்கள், இது எப்படி அவர்களை பாதிக்கலாம் என்பதே கேள்வியாகும். மொத்தம் 8 குழு நேர்காணல்களில் 4 வெவ்வேறு சமூகங்களுக்கிடையில் நடைபெற்று வருகிறத

Taking part in the study will involve a group interview with two researchers from our team, and approximately 7 other men/women from your community. The interview will take approximately one hour and take place at a suitably private location in your local community, and at a time preferred by yourself and the other people in the interview. With your permission, the interview will be audio-recorded so that what is said is accurately noted. The questions will cover how



Information sheet of participant

people care for their elderly relatives in your community, and how this can affect them. In total 8 of these group interviews are taking place, across 4 different communities

இதன் சாத்தியமான அபாயங்களும் குறைபாடுகளும் என்ன? What are the possible risks and disadvantages?

அநேகருக்கு குடும்பப் பராமரிப்பு தனிப்பட்ட பிரச்சினை, மேலும் இது சம்பந்தப்பட்ட கேள்விகளுக்கு பதில் கூறுவது சில அசௌகரியங்களை உருவாக்கலாம். கூடுதலாக, இது ஒரு குழு நேர்காணல் என்பதால், இங்கு பேசப்படுவது குழுவிற்கு வெளியில் திரும்பத் திரும்ப கூறப்படும் வாய்ப்பு உள்ளது. இதைச் செய்யக்கூடாது என்று மக்களுக்கு நாம் குறிப்பாகக் கேட்போம்,ஆனால் அது நடக்காது என்று நாம் உறுதிப்படுத்த கூற முடியாது. நீங்கள் விரும்பினால் எல்லா கேள்விகளுக்கும் பதில் சொல்ல வேண்டிய அவசியமில்லை.

To many, family care is a personal issue and you may feel some discomfort in answering related questions. In addition, because it is a group interview, there is a chance what is said might be repeated outside of the group. We shall specifically ask people not to do this, but we cannot assure that it will not happen. You do not have to answer all the questions if you wish.

இதன் நன்மைகள் என்னவாக இருக்கக் கூடும்? What are the benefits of this?

இந்த ஆய்வு உங்களுக்கு நேரடியாகப் பயனளிக்கும் என்று எங்களால் உறுதியளிக்க முடியாது, ஆனால் இதன் மூலம் நாங்கள் பெறும் தகவல்கள் முதியோர்களைப் பார்த்துக்கொள்ள மக்களின் விருப்பங்களை நாங்கள் புரிந்துகொண்டு பராமரிப்பாளர் மற்றும் பயன் பெறுபவர் நலனைப் பற்றி முடிவுகள் மேற்கொள்ளலாம்.
We can't assure you that this interview will have direct benefits for you, but the data we gather with this will help us take decisions about benefits for care takers and beneficiaries.

இதில் பங்கேற்க எனக்குச் சன்மானம் உண்டா? Will I be paid to take part?

இதில் கலந்து கொள்ள தங்களுக்கு பணம் கொடுக்க படாது.

We cannot provide any compensation for taking part.

இதில் தவறு ஏதேனும் நடந்தால்? If anything goes wrong?

இந்த ஆய்வை பற்றி ஏதேனும் கவலை இருந்தால், எங்கள் ஆய்வாளர்களிடம் நீங்கள் தாராளமாகக் கேட்கலாம். அவர்கள் உங்கள் சந்தேகங்களை போக்கத் தக்க முயற்சிகள் மேற்கொள்வார்கள் (ஜூடித் லீபெர், Judith.lieber1@lshtm.ac.uk;+447743102453; +917358476031). உங்களுக்கு இன்னும் மீறி குறைகள் ஏதும் இருந்தால் நீங்கள் பாட்ரீசியா ஹென்லீ என்பவரை rgio@lshtm.ac.uk அல்லது+44 (0) 20 7927 2626 யில் தொடர்பு கொள்ளலாம்.
If at all you are concerned about this study, you may please feel free to ask questions to our researchers. They will take efforts to clear your doubts (Judith Lieber, Judith.lieber1@lshtm.ac.uk;+917358476031). If at all you have more grievances you may contact Patricia Henley at rgio@lshtm.ac.uk or +44 (0) 20 7927 2626.

இதில் பங்கேற்பதை பற்றி நான் மனம் மாற முடியுமா? **Can I change my mind about my participation in this?**

இந்த ஆய்வில் பங்குகொள்ள சம்மதம் கூறியபின் விலக நினைத்தீர்கள் என்றால் நீங்கள் எப்பொழுது வேண்டுமானாலும் விலகலாம். விலகுவதற்குக் காரணம் ஏதும் சொல்ல தேவை இல்லை. நீங்கள் விலக நினைத்தால், இதுவரை நீங்கள் அளித்திருக்கும் தகவலை நாங்கள் உபயோகிப்பது உங்கள் விருப்பமே.
You may decline to participate at anytime after giving consent to participate in this study. You don't have to cite any reason for quitting. After taking decision to leave, whatever information share by you will be used by us as per your choice only.

என்னைப் பற்றிய தகவல் எவ்வாறு உபயோகிக்கப் படும்? **How will be the data about me will be used?**

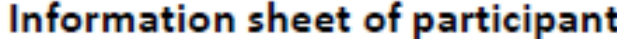
நீங்கள் அளிக்கும் தகவல்கள் முற்றிலும் இரகசியமாக வைத்திருக்கப்படும். நீங்கள் அளித்திருக்கும் தகவலில் உங்களை அடையாளும் காட்டும் விஷயம் ஏதேனும் இருந்தால் (உதாரணத்திற்குப் பெயர்கள்), அவை எங்கள் தரவு தொகுப்பிலிருந்து நீக்கப் பட்டு இந்த இரகசியமான தரவு தொகுப்பு பாதுகாப்பாகச் சேமிக்கப்படும், இத்தகவலை எங்கள் ஆய்வுக் குழு மட்டுமே காண முடியும். நீங்கள் அளிக்கும் தகவல் உரை ஆவணமாக ஒரு பாதுகாப்பான கணினியில் சேமிக்கப்படும். மற்ற பங்கேற்பாளர்கள் அளித்திருக்கும் பேட்டிகளுடன் சேர்த்து எங்கள் தலைமை ஆராய்ச்சியாளரால் பகுப்பாய்வு செய்யப்படும். எதிர்காலத்தில், உங்கள் அனுமதியுடன், தலை ஆராய்ச்சியாளர்ப் பெயரிடப்படாத நேர்முக தரவுத் தொகுப்புகளை (தங்களுடையதும் சேர்த்து) மற்ற தகுதியான ஆராய்ச்சியாளர்களிடம் பங்கு கொள்ளலாம். இதில் உங்களது விருப்பத்தை நீங்கள் தெரிவிக்கலாம், வேண்டுமென்றால் இந்த ஆய்வுக் குழு மட்டும் உங்கள் நேர்முக தகவலை ஆராய நீங்கள் குறிப்பிடலாம்.
Information provided by you will be kept confidential. If at all the information you provided contain anything that could help identify you (names for example), will be removed from our database and will be saved as a confidential database, only our research team could see such information. Along with information provided by other participants our chief researcher will review them. In the future, with your permission, the chief researcher will share the unnamed interview compilation (including that of yours) with others. You may express your opinion about this, if necessary, you may mention that only this research team should analyse details of your interview.

இந்த ஆய்வின் முடிவுகள் எப்படி பயன் படுத்தப்படும்? **How will be the results of this research will be used?**

எங்கள் தலைமை ஆராய்ச்சியாளர் ஆய்வு முடிவுகளை ஒரு அறிவியல் பத்திரிக்கையில் வெளியிடுவார் மற்றும் மாநாட்டில் முன்வைப்பார். பெயர் விவரங்கள் வெளியிடப்படாது. உங்களுக்கும் இந்த முடிவுகளுக்கும் எந்தத் தொடர்பும் காண இயலாது.

The lead researcher will write the results in their PhD thesis, publish them in a paper in a scientific journal and present them at conferences, with all the data completely anonymised. You cannot find any relation between these results with you.

இந்த ஆய்வை யார் ஏற்பாடு செய்து நிதி வழங்குகிறார்? **Who funds and organize this study?**



பங்கேற்பாளர் தகவல் தாள்

Information sheet of participant

லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டலப் பள்ளி இந்த ஆய்விற்குத் தேவையான நிதி வழங்குவதுடன் இந்தத் திட்டத்திற்கான தரவு சேகரிப்பு, சேமிப்பு மற்றும் பகுப்பாய்வு வேலைகளை பார்த்துக் கொள்கிறது. இதன் நிதி இரண்டு கழகங்களால் வழங்கப்பட்டுள்ளது – அவை யூனைட்டெட் கிங்கடமின் பொருளாதாரம் மற்றும் சமூக ஆராய்ச்சி கழகம் மற்றும் லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டல மருத்துவப் பள்ளி.
London School of Hygiene & Tropical Medicine will provide the funds required for this study and will take care of collection of data, saving and reviewing of the same. The fund is provided by two corporations – they are the Economic and Social research corporation of the United Kingdom and the London School of Hygiene & Tropical Medicine.

இதைச் சரிபார்ப்பவர் யார்? **Who will check this?**

மனித பங்கேற்பாளர்கள் இருக்கும் அனைத்து ஆராய்ச்சிகளும் உங்கள் நலனைக் கருதி "ஆராய்ச்சி நெறிமுறைகள் குழு" என்னும் ஒரு தனிப்பட்ட குழுவால் மதிப்பாய்வு செய்யப்படும். இந்த ஆய்வு லண்டன் சுகாதாரம் மற்றும் வெப்பமண்டலப் பள்ளியின் ஆராய்ச்சி நெறிமுறைகள் குழுவாலும், இந்திய தொழில்நுட்ப கழகத்தின் ஆராய்ச்சி நெறிமுறைகள் குழுவாலும் மதிப்பாய்வு செய்யப்பட்டு இரண்டு குழுக்களும் எங்களுக்கு மக்களை இந்த ஆராய்ச்சியில் பங்கேற்க அழைப்பதற்கு அனுமதி வழங்கியுள்ளன.
For your safety, all research that include human participants will be reviewed by a separate team the "Research ethics team". This research will be reviewed by the ethics team of both London School of Hygiene & Tropical Medicine and IIT, Chennai. Both teams have granted us permission to invite people to participate in this research.

மேலும் விவரங்கள் மற்றும் தொடர்பு **Contact for more details**

Judith.lieber1@lshtm.ac.uk; *+7358476031; +447743102453*

இந்த விவர தாளை படித்ததற்கு நன்றி. நீங்கள் இந்த ஆய்வில் பங்கேற்பதாக இருந்தால் இந்த ஒப்புதல் படிவத்தை படித்து கையொப்பம் இடவும்.

Thanks for reading this data sheet. If you are to participate in this study you may read this consent form and sign it.

12.5. Appendix M: Topic guides

12.5.1. Interview topic guide

Introduction (following explanation of the study and informed consent):

Explain how the interview will work

Explain there are no right or wrong answers – interested in their point of view

Explain that you know talking about family can sometimes be upsetting, you can pause any time, talk it through after the interview, and provide them with a phone number for someone to talk to

The discussion will be recorded because we want to be able to concentrate and remember their answers, and it isn't possible to write fast enough to note everything. See if they have any questions, are OK with recording, inform them you are about to begin recording, and begin

Warm up questions

Introduce yourself. Ask some conversational "getting to know" questions, they can be based on the background questionnaire

Introducing the topic

When children are young they need care and support from their parents, for example to cook for and feed them, take them to the health centre, pay for everything they need. When people get old, they can also start to need this kind of care (*பராமரிப்பு*) and support (*ஆதரவு*). In India, families traditionally provide this support for elderly

(முதியோர்) people, but this can sometimes be difficult to do. These challenges can have a negative impact on both them and the elderly relatives they are looking after. As people are living longer now in India, it is important to have a way of supporting older people that works for both them and their families. To do this, we need to know exactly how people think elderly people should be supported and how they wish to provide support for their own families and be looked after themselves. We are interviewing a broad range of people in Tamil Nadu to make sure that everyone's views are understood. This information can be used by government or NGOs to design ways to support the elderly and their families from different backgrounds (e.g., city/village). The following questions all aim to understand your views and preferences for support of elderly people.

Understanding their experiences of elderly care

(As I said) people sometimes start needing support (e.g., paying for things, helping them get around, cooking, feeding them) from others when they reach old ages.

Do you have (or had) any elderly people in your family that need support? Who (***if many, who is the person they know best***)?

(If no) do they have any elderly people in their family who do not need support? What is their situation?

Can you tell me about their situation…

Do you live together?

Did you always live together?

What do they need help with?

E.g., financial, practical, personal care, emotional (e.g., spending time/ chatting with them)

Why did they start needing support?

Health problem? Gradual change?

Who provides the support mainly?

What did they do?

Were they always the main person?

Why was this their role?

What was your role?

Did others apart from the "main caregivers" help out?

Other family members?

Neighbours/community?

NGOs? Religious groups?

Have you ever used private services?

What was your experience?

Does your relative approve?

Do you ever feel "bad" using these?

Thinking of people you know, is this the typical way of supporting elderly people?

Do you know of others who do it differently? What do they do?

Did your relationship with them change when they became more dependent on you? How?

Did their personality or behaviour change? How?

How do you manage this?

Why did you and your family support them in this way? Instead of putting them in a home, or letting others in the family do it?

Understanding any difficulties they experience in providing care (please skip if they have not cared for anyone)

From your experience, can there be challenges in caring for an elderly relative?

Financial burden, time, ***arguments/conflict?***

Can you give me an example of a specific issue you've experienced?

What happened? Why was it difficult? How did you deal with it?

Have you ever wanted to help an elderly relative more but been unable to?

What was the situation – who was the relative, what did they need, did you live together?

Why were you unable to support them more?

What happened? Who did support them?

How did this affect them? And you?

Are some people more difficult to support than others?

E.g., sex, relation, age, health. Why?

Do your elders ever complain (புகார்) about the support they're given?

What do they say?

What do you think of this? How does it make you feel?

Have you ever tried to help an elderly relative who didn't want the help?

What happened? E.g., who was the relation, what help did they need, why did they reject it?

What do you do if they reject it?

If you weren't there to support your relatives, what are their other options?

If you could choose not to look after them, would you?

What are the positives for looking after your relatives like this?

Do you enjoy doing it?

So far we've spoken about your experiences. Now I'm going to ask a bit about your opinions on what you think the best way to care for older people is.

Understanding why different people have different roles in supporting older people

Are children responsible for looking after aging parents?

Why? Why is it their duty?

What should they do for them? (give below examples)

Son for parents? And parents-in-law?

Daughter for parents-in-law? And parents?

Should they live together? Why?

Financial (daily e.g., food, travel, meds, and occasional e.g., healthcare)

Practical (e.g., getting around the community, taking meds, chores, cooking)

Personal (e.g., washing, eating, dressing)

Emotional (e.g., how often should they speak/meet, support when upset)

Are there ever exceptions?

What if they don't have a good relationship?

Does it matter what their parent did for them growing up, e.g., if they didn't get an education?

In your experience, is the relationship between parents and their children different if it is a son or a daughter?

What differs?

Is parent's care something children should think about when making big decisions (e.g., choosing where to take a job or live)?

Why/ why not?

Do people do this now?

Is it something you've taken into consideration? Why/ why not? What did you decide? Would you be willing to turn down a job to stay close to your parents?

Do you think parents owe anything back to children for supporting them in their old-age?

Should they assist the family financially e.g., provide their pension?

Is it acceptable for children to expect their parents to help with chores? Look after grandchildren?

Traditionally it has been a woman's responsibility to be the caregiver, do you agree with this?

Why/ why not?

What if she is employed?

Some tasks are more personal, for instance washing or dressing. Whose responsibility is it to help with these?

Does it matter if the person needing help is a man or woman?

Should people try and be responsible for themselves in their old-age?

E.g., working, planning ahead (savings), paying for a carer

Why/ why not? How can they do this?

Do people do this now – why/ why not?

Do you know of anything the government provides for elderly people or their families?

What?

What should people be able to expect from the government?

Why? For who – the total older population or people without money/families?

Do people expect anything now? Why/ why not?

Understanding how favourable different support arrangements are

I'm going to give you a few examples of ways that elderly people can live and be supported. I'd like you to give me your opinion on each of these, thinking about whether it is a good arrangement.

1. An elderly widow who is physically fit but is lonely, and lives alone but in the same village as her son and his nuclear family. Her son pays for all her costs.

Why might people have this arrangement?

What are the advantages and disadvantages for the widow? And her family?

Is this a good arrangement? Why/ why not?

What would be preferable?

Do you know anyone in a similar arrangement? Can you tell me about that?

2. An elderly couple living with their son and his family. Both need practical help, for instance taking medications, getting up from chairs, moving around the house. Their daughter-in-law helps with all of this.

Why might people have this arrangement?

What are the advantages and disadvantages for the couple? And their daughter-in-law?

Is this a good arrangement? Why/ why not?

What would be preferable?

Would this work if the daughter-in-law is employed?

3. An elderly man being cared for in a private old-age home (முதியோர் இல்லம்), paid for by his only son who lives abroad. He is physically mobile but has started to get easily confused and distressed.

Why might people have this arrangement?

What are the advantages and disadvantages for the elderly man? And his son?

Is this a good arrangement? Why/ why not?

What would be preferable? Should he move to live with his son?

Do you know anyone in a similar arrangement? Can you tell me about that?

4. A widow living with her son and daughter-in-law who both work, and who pay for an outside carer (கவனிப்பாளர்) to come to the house and help her in the day, for instance preparing and eating meals, moving around the house.

Why might people have this arrangement?

What are the advantages and disadvantages for the widow? And her family?

Is this a good arrangement? Why/ why not?

What is preferable?

Would it be better to have a neighbour or friend helped out? Why/ why not?

What if she needed help with personal tasks e.g., dressing, washing?

Do you know anyone in a similar arrangement? Can you tell me about that?

5. A center in the community where older people can spend time together during the day, with volunteers and food provided.

Why might people have this arrangement?

What are the advantages and disadvantages for the older people? Their families?

Is this a good arrangement? Why/ why not?

What would be preferable?

Know of anything similar? Can you tell me about that?

6. An elderly couple living alone in the village, as their children have moved to the city. The older woman is bedridden (படுத்த படுக்கை) and dependent (சார்ந்திருப்பது) on her husband for support with everything e.g., including going to the toilet, washing, eating.

Why might people have this arrangement?

What are the advantages and disadvantages for the older woman? And her husband?

Is this a good arrangement? Why/ why not?

What would be preferable?

Do you know anyone in a similar arrangement? Can you tell me about that?

Thinking about the advantages and disadvantages of each arrangement, which do you think is the best one for the older person?

Which is best for the people supporting them?

If you think of these different examples, do you find any of them upsetting, or make you angry, or happy?

<u>Understanding social pressures regarding elderly care</u>

Imagine you are in a situation where your parents (/parents-in-law **for women**) are aging and in increasing need of financial and day-to-day support. You feel that you don't have the time or money to support them and are considering living separately and stopping paying for their costs.

Whose opinion would you consider when you think or talk about doing this?

E.g., immediate family, extended family, village members, people from local area, no-one

Within this group of people, how do most of them support their aging parents/relatives?

Live together? Pay for their costs? Provide support directly (i.e., not through formal carers?)

Do you think this is what they would expect you to do?

Why – what do people think are the advantages of this arrangement?

What do people think are the disadvantages?

How would they react if you made this decision to not support your relative? E.g., left it to other family members, or to a government old-age home

Would you react the same way if you saw this happening to others?

Have you ever seen this happen?

What happened? Why didn't the families provide support? What was the alternative?

<u>Understanding their preferences and predictions for support of their own parents and future-self</u>

I am going to move onto a few questions on your parents' and your own hopes and plans for elderly care.

Do you have any experience in caring for and supporting your parents / parents-in-law (***parents if man or unmarried woman, parents-in-law if married woman; word next questions according to answer)**?

Is how to support your parents in their old-age an issue you thought about?

Why/ why not?

(If yes) what triggered you considering it?

How do you feel when you consider it? Why?

What do you think your parents expect for their own care?

Who do they want to support them? (exact relations/ sources)

How? Where do they want to live?

How do you know that this what they expect?

Did you speak about it – if yes, is it something you agree on?

Have they made any plans – e.g., pension, savings?

How sure are you that you and your family can provide this?

Why can / can't you? What might prevent it?

How would you like your parents to be supported in their old-age?

Why?

Has there been/ do you predict any conflict with them around this? E.g., who lives where

Why / why not?

Is it something you have thought about for your own care?

Why / why not?

(If no) when will you start considering it?

What do you wish for your own care?

E.g., Family based (which relations) / self-dependent (e.g., savings) / private care

Would you consider any of the options mentioned in the examples?

Who would you want to live with?

Will you do anything to try and prepare for your later years?

Are you confident (நம்பிக்கை) that this will happen?

Why/ why not? What might prevent it?

Understanding where the respondent's attitudes lie in comparison to others

If you think of the people you know, do you think they have the same views as you about elderly care?

Do you think your views are typical (வழக்கமான) of others in Tamil Nadu?

Who might think differently? What are their views? Why are they different?

Do you think views around elderly care are changing?

How? Why?

Summarising the discussion to ensure nothing was missed

As I explained at the beginning, we want to understand how you think elderly people should be supported in society, and how you wish to support your own family and be cared for yourself in the future. From what I understood from you …. **summarise discussion** … do you think we have covered everything? Is there anything else you would like to add?

Concluding comments

We've come to the end of my questions. Thank you for your time and comments.

Before you leave, we would like to take a few more background details from you. This is to make sure we are understanding the experiences of a wide range of people so that, in the future, support given by the government or NGOs will be useful for everyone.

12.5.2. Focus group discussion topic guide

Introduction (following explanation of the study and informed consent):

- Official welcome to the group, thank for their time
- Set “ground rules” (விதிமுறைகள்):
  - Please keep whatever is said in this conversation confidential (நம்பிக்கை) – do not repeat it to others outside the group, want people to feel open in their answers
  - Respect (மரியாதை) each other’s thoughts and opinions
  - No right or wrong answers – interested in people’s experiences and views
  - Free to answer or not answer questions but it would be good for everyone to join the discussion
- Explain that you know talking about family can sometimes be upsetting, you can pause any time, talk it through after the interview, and provide them with a phone number for someone to talk to
- The discussion will be recorded because you want to be able to listen and remember their answers and it isn’t possible to write fast enough to note everything down. Is everyone OK with it being recorded? Please speak one at a time during the discussion so we can understand what is said in the recording.
- See if anyone has questions, **inform them you are about to begin recording, and begin**

Warm up questions

Ask everyone one-by-one to introduce themselves to the group (their name), introduce yourself (name, where you're from/what you do), ask general questions to break the ice, what do people do, are people local to the area, do people know each other etc.

Introducing the topic

When children are young they need care and support from their parents, for example to cook for and feed them, take them to the health centre, pay for everything they need. When people get older, they can also start to need this kind of care (பராமரிப்பு) and support (ஆதரவு). In India, families traditionally provide this support for elderly (முதியோர்) people, but this can sometimes be difficult to do. These challenges can have a negative impact on both them and the elderly people they are looking after. As people are living longer now in India, it is important to have a way of supporting older people that works for both them and their families. To do this, we need to know exactly what support elderly people need, how this is given now, and what the current challenges are. We are interviewing a broad range of people in Tamil Nadu to make sure that everyone's experiences are understood. This information can be used by government or NGOs to design ways to support the elderly and their families from different backgrounds (e.g., city/village). The following questions all aim to understand what caring for and supporting elderly family members in your community consists of.

Understanding who the participants consider as elderly

Does everyone have an elderly person in their immediate family?

What is their relation?

How old are they?

How is their health?

(Confirm with them who you think they are describing as elderly)

Understanding what everyday support is provided and by whom

Everyone has typical everyday expenses, e.g., food, medications, travel. Do your elderly relatives pay for all their own daily costs?

(If yes) how do they afford this?

(If no) who pays (relation)? Is this a lot of the family budget?

Sometimes when people get older they start needing help with things they used to do easily, e.g., getting around the community, cooking, taking medications. We're going to call these "practical tasks".

Do you know elderly people who need help with practical tasks?

Which tasks exactly?

Who helps (relation, age, sex)?

Do you know of people using aids (உதவி சாதனம்) such as walking sticks, wheelchairs?

What do they use? Where did they get it? How did they afford it? Does it help them?

People can also need help with more personal (தனிப்பட்ட) tasks (e.g., washing, dressing, going to the toilet).

Do you know elderly people who need help with these personal tasks?

Which tasks exactly?

Who usually helps (relation, age, sex, employment)?

Can this be uncomfortable to do? When/ why?

Understanding how elderly caregiving is balanced with other responsibilities of the main caregiver

Of these people you mentioned, who spends their most time in their day looking after their elders?

Is supporting elderly relatives usually their biggest task/responsibility in their day?

Which responsibilities are bigger?

How do people balance caring for their elderly relatives with these other responsibilities?

For instance looking after children? Whose needs are put first? Why?

Employment?

Chores, cooking?

Do others help with the work load – the other responsibilities?

What happens if they (the main caregiver) are not available, e.g., need to travel away or is sick?

Is there other people that help? Who? Is there always someone available?

<u>Understanding what support is required outside of the "everyday" and who provides it</u>

Sometimes elderly people have a health problem and need to visit the hospital.

How often does this happen in your experience?

Who pays for this?

E.g., hospital fees, travel

How does it work/ how do they afford it?

Who organises the visit?

T*ransport, going with them*

Can you think of any other occasional needs that haven't been mentioned? E.g., long trips

What happens?

<u>Understanding what emotional/psychological support is required and who provides it</u>

Sometimes when people get older they can become lonely and need to talk with people more.

Is this common in your experience?

How do families help them with this?

Who? What do they do?

Sometimes people's personalities and/ or behaviour can change. Have you ever experienced this?

What happened? What do families do?

<u>Understanding why different relations have different responsibilities</u>

Thinking of what has been said, in your experience are different relations responsible for doing different things for older people? **Why?**

Should women do some things and men others? Why?

In your experience, what are the responsibilities of a man for his parents? And parents-in-law? **Why are these his responsibilities and not someone else's?**

Responsibilities of a woman for her parents-in-law? And parents? **Why are these her responsibilities and not someone else's?**

<u>Understanding the availability of support from outside the immediate family</u>

Do people from outside the household (***i.e., people they live with***) ever help with any of the needs mentioned previously (both daily and occasional)?

Sons and daughters who live away?

Extended family?

Neighbours/ community?

NGOs?

Religious groups e.g., church groups?

Government services?

Who helps exactly? What do they do? In which situations do they help?

Can people rely (எதிர்பார்த்து\ சார்ந்து) on this support?

Why / why not?

Understanding what government support is available

Do they know of anything that the government (அரசு) provides that can help the elderly or their families?

Welfare schemes (நல திட்டங்கள்)?

(If they know of welfare schemes) how have they heard of them? What is provided?

*Has everyone (**in the FGD**) heard of them?*

Do elderly people in the community use them? Why/ why not?

How are they accessed? Is it simple?

Government healthcare?

What is available?

Do elderly people in your community use government healthcare? Why/ why not?

How are they accessed (journey – time, transport)?

In some places the government provides homes where old people live together rather than with their families. Do you know of any of these, or anything similar?

If yes – how have they heard of them? Do people in the community use them?

Understanding the difficulties people experience

Now I'm going to ask a few questions about what can make supporting your elderly relatives difficult.

Firstly, if you think of the different issues you have in your lives (e.g., work, sending children to school), do you think supporting elderly relatives is one of the main things you are concerned about?

Why/ why not? What are the important issues i.e., things you are most concerned with?

From your experience, can there be challenges in caring for a relative?

Financial burden, time, arguments/conflict?

Can you give me an example of a specific issue you've experienced?

What happened? Why was it difficult? How did you deal with it?

Have you ever wanted to help an elderly relative more but been unable to?

What was the situation – who was the relative, what did they need, did you live together?

Why were you unable to support them more?

What happened? Who did support them?

How did this affect them? And you?

Has anyone else been in a similar situation? Or different – a different relative, or been unable to provide support for another reason?

Thinking of when you were having a difficult time, what help did you want?

Are some people more difficult to support than others?

E.g., sex, relation, age, health. Why?

Do your elders ever complain (*புகார்*) about the support they're given?

What do they say?

What do you think of this? How does it make you feel?

Have you ever tried to help an elderly relative who didn't want the help?

If yes - Is this common?

What happened? E.g., who was the relation, what help did they need, why did they reject it?

What do you do if they reject it?

If you weren't there to support your relatives, what are their other options? I.e., do you know of any alternatives?

Finally, what are the positives for looking after your relatives like this?

Understanding social pressures regarding elderly care

Do people consider other people's opinions of them when they think about how to look after their relatives? For example if there was conflict between the daughter-in-law and mother-in-law, and they are considering leaving the mother-in-law to live alone.

(If yes) whose opinion will people consider when making these decisions?

E.g., immediate family, extended family, village members, people from local area

What do other usually expect you to do?

Why – what do people think are the advantages of this arrangement?

What do people think are the disadvantages?

How would people react if someone made this decision not to support their relative?

E.g., left it to other family members, or to a government old-age home

Would you react the same way if you saw this happening?

Have you ever seen this happen - what happened?

Understanding the lives of elderly people in the community

I'm now going to ask you about the general day-to-day lives of your elderly relatives.

Do they live with you in joint families?

What is their role (பங்கு/ பங்களிப்பு) within your family?

Decision making(முடிவு செய்தல்) – make decisions on what

Financial (பொருளாதாரம்)– e.g., do they contribute money e.g., earnings, pension

Practical (நடைமுறை) help e.g., cooking, cleaning, looking after children

Others?

Do all elderly relatives have the same role in the family?

Who does what – by relation/ sex/ age/ health status?

What is a typical day for your elderly relatives? What do they do?

What is their role in the community? E.g., religious, political?

Understanding how well elderly people in the community are supported

What do you think the biggest issues (if any) are for elderly people in your community?

Do you think that elderly people generally receive enough support in your community?

Why/ why not? What is missing?

Can you think of examples of people in your community who do not receive enough support (e.g., those without children)?

(If yes) can you tell me about their situation? How do they manage?

Understanding whether the support available is changing

Finally I'm going to ask about how you see yourselves living in your old-age.

How do you wish to be supported in the future, e.g., when you can no longer work?

Financially independent or dependent – on who?

Living with who?

Helped when sick by who?

Why do you wish for this?

Do you think this will happen?

Why / why not?

What might prevent it happening? Are things changing – what?

Summarising the discussion to ensure nothing was missed

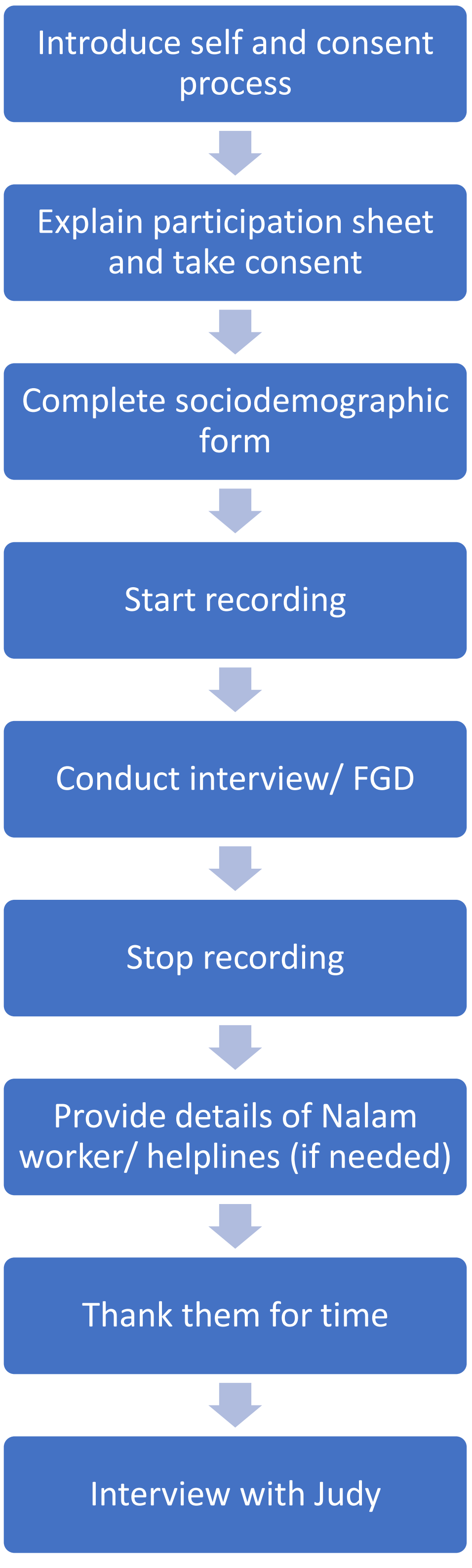
As I explained at the beginning, we want to understand how elderly people are supported in your community, and what the challenges are. From what I understood from you …. **summarise discussion** … do you think we have covered everything? Is there anything else you would like to add?

Concluding comments

I have come to the end of my questions. Thank you for sharing.

Before you leave, we would like to take a few more background details from you. This is to make sure we are understanding the experiences of a wide range of people so that, in the future, support given by the government or NGOs will be useful for everyone.

12.6. Appendix E: Data collection process



12.7. Appendix F: Sociodemographic questionnaire

Background questionnaire

We would like to know some of your characteristics to be sure that we are interviewing a mix of people, and to understand how these might affect your views and experiences. You do not have to answer any questions you are not comfortable with.

1. First name	
2. Gender	M / F
3. Age	
4. Village / block name	
5. Marital status	Currently married / widowed / never married / separated/divorced
6. Number of household members	
7. Relation to other	*"Example: 1 husband, 2 parents-in-law, 1 child"*

household members	
8. Number of 60+ in household	
9. Relation to self of 60+ in household	
10. State of birth	
11. Number of years in Tamil Nadu (if not state of birth)	
12. Religion	Hindu / Christian / Muslim / Other - specify:
13. Employment	Self-employed / Wage-salary labour / Casual labour / Student / Household-based / Welfare scheme e.g., MGNREGA / Other – specify:
14. Occupation	
15. Highest level of education completed	None (illiterate) / None (literate) / Primary / Middle / Secondary / Higher

16. Caste category	SC / ST / OBC / Brahmin / Other – Specify

For follow-up interviews:

Consent to follow-up?	Yes / No
Preferred method of contact	Phone / Household visit / Via community worker / other - specify:
Contact number	

Interview details

Interview type	FGD / Interview
Interviewer	
Second interviewer (FGDs)	
Language of consent process	
Language of interview	
Date	

12.8. Appendix G: Analytical framework

Topic and sub-topics of framework	Definition
1. Caregiver characteristics	**Characteristics of the person in providing support**
1.1. Background characteristics	1. E.g., employment, education, place of origin, sampling
1.2. Family structure	2. E.g., no./proximity of children, siblings
1.3. Upbringing	3. Childhood and early life
1.4. Financial circumstances	4. Economic wellbeing
1.5. Health	5. Health
1.6. Community characteristics	6. E.g., housing, location, common employment
2. Elder's characteristics	**Characteristics of the older family member**
2.1. Background characteristics	1. E.g., relation to caregiver, age, education, old-age support experience
2.2. Family structure	2. E.g., no./proximity of children, siblings
2.3. Health	3. Health

2.4. Routine activities 2.5. Personality and behaviour **2.6.** Expectations	4. Current employment, pastimes, and daily routine 5. How the elder acts and behaves 6. What the elder expects from their families
3. Elders and the family 3.1. Parent-child relationship 3.2. Grandparent-grandchild relationship 3.3. Financial contributions 3.4. Practical contributions 3.5. Role in the family	**Family dynamics** 1. How children and parents interact and feel about each other 2. How grandchildren and grandparents interact and feel about each other 3. How older people contribute financially to their families 4. How older people contribute practically (including information) to their family 5. What the role of older people in the family is
4. Practicalities of support 4.1. Decision making 4.2. Nature of support 4.3. Day-to-day support	**How support is provided to older people – who does what, and why** 1. How the support arrangement is determined, e.g., who makes the decisions, how is it discussed 2. Specific tasks and costs

4.4. "Back-up" support 4.5. Financial support 4.6. Emotional support 4.7. Personal care 4.8. Health-related support 4.9. Formal support 4.10. Neighbours and extended family 4.11. Future support of parents and self	3. Main caregivers who help with routine practical tasks (e.g., getting around, eating) 4. How older people are supported when the primary caregiver is unavailable 5. Who supports older people financially and how? 6. Who supports older people emotionally and how? 7. "Intimate" tasks e.g., washing, toileting 8. Any support relating to health e.g., taking to the hospital, healthcare expenses, nursing in the home 9. Availability of support from formal sources (government, NGOs, mobility aids) 10. Availability of support from neighbours and extended family 11. Plans and hopes for the future old-age support of parents and selves
5. Support arrangement experiences 5.1. Co-residence with children 5.2. Independent living	**Any real-world experience (their own or friend/relative) of supporting an elder in these arrangements (including reasons for the arrangement, pros, and cons)**

5.3. Care homes 5.4. Community center	
6. Support arrangement attitudes 6.1. Co-residence with children 6.2. Independent living 6.3. Care homes 6.4. Community center 6.5. Formal in-home help 6.6. Moving between children 6.7. Suggestions	**Attitudes (positive/negative), acceptability and perceptions of support arrangements (i.e., reasons for, perceived pros and cons)**

7. **Challenges** 7.1. Perception of the experience 7.2. Role conflict 7.3. Financial 7.4. Emotional burden 7.5. Difficult behaviours 7.6. Conflict 7.7. Lack of help 7.8. Distance 7.9. Norms 7.10. Task specific	**Matters that make the support provision difficult for the caregivers and/or elders (including those that limit the amount of support provided e.g., barriers); do not include general negatives related to different arrangements** 1. How positive/negative, easy/difficult the participant perceives the experience of support provision 2. Multiple roles e.g., employment, childcare, domestic tasks 3. Financial issues directly relating to elders/support provision 4. Emotional effects of support provision on the caregivers 5. Ways in which the elder acts that makes supporting them difficult 6. Disagreements/arguments/conflict related to the elder 7. Unavailability of assistance from other sources e.g., government, extended family 8. Distance 9. Social norms that make support provision difficult for the caregiver 10. Particular support tasks that are deemed challenging e.g., personal care

8. **Social norms and influences**	**Ideas around how older people are, and should be, supported in India**
8.1. Support norms	1. Injunctive support norms – who should be responsible for supporting older people
8.2. Children	1.1. Children including in-laws
8.3. Other informal sources	1.2. E.g., extended family, neighbours
8.4. Government	1.3. Government
8.5. Self	1.4. The individual
8.6. Perceived support	2. Descriptive norms – how participants view older people are supported in wider society
8.7. Gender norms	3. Social expectations of men and women regarding old-age support and family
8.8. Role of older people	4. Social expectations of older people
8.9. Perception of older people	5. Perceptions of how older people's (in general) needs and behaviours
8.10. Changes in society	6. How Indian society is changing
8.11. Societal pressure	7. How wider society judges and influences old-age support
8.12. Good care	8. The goal of old-age support
	Issues relating to why families care for their elders

9. **Drivers for support**	
9.1. Motivations	1. Why families should support their elders (general – not pertaining to specific arrangement i.e., not why families should live together)
9.2. Enabling factors	2. Factors that permit people to support their elders
9.3. Conditionality	3. Whether provision of support is reliant on something (e.g., relationship, contribution by parents, impact on caregiver)

12.9. Appendix H: Example of table used at interpretation stage

Day-to-day support		
Theme	Memo	Quote
…		
Caregivers i.e., who provides day-to-day-support	DIL's are by far the main caregivers – cooking and washing clothes (domestic tasks). It is definitely expected from DILs rather than anyone else - have to hurry back from work or visiting parents ("if you don't cook who will?")	INF001 - M: In your family, are the members supportive, especially your husband? R: Yes, they are. If I tell them I going to my parent's house, they will say 'Go, but come back soon dear. Don't go and sit there for long, people here are waiting for you to eat together'
	Son's role - mostly teamwork, primarily helping with "outdoor" tasks e.g., travelling, visiting relatives, organising care	FGDF003 - R2: Ladies only do most work R3: If they (husbands) have to take them (elders) out, then sometimes they (husbands) help R4: All work we only have to do.

		M: All other tasks are taken care of by women R: Yes, the wife is there to take care of everything.
…		

Day-to-day support		
Theme	Memo	Quote
…		
Urban/rural differences	No use of formal care in rural areas, in middle-class urban much more common	INF007 - in India we have this luxury of getting maids that is not there in either your country or my children's country. For the love of money you can't get anybody, or you get somebody by the hour. Whereas here you pay a little they're prepared to die for you. You know the poverty rate which is in India.
…		
Personal care		
Theme	Memo	Quote

…		
Urban/rural differences	Few differences apart from no use of formal care or products in rural versus urban thus more difficult	INF016 (urban) - Sometimes in the middle of the night she would get up and she would try to go to the toilet and she would fall down. So we bought her a bed. Actually we had one with the railing and one or two incidents happened like that. After that we used to put pampers for her and we told her you need not get up in the night if you want to ease yourself, you can do it yourself in the bed and we kept the railing. INM006 (rural) - He was unable to work and so if he had to pass urine or motion I may have to carry him on my shoulders and take him there. Especially during the night and I used to sleep with him.
…		

12.10. Appendix I: Framework chart for developing typologies

ID	**Daughter**				**Formal care/ domestic staff**		**Material**		
	Support restricted totally	Some support	Support (no son)	Main source (with son)	No use	Uses services	Dependent	Independent (work)	Independent (pensions etc.)
…									
INF001		X – only child, consanguineous, visit daily but cannot cook/ stay, in-laws don't allow them to stay			X		X – FIL gets rs 1000, gives to grandchildren		
…									

ID	**Primary caregiver responsibilities**				**Back-up available**			
	Physically independent	Only primary	Available as back-up	Sharing tasks	Easily from neighbours	Easily from family	Uncertain from neighbours	Uncertain from family

...								
INF001		X – husband will not help DIL			X – can ask for a day or so	X – SILs sometimes help		
...								

12.11. Appendix J: Developing the typologies

Step 1. I created a table for each of the code families, which summarised the content of each code ("memos") and provided illustrative quotes (appendix H).

Step 2. Within NVivo, I used the characteristics attributed to each transcript (i.e., from the sociodemographic questionnaire or sampling criteria) to compare the codes between urban/rural and socioeconomic status groups and described any similarities/differences within the table (appendix H).

Step 3. I interpreted that there was a lot of variation in the way some types of care were provided, while others were similar across urban/rural and socioeconomic groups. I created a framework of the types of care which demonstrated variability (daughter-based support, formal care/domestic staff, material support, primary caregiver responsibilities, back-up available) and summarised the experience of each 'case' (i.e., the older individual who participants were discussing) within the framework. Participants did not always touch on each aspect of the framework. Focus-groups (and some interviews) corresponded to multiple 'cases' as participants spoke of several older relations (appendix I).

Step 4. I grouped together cases with similar experiences across the framework categories. I then considered and described how support provision varied across the framework categories, to develop the first iteration of the typology groupings. Each typology represented different cases.

Table 19: Preliminary conceptualisation of support system typologies

	Strict norms	Traditional	Changing norms	Western
Living arrangement	With son OR alone if no son	With son OR daughter if no sons available	With son OR daughter	Alone OR spouse only OR between children OR with daughter (have son)
Role of daughter	Support restricted, some visits	Some practical help, esp. during times of need e.g., illness or if no sons available	Varied	Equal to a son, both financial and practical support
Sharing support tasks between sexes	Primarily DIL/MIL, men do "outside tasks", likely to refuse to help	Primarily DIL/MIL, men do "outside tasks"	Primarily DIL/MIL but sharing with other male relations e.g., husband, son, and carers	Equal sharing, husband supporting own parents and wife supporting hers
Financial dependence	Largely dependent on son or income	Dependent on son OR daughter/SIL (if no son) or	Dependent Largely independent (private pensions/ health insurance)	Independent (private pensions/savings/insurance)

	from public pension/ work	largely independent (pensions/insurance)		
Formal care services	Not used	Not used	Not used OR used, including domestic staff	Used, including care home
Role of community/ extended family	Dependable as nearby	Dependable as nearby	Largely dependable OR uncertain from extended family	Largely dependable OR uncertain from extended family
Examples	FGDF005	INF003 (little info)	INM008	INF010
	FGDM002	INF006 (no brothers)	INM002	INF007
	INF005	INM004	FGDF003 (one with mother)	INF014
	INF001	INM006	INF015	FGDF006
		FGDF004	INF011	INF009
		FGDM003		INM009
		FGDM004		INF016
		INF012		INF008

		FGDF008		
		INF004 (parents dead, grandchildren caring)		
		INF013		
		FGDF003		
		FGDM005		
		FGDM006		
		INF013		
		INM003		
		INM005		

Step 5. Following further consideration of the categories, this typology was then refined into the final typology (in main document).

12.12. Appendix L: Data resources on India's older population

Name	Census of India	Sample Registration System	National Family Health Survey (NFHS)	District Level Household Survey (DLHS)	Annual Health Survey (AHS)	India Human Development Survey (IHDS)	National Sample Survey Office (NSSO)
Aim	Numerate entire Indian population, provide economic, social and demographic data on pop.	Provide reliable and continuous demographic data	Provide info. on maternal and child and reproductive health	To provide information on fp and maternal and child and repdroductive health and use of maternal/ child healthcare	To produce health indicators at a district level and monitor health interventions,		
Organisation	Office of the Registrar General & Census Commissioner, Govt. of India	Office of the Registrar General & Census Commissioner, Govt. of India	International Institute for Population Sciences (IIPS) & Ministry of Health, India	International Institute for Population Sciences (IIPS) & Ministry of Health, India	Office of the Registrar General of India & Ministry of Health	University of Maryland and the National Council of Applied Economic Research	NSSO
Structure	Census Household listing completed first, then population enumeration	Baseline survey of sample units to obtain usual pop (every 10y approx) Births and deaths continously enumerated in sampled villages, bi-yearly surveys for validation	Large-scale multi-round cross-sectional surveys (Indian DHS)	Large-scale multi-round cross-sectional surveys	Panel survey (follows the same pop.)	Panel survey (follows the same pop.)	Surveys cover different areas: industries, economic, employment, enterprises, HH consumer expenditure, land and livestock
Sampling	Total pop 2011 = 1,210,854,977	Sampling frame updated following census (every 10 years) Stratified simple random sample 2014 = 8858 units	2015/16 = 568,200 HHs Nationally representative	2012-14 - 350,000 HHs Two/three stage stratified random sample	2012-13: 4,320,000 Only in lesser developed states, large sample size for robust estimates at district level	2011-12: 42,152 HHs Nationally representative	Varies
Dates	Most recent = 2011 1991, 2001, 2011 available Every 10 years	1969/70 to current Continous data collection Baseline surveys - 1969-70, 1977-78, 1983-85, 1993-95, 2004, 2014	1: 1992-93 2: 1998-99 3: 2005-06 4: 2015-16 (underway)	1: 1998-99 2: 2002-04 3: 2007-08 4: 2012-13	Baseline: 2010-11 1st update: 2011-12 2nd update: 2012-13	2004-05 2011-12	Health 95-96, 2004, 2014 Employment 93-94, 04-05, 05-06, 2007-08, 2009-10 Disabled persons 1990, 2002 Persons aged 60+ 86-87
Questionnaire Data	Total numeration of population Economic: work, education Social: religion, marital, literacy, castes Migration Fertility Households: head, size, assets, building material	Births Deaths (with COD) Baseline: education, smoking/drinking, marital, caste, contraception, HH size/head, assets, structure,	HH survey: 1-4 assets, morb and mort, 2-4 healthcare use Women (1-4 ever-married, 3-4 + never-m): fertility, maternal health, family planning, employment, 2-4 sexual health, autonomy/violence, healthcare, (3-4) NCDs and risk-factors, sexual relations and living arrangements Men (3-4): fertility, family planning, healthcare, relationships and living arrangements, ncds and risk-factors, womens autonomy, sexual health	HH survey: 1-4 assets, 1 child & maternal mort, 1-2&3 morb, 2-4 mort all, 4 risk-factors women: fert, maternal and child health, sti/hiv, ncds and riskfactors men (1-2): family planning & sexual health	HH: morb, mort, risk-factors, health care women: fertility, family planning, maternal and child health, sexual health, fp	HH: business, income, consumption, social networks,mort, education, marital, health beliefs, fertility, migration individual: wage, morbidity, gender relations	Health - HH structure, morbidities, mortality <1y, spending on care 60+ - HH structure and demog, medical treatment, ailments <2w
Anthropometri c/biometric	None	None	Height and weight for children, men and women 2-4 BP in 4, men and women anaemia 2-4 children, women and men HIV 3-4 men and women Fasting glucose 4 men and women	Height and weight 2 children<6, 4 men, women and children BP 4 men and women Anaemia 2 children, girls and women, 4 women, men children 6+ Fasting glucose 4 men women	height and weight: subsample, men women and children 1m+ bp: women and men 18y+ subsample anaemia: women, men, children 6m+ subsample glucose: women men 18y+ subsample	health and weight children, eligible women	None
Lowest level of analysis	District online Village microdata	State level	State level	District level	District level	District level	State/region
Access	District aggregate tables freely available on digital library Microdata available only at workstation in 12 universities	Life-tables 07-14 available online by state Mort and fert indicators 1970-now by state, urban/rural, m/f	Via DHS website	Requires submission of a data request form (4 not yet on form)	Download from data.gov.in	Available freely online, just need to register	On CD-roms for a price
Links	www.censusindia.gov.in	http://censusindia.gov.in/Vital_Statistics/SRS/Sample_Registration_System.aspx	http://rchiips.org/nfhs/index.shtml	http://rchiips.org/index.html	http://censusindia.gov.in/2011-common/AHSurvey.html	http://www.ihds.umd.edu/	http://mospi.nic.in/Mospi_New/site/home.aspx
					https://data.gov.in/keywords/annual-health-survey	http://www.icpsr.umich.edu/icpsrweb/DSDR/studies/22626	http://catalog.ihsn.org/index.php/catalog

SAGE	SAGE: well-being and happiness sub-study	LASI	Rural Survey of Diet and Nutritional Status	HDSSs	Birth Cohorts	Young Lives
Provide longitudinal data on the ageing pop in different countries	To validate the shortened day reconstruction methods used in w1 to estimate well-being	To study the health, economic and social well-being of India's elderly	Monitoring the nutritional status of the population and effect of any interventions	Demographic and health surveillance	Lifecourse epi	
WHO	WHO		National Nutrition Monitoring Burea (NNMB), National Institute of Nutrition, Hyderabad		Southampton uni	Oxford University
Panel survey 6 countries: China, Ghana, India, Russia, Mexico, South Africa	Repeated survey, once with shortened DRM and then with standard length DRM method	Panel survey Every 2 years	Panel survey following same HHs	Birbhum (east) Ballabgarh (north) Vadu (south)	7 cohorts: Pune, New Delhi, Vellore, Mysore Parthenon, Mysore birth, Pune pre-eclampsia, Pune children's, Mumbai Maternal Nutritional Project	Cohort study made up of both hh surveys and qualitative studies younger cohort: aged 6-18m at R1 n=2000 older cohort: aged 7.5-8.5y at R1 n=1000
2007-10 n=11230 Multistage cluster sampling 6 states sampled, each chosen to be representative of its region Nationally representative' main sample 50+, smaller 18-49	n=1560 Random probability sample Urban and rural residents of Jodhphur and surrounding area (18+)	2012 n=30000 45+ Nationally representative Draws sample from N/C/S/E/NE/W each Panel n=1500	9 states	Vadu - every HH (90000) Ballabgarh - every HH served by the CRHSP covered (n=90000) Birbhum - sample (n=60000)		Andhra Pradesh & Telangana
W0: 2003 W1: 2007 W3: 2014/15 INDEPTH: Vadu HDSS surveyed in 2006/07	~2012	Pilot: 2010 (4 states) 1st: 2012	B: 1975-79 1: 1988-89 2: 1996-97 3: 2011-2012	Birbhum - 2011 Ballabgarh - 1961 Vadu - 2002	Varied and logituindal	HH & Child survey: 2002, 2006, 2009, 2013, 2016 Qual: 2007, 2008, 2011, 2013
HH: characteristics, health insurance/expenditure, care Individual: socio-demo, health description and evalution, risk-factors, mort, social capital, day reconstruction	HH characteristics health state description Subjective well being and QoL Health services usage	HH: characteristics, income Indivi: demog, family and social networks, health, health care use, employment	sociodemogaphics nutrient intake	See papers	See word doc.	HH & children : hh characteristics, health, access to services and care, hh expenditure, school outcomes, child care and health, preganancy and bf, well-being, livelihoods, caregiver aspirations and perceptions for child and family, cg background community ques: phys and social environment, infra, economy, provision of healthcare and education qual: children and caregivers - views on own situation, aspirations, and expectations of life
w1 - bp, height and weight, waist and hip, vision, walk, grip strength, executive functioning, spirometry, dried blood splots	done but don't seem to be available online - query	blood spots: CRP, epstein-barr, Hb, HbA1c, Apolipoproteins B and A1 BP grip strength waist-to-hip ratio	Fasting glucose men and women BP	See papers	See word doc.	Height and weight (children and caregivers)
Village	only urban/rural classification known from Jodphur	State level		Assume individual		'community level''
Data request form needed W3 data not yet released but should be in 2016	data request form needed	data request form needed Only 2010 appears to be released		Data request forms needed	No clear access process. Assume contact Pis	data request form needed
http://www.who.int/healthinfo/sage/en/	http://www.who.int/healthinfo/sage/substudies/en/	https://www.hsph.harvard.edu/pgda/lasi/lasi-2/		http://www.indepth-network.org/member-centres/birbhum-hdss	http://www.mrc.soton.ac.uk/web2/cohorts/#india	www.younglives.org.uk
				http://www.indepth-network.org/member-centres/ballabgarh-hdss		
				http://www.indepth-network.org/member-centres/vadu-hdss		

Building Knowledge Base on Population Ageing in India (BKPAI)	**Rural Development in Deccan Maharashtra**	**APCaPS**	**IMS**	**Longitudinal Indian Family Health (LIFE)**	**Mobility and independent living in elders study (MILES)**
Create a knowledge base on different aspects of ageing in India	Examine the economic and occupational changes on a rural village in transition	Study long-term effects of early life nutrition on CVD	Investigate effects of rural-to-urban migration on CVD	Understand the link between the environmental conditions in which Indian women conceive, go through their pregnancy and give birth, and their physical and mental health during this period	Estimate the prevalence, incidence, and risk factors for disability and age-related disease in rural older Indians
UNFPA, PRC, ISEC, IEG and TTIS				SHARE India	SHARE India
cross-sectional survey HH questionnaire + all elderly in house questionnaire Institutional questionnaire + elderly in institution questionnaire	Village panel survey	Nutrition trial in 1975 Index children followed up 3x mothers followed up 1st wave, sibling and & parents 3rd HH survey total villages Smaller nested studies	sibling-pair design migrant urban factory workers and spouses vs rural siblings	Cohort	Cohort
7 states where elderly pop. Is highest HH with at least 1 60+=sample HHn=8329, elderlyn=9852	All residents of the village	n/a	Nested within CVD Risk Factor Study, migrants in factories identified from baseline survey + spouses + non-migrant siblings + random 25% of urban non-migrants	Married women between 15 and 35 recruited before pregnancy or in the 1st trimester Live in a 'REACH' village outside Hyderabad	Random sample of 562 men and women >60 from Telangana
2011	1942 1958 1977	1st: 2003-05 2nd: 2009-10 3rd: 2010-12 HH: 2012-14	2005-07	2009-2011	started 2012
HH: sociodemog, mort of aged Indivi: sociodemog, migration, current and previous work, income, living arrangements, family relationships, subjective health, health-seeking behaviour, self view of morb, treatment, cost of treatment institutional: quant and qual: management, HR, capacity, functioning - all private and public in study area insitut residents: same as indivi + satsifcation with home and reasons for staying	Individ: Socio-demog, education, occupation, income HH: composition, income, members living outside village,	see available data sheet	quality of life diet physical activity HH details migration history/ reasons HH circumstances at 10-12y morbidities/ health assessment beliefs	HH roster, income sociodemog Health in last month - depression and dental Medical history Birth history, fert. Pref acitivies Risk factors Pregnancy history Antenatal care labour details infant health	background, education, occupation, general health and function, alcohol consumption, cigarette/bidi exposure, physical activity and chronic conditions medications memory numerical and verbal ability diet verbal autopsy
None	none	see available data sheet	height and weight central adiposity BP skin fold fasting glucose bloods - cholesterol, triglycerides, glucose	infant - head, upper-arm, abdominal, height, chest, weight cirumference	blood pressure and pulse height and weight waist and hip circumference walk physical performance ecg ankle arm index blood and urine pQCT monofilament carotid imt knee xray vision hearing
	HH	individual level available	individual level available	village	
Data request form needed	Need to be a icpsr member to access	data request form needed	data request form needed	email contact	?
http://www.isec.ac.in/prc-AginginIndia-Data-Release.html	http://www.icpsr.umich.edu/icpsrweb/DSDR/studies/9308?geography%5B0%5D=India&paging.startRow=1	http://apcaps.lshtm.ac.uk/	http://apcaps.lshtm.ac.uk/related-studies/ims/	http://sharefoundations.org/Projects/LIFE/index.htm	http://sharefoundations.org/Projects/MILES/in