

# Exploring linkages between maternal social capital and children's nutritional status in Andhra Pradesh

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# Preface

This paper is one of a series of working papers published by the Young Lives Project, an innovative longitudinal study of childhood poverty in Ethiopia, India (Andhra Pradesh State), Peru and Vietnam. Between 2002 and 2015, some 2000 children in each country are being tracked and surveyed at 3-4 year intervals from when they are 1 until 14 years of age. Also, 1000 older children in each country are being followed from when they are aged 8 years.

Young Lives is a joint research and policy initiative co-ordinated by an academic consortium (composed of the University of Oxford, the University of Reading, the London School of Hygiene and Tropical Medicine, London South Bank University and the South African Medical Research Council) and Save the Children UK, incorporating both inter-disciplinary and North-South collaboration.

Young Lives seeks to:

- Produce long-term data on children and poverty in the four research countries
- Draw on this data to develop a nuanced and comparative understanding of childhood poverty dynamics to inform national policy agendas
- Trace associations between key macro policy trends and child outcomes and use these findings as a basis to advocate for policy choices at macro and meso levels that facilitate the reduction of childhood poverty
- Actively engage with ongoing work on poverty alleviation and reduction, involving stakeholders who may use or be impacted by the research throughout the research design, data collection and analyses, and dissemination stages
- Foster public concern about, and encourage political motivation to act on, childhood poverty issues through its advocacy and media work at both national and international levels

In its first phase, Young Lives has investigated three key story lines - the effects on child wellbeing of i) access to and use of services, ii) social capital, and iii) household livelihoods. This working paper is one of a series which consider an aspect of each of these story lines in each country. As a working paper, it represents work in progress and the authors welcome comments from readers to contribute to further development of these ideas.

The project receives financial support from the UK Department for International Development and this is gratefully acknowledged.

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# I. Social capital and public health

## Introduction

The 1990s witnessed a paradigmatic shift in development thinking and practice involving an increased focus on communities and issues such as participation and empowerment (Jennings, 2000). Providing fresh insights into persisting problems of poverty, analysts highlighted social factors as the 'missing link' in facilitating growth and development (Grootaert, 1998). One of the key concepts to emerge was 'social capital' which gained resonance across a range of disciplines and influenced debates on issues ranging from educational attainment to ethnic diversity, conflict resolution and economic efficiency to public health improvements (World Bank, 1993; Mutaner *et al.*, 2000). Not surprisingly, given the concept's wide-ranging appeal, definitions of social capital vary considerably. Most simply, social capital refers to the institutions, relationships and norms that shape the quality and quantity of social interactions (Griffith, 2004; Putnam 1995).<sup>1</sup> However, distinctions are made in terms of bonding, bridging, structural and cognitive social capital. Bonding social capital represents connections *within* the community whereas bridging social capital represents connections *outside* the community. Structural social capital reflects the connectedness of individuals within a given community, ie participation in organisations, while cognitive social capital refers to a sense of community, perceptions of reciprocity, norms and trust, etc. (Harpham, 2005). In the case of public health, practitioners argued that greater attention to the social dimensions of health behaviour and use of health services would enhance understanding of the complexities of health outcomes and enable service providers to better target marginalised groups (Runyan *et al.*, 1998; Kanaiaupuni *et al.*, 2005; Szreter and Woolcock, 2002; Pearce and Smith, 2003).

Debates about social capital — particularly encouraging and harnessing women's social networks — have particular relevance in the Indian and Andhra Pradesh contexts given major donor-funded initiatives to establish women's self-help groups (SHGs). These programmes have *inter alia* been used to channel microfinance, improve women's income-generating opportunities, facilitate family planning coverage, and monitor social service provision (eg Deshmukh-Ranadive, 2004).

The objectives of this paper are therefore to:

- a) provide a critical discussion of the concept of social capital within the context of the socio-political dynamics of Indian society;
- b) use baseline data from the Young Lives Study ([www.younglives.org.uk](http://www.younglives.org.uk)) conducted in Andhra Pradesh in South India to describe patterns of maternal social capital;<sup>2</sup>

<sup>1</sup> As a concept, social capital is associated with studies conducted by Coleman (1990) and Putnam (1995), although some trace its origins back to the classical sociologist Emile Durkheim and French cultural theorist Pierre Bourdieu (1986). In attempting to find non-economic factors to explain the success of certain economic and political processes, these authors draw on concepts such as trust, participation in civil society and social networks.

<sup>2</sup> Young Lives hypothesised that, given extensive research on linkages between caregiver education, health status, economic empowerment, etc. and child wellbeing, we would also find a relationship between maternal social capital and child outcomes. In future research, however, we would like to explore links between paternal and children's social capital and child wellbeing outcomes.

- c) explore the association between facets of maternal social capital and chronic malnutrition in children aged 6-17.9 months (referred to in brief as 'one-year-olds') – a major public health concern in the state; and
- d) reflect on the policy implications of our findings.

## 1.2 Literature review

The application of social capital to public health problems witnessed a burgeoning of interest and research on the possible linkages between social factors and health outcomes, as well as health policies and programmes (eg Szreter and Woolcock, 2002; Pearce and Smith 2003). Scholars have identified four main potential pathways through which social capital is believed to influence individual health.

First, social capital may influence health behaviours through the effective diffusion of health information. For example, child wellbeing at the community level may be improved through family and community level information sharing with regard to disease prevention measures, dietary practices, child-rearing practices including early stimulation, and preventative and curative practices (Szreter and Woolcock, 2002).

Second, it is argued that high levels of social capital are more likely to increase the likelihood of the adoption of positive health behaviours and exert social control through peer pressure about unhealthy behaviours. For example, in South Korea, the Ministry of Health initiated a 'cease smoking' campaign targeting workplace groups in order to encourage a collective approach to office health improvement (Jones, 2005, personal correspondence). Social capital may also enable households to better withstand economic shocks and thus mitigate some negative health outcomes and reduce the need to access health services. For example, in a South African study of poor rural households, it was found that households residing in communities with large numbers of community groups and which experienced idiosyncratic rather than community-wide shocks, had lower rates of child stunting because they were able to draw on community support to cope with shocks (Carter and Meluccio, 2002).

Third, social capital may influence health by increasing access to local health services and other amenities. For service providers trying to address the failure of health policies and programmes to reach marginalised groups, involving communities as stakeholders has represented an important step forward (Rose, 2000; Knack, 1999). There are several advantages to this approach:

- Information sharing in community groups may lead to collective action and negotiation with government functionaries with respect to service delivery. A good example is that of linkages between women's self-help groups and village community health workers (*anganwadi*) in Andhra Pradesh, which have led to greater use of family planning and improved child vaccination rates (Dev *et al.*, 2002).
- Benefits may also derive from a sense of community ownership of health or nutrition programmes. For example, in the case of child nutrition programmes in Nepal, it was found that programmes implemented through self-financing local mothers' groups resulted in better outcomes (ie less child stunting) because of a stronger sense of community ownership and the empowerment of women to act as health promotion agents (Eklund *et al.*, 2003).

Fourth, social capital may influence individual health through psychosocial processes, eg provision of emotional support (Collier, 1998; Kawachi, 1999; Subramanian *et al.*, 2003; Pearce and Smith, 2003). For example, in a study on child wellbeing, Runyan *et al.* (1998) argued that children whose maternal caregiver experienced depression had increased chances of 'not doing well'.

However, there is a growing number of scholars who are sceptical about the significance that has been accorded to social capital in the public health sphere. One of the key limitations, it is argued, is that by focusing on the possible benefits of community interaction for health outcomes, the attention of health providers and policy-makers is being diverted from larger issues of access to, and quality of, health services, as well as questions of funding allocation (Bolin *et al.*, 2003).

Indeed, Pope (2000) and Pearce and Smith (2003) question whether research on the relationship between social capital and health outcomes is camouflaging the key role that human capital (education) and financial capital play in promoting community cohesiveness and co-operation. In a study on social capital and health inequalities, Pearce and Smith (2003: 122) argue that: "The danger of privileging social capital over other factors is potentially addressing an effect (social capital) instead of its underlying causes. This kind of intervention has little hope for success and tends to 'blame the victim'."

Other critics point to the lack of attention paid to socio-cultural specificities — such as diet and lifestyle — and their interactive impact on health outcomes. Some studies have demonstrated that the statistical association between various measures of social capital and individual health status is greatly attenuated when controlled for relevant individual and geographic factors (Mellor and Milyo, 2003).

These criticisms relate to studies in the sphere of public health where social capital has been uncritically used as if its inclusion made it unnecessary to consider other explanatory or intermediate factors. These critiques make the point that if social capital is used in studies, it needs to be incorporated in a systematic way in a conceptual framework. In some instances, this may need to encompass such factors as health belief systems, or patterns of health-seeking behaviour.

### 1.3 Social capital in the Indian context

In India, there are many social complexities that need to be taken into account in designing, analysing and interpreting research on social capital. Even before the formal conceptualisation of social capital theory, community development has been integral to government welfare programmes in India, and institution-building of the poor has been actively encouraged as a poverty reduction strategy. Not surprisingly, the concept of social capital was readily accepted by the Indian development community in the 1990s (Economic and Political Weekly, February 24, 2001). However, a closer reading suggests that there has been a struggle to separate the concept of social capital from that of civil society (Blomkvist and Swain, 2001). This is evident from the fact that major studies, drawing directly on Putnam's model, have tried to show that states with higher social capital have reduced poverty, facilitated better delivery of specific services and implemented welfare programmes better than states with relatively low social capital (Krishna and Uphoff, 1999). However, the historical struggle of a vibrant civil society with the state and the market, emerged as more important (Morris, 1998; Krishna and Uphoff, 1999; Serra, 1999). That is, political capital emerged as an important determinant.

Pantoja's (1999) study of social capital in the coal mining areas of Orissa state draws out the paradoxes of trust and reciprocity in the Indian context. The study highlights three critical issues: (i) social capital is not inherently beneficial to all members of the community; (ii) horizontal forms of social capital are important, but without vertical articulations, the impact of community development efforts will be very constrained; and (3) external agents can help in facilitating the creation of social capital, but their presence can create dependency and therefore the sustainability of such induced social capital may be low.

In keeping with other critics who maintain that the rise of 'social capital' has led to 'blaming the victim' and/or burdening the poor and a 'depoliticising of development',<sup>3</sup> Pantoja argues that if one accepts that social capital is a common resource that can help facilitate access to other resources, one should also consider that under conditions of scarcity, such as those prevalent in developing economies and particularly among the poor, social capital can also become an integral part of the structures of constraint created by gender, class, ethnicity and in the case of India, religion and caste, which makes the notion of collective efficacy in poverty alleviation initiatives even more challenging (*ibid*). Therefore, it is essential that any study of social capital in India is sufficiently contextualised within an understanding of the Indian caste system and gender dynamics.

A society structured by the caste system hinders the vertical social and economic mobility of people on the lower rungs of the caste hierarchy through obstacles to accumulating human and physical capital. Historically, these groups have been excluded from the political space and governance system, while high poverty levels and low levels of human and physical capital simultaneously sustain such exclusion. This caste-class nexus which still persists in India (particularly rural India) must be considered a crucial factor in determining the nature and impact of social capital – be it structural (bonding, bridging and linking) or cognitive<sup>4</sup> – on wellbeing. As such, it is argued that communities and states that have a high stock of social capital are characterised by historical and social advantages made possible through high levels of human and physical capital. In other words, such assets facilitated the development of effective social movements and public policy interventions, which helped to overcome the restrictions of a hegemonic social structure, for example in the state of Kerala.

Historically, Indian social structure permits bonding/cohesion and support horizontally across caste lines with restrictions in vertical links. Such a rigid social structure produces a strong link between caste and class. While improvements in human capital and policies aimed at affirmative action have resulted in more free vertical movements, poverty and related low social development relating to education and health still highlight the lower entitlement and capabilities of groups on the lower rungs of the caste hierarchy, such as scheduled castes and tribes (Shariff, 1999).

In the Indian context, the major criticism of the hypothesised benefits of social capital relates to the notion of the collective social and economic efficacy of the poor (Harriss, 2000). Poor communities have few available resources and the impact of bonding social capital may not have the expected impact as the entire community has restricted access to information and quality services, both of which play a significant role in determining the wellbeing of the community in general and that of children in particular. Therefore, there is a need to contextualise and take account of the 'material realities of poverty' that most poor communities in India share with each other. This is supported by recent studies which acknowledge that social capital cannot

<sup>3</sup> Harriss (2001) provides an exposition of this.

<sup>4</sup> This has been conceptualised by the World Bank (2000) as ties between relatively weak and relatively powerful people. A healthy society will be characterised by a balanced distribution and relatively rich endowment of all three forms (bonding, bridging and linking) of social capital (Szreter and Woolcock, 2002).

replace material resources such as investment in infrastructure, and policies that ensure basic services and amenities (Woolcock and Narayan, 2000; Szreter and Woolcock, 2002).

In addition, occupational mobility is still largely restricted in rural India with numerous communities pursuing their traditional caste-based occupations, which are characterised by low productivity, low wages, under-employment and low social status (Government of India, 2003). This reality is important to consider when assessing the association that may exist between social capital and community wellbeing.

The experience of community development in India and elsewhere does not support the assumption that communities are democratic and that collective action is by definition distribution-neutral (Jennings, 2000). The benefits of collective action can be critically influenced by individual-level resources. It should also be noted that collective wisdom is not always progressive or positive especially with regard to information on health behaviour, access or experience. For instance, many mothers refrain from feeding colostrums to newborns because of the superstition that it harms the baby (Arnold *et al.*, 2004).

The potential limitations of inadequately conceptualised social capital in the Indian context needs to be considered in structuring research on public health issues, especially in relation to child health.

#### **1.4 Social capital: potential linkages between women's groups and children's wellbeing**

In Andhra Pradesh, women's groups constitute the principal form of institutional group membership among the poor. Since 1982/83, the state government has promoted women's groups under the Development of Women and Children in Rural Areas (DWCRA) programme; there were over 428,000 groups in the state by September 2000 (GOAP, 2002). Other than state-sponsored groups, many international agencies and non-governmental organisations (NGOs) have promoted women's groups under various development programmes, including Forest Committees, Watershed Committees and Mothers' Committees. It is sometimes argued that the poorest are often excluded from these groups, especially savings groups, due to their limited financial capital. Initial mobilisers of such microfinance groups may also exclude the poor because of biases regarding their capacities to save, use loans and repay them. In addition, the poorest are often indifferent to such programmes on account of the time investment and the loss of wages entailed in participation (Galab and Rao, 2003).

One aspect of structural social capital which we investigate in Part 3 is maternal participation in women's formal groups, and its possible association with the health of one-year-old children, measured by stunting. There is some evidence that group membership does have some direct effects. Evaluation studies have shown that women's groups have a positive impact on poverty reduction as well as on female empowerment with regard to household income (Galab and Rao, 2003). Households where female members participate in women's groups have reduced dependence on moneylenders and hence less indebtedness (Ray and Vasundhara, 1996). Membership of women's self-help groups (SHGs) is generally acknowledged to have a positive impact on women's autonomy and self-esteem, raising women's status in society through increased access to credit, increased freedom of movement, and wider exposure to mainstream social and political arenas (Antony, 2002)<sup>5</sup>. Child malnutrition has also been found to be positively correlated with women's community-run child nutritional programmes in Nepal (Erkland *et al.*, 2003).

<sup>5</sup> Despite the progress mentioned earlier, gender justice and equality remain elusive goals. For example, some evaluations have shown that credit provided by self-help groups is often utilised by men (Goetz and Sen Gupta, 1996; Galab and Rao, 2003).

The DPIP (District Poverty Initiatives Project) and RPRP (Rural Poverty Reduction Project) programmes are an important part of the context in which the Young Lives study is taking place. They include a component which is concerned with women's group formation and/or re-invigoration. Women in DPIP SHGs are compulsorily taught to sign their names, which can be an indicator for assessing improvements in their literacy levels. It is hoped that as the female members of SHGs are sensitised to the importance of education, they will send their children to school regularly.<sup>6</sup> Another of the non-negotiable requirements of the SHGs which affect Young Lives' eight-year-olds more directly, is that members' school-age children should be enrolled in school. This may contribute to an improvement in school enrolment and a reduction in dropout rates. Female members are also provided with information relating to government programmes which reduce the private cost of education, such as free hostel facilities, midday meals, books and tuition fee exemptions. This awareness-raising may lead to increased access to government programmes and a reduction in the cost of education to the family. All these initiatives are intended to relieve demand side constraints in accessing existing educational facilities. This may happen even without any improvements in the quantity and quality of supply side factors such as the provision of school facilities and adequate teaching staff (Dev *et al.*, 2005a).

The absence of a specific health component (including non-negotiables related to health practices) may account for more heterogeneous patterns of health-seeking behaviour among SHG members. Not all groups will discuss health-related issues and thus we could expect to see significant differences in members' health-seeking practices. Nevertheless, we hypothesise that over time, membership of women's groups may enable women to develop better access to information about the nutritional and health needs of their children, better access to public health facilities eg during pregnancy, as well as changes in knowledge and attitudes, and thus prevent stunting and treat associated childhood illnesses. Full exploration of this area requires longitudinal study because of the many attendant complexities. The routes by which membership of a women's group may exert a progressive influence on participants are often complex, and are not immediate in terms of changing beliefs or behaviours. For this reason, we do not discount possible effects in terms of child health although it is not currently a strong focus of the main women's groups.

Arguably, it is often the unanticipated positive outcomes of these groups that are important. For example, during the last decade, the state of Andhra Pradesh has received positive publicity for its successful fertility rate decline compared to other Indian states. Contrary to demographic theories, a higher rate of fertility decline has been achieved than would be expected in the absence of accompanying changes in other development indicators such as literacy, and this is largely attributed to the diffusion of family planning knowledge through women's self-help groups (James and Subramanian, 2003). This is a multiplier effect since family planning falls beyond the remit of women's groups. However, it is apparent that women's groups are indirectly involved in the implementation of family planning programmes. Women's group meetings are generally held in the *Anganwadi* building (preschool). The ANMs (Auxiliary Nurse Midwives) who are responsible for identifying eligible couples for family planning rely on the *Anganwadi* worker (preschool teacher) to help compile their lists. This arrangement facilitates closer interaction between the ANM and the women's group members, and encourages a free flow of information about family planning. The decline in the fertility rate has also been facilitated by incentives for women to undergo sterilisation and the setting of family planning targets for ANMs (James and Subramanian, 2003; Dev *et al.*, 2005a).

<sup>6</sup> The South Asia Poverty Alleviation Programme (SAPAP) was assisted by UNDP with a view to eradicate poverty by 2002 in all the SAARC countries. In India, a pilot project was initiated in 1995 in Andhra Pradesh in three drought-prone districts - viz. Anantapur, Kurnool and Mahaboobnagar. SAPAP has contemplated the process of social mobilisation as an institutional mechanism to mobilise the poor into SHGs for their collective empowerment at the grassroots level. The programme was initially implemented through 18 partner voluntary organisations and covered 66,000 households. As many as 5,201 SHGs have emerged. These groups have been federated into 380 village organisations (Galab and Rao, 2003).

## 2. The Young Lives 2002 data<sup>7</sup>

### 2.1 Sample

The sample comprised 1,996 mothers of children aged 6-18 months (referred to as one-year-olds below) at the time of the survey and sampled across the three distinct agro-climatic regions of Andhra Pradesh (Coastal AP, Rayalaseema and Telengana) in 20 sentinel sites. The overall sample was of 2,011 caregivers, but for the analysis below, 15 cases (0.75 per cent) were excluded because the caregiver was not the child's biological mother.<sup>8</sup>

In examining social capital, analysis was disaggregated by: household location (rural or urban); maternal caste group (Scheduled Castes (SC), Scheduled Tribes (ST), Backward Castes (BC), Other Castes (OC)); and household wealth group. (More information about these measures is provided below).

### 2.2 Measures

#### 2.2.1 Social capital

Although social capital may be measured at the individual-, household- or community-level, we only consider individual social capital in this paper.<sup>9</sup> We distinguish between two major components of social capital – structural social capital (which is comprised of membership in formal and informal groups; social support received from formal and informal networks; citizenship - involvement in collective action initiatives) and cognitive social capital which taps an individual's perceptions of trust, sense of belonging, community harmony and fairness. We also draw on the concepts of 'bonding' (horizontal linkages within communities), 'bridging' (horizontal linkages across different types of communities) and 'linking' (vertical linkages between community groups and members of society with higher socio-economic and political power) social capital in order to discuss the potentially positive and negative implications of social capital on child wellbeing.

<sup>7</sup> Formal ethical approval for the Young Lives study was obtained from independent ethics committees at the London School of Hygiene and Tropical Medicine, London South Bank University and the University of Reading, UK. Since no local ethics approval body existed during the first phase of the study, ethical guidance was sought from expert members of the Young Lives advisory panel in Andhra Pradesh sitting as an ethics committee. Protocols are now in place for the formation of a formal ethics committee for the next phase.

Fieldwork was conducted in the latter part of 2002 by staff recruited and supervised by the Young Lives team in the Centre for Economic and Social Studies (CESS) in Hyderabad. Field supervision was largely by permanently employed field workers of CESS. (Full fieldwork documentation and questionnaires are available on [www.younglives.org.uk](http://www.younglives.org.uk)).

<sup>8</sup> A total of 15 households in 9 sentinel sites (which include 4 urban households and 11 rural households) refused to take part in the study. Alternative households were identified and included. For further details, please refer to the description of the sampling rationale and procedure followed in the Young Lives project in Andhra Pradesh in a project working paper on sampling (Galab, Wilson *et al.*, 2004).

<sup>9</sup> Analyses using micro-level empirical data and macro-level secondary data suggest that healthier societies tend to have high social capital and that higher community social capital influences health outcome in a positive manner (Berkman, 2000; Murray, 2000; Grootaert, 2001; Smith *et al.*, 2001; McCulloch, 2001).

We use a shortened version of the A-SCAT tool developed by Harpham *et al.* (2002) and composed of ten questions presented in a yes/no format. The questions investigate the component measures of social capital – structural and cognitive. A series of composite social capital variables were calculated.

- a) Structural social capital was measured by: (1) asking mothers about active membership of formal groups (women's groups, co-operatives, trade unions, political parties and informal groups (religious, credit, sports) in their community during the past 12 months; (2) recording support received from informal networks (family, neighbours, friends, religious leaders) and formal networks (community leaders, politicians, government sources, charitable organisations/NGOs, others) during the past 12 months; and (3) asking mothers whether they had joined other community members to address a common issue or problem and whether they had talked with local authority or governmental organisations about these issues.
- b) Cognitive social capital was assessed by asking mothers about their perceptions of trust, sense of belonging and community harmony.<sup>10</sup>
- c) For the purposes of this analysis, women's group participation has been taken as the key indicator of formal group participation.
- d) If mothers receive support from any of the informal sources considered, they were coded as receiving some 'informal support'. Similarly, mothers who receive support from any formal source were coded as receiving 'some formal support'.
- e) With regard to citizenship, if mothers did not join others or address their common problem to the local authority, they were coded as having 'no citizenship'; if they did at least one of the activities, they were coded as having 'some citizenship'.

### 2.2.2 Stunting

Nutritional status is one of the principal child wellbeing outcomes measured in the Young Lives study. In this paper, attention will focus on stunting: height-for-age z-scores (HAZ) for 6-17.9 month-old children. The HAZ scores for each child were computed using the EpiNut module of EpiInfo 2000 using the WHO International Growth Reference as a standard, with a cut-off point of -2SD used to classify cases of stunting.

From the conceptual framework (Figure 1), a series of variables were considered that might either potentially confound the relationship between caregiver/maternal social capital and child stunting, or lie on the causal pathway between social capital and child stunting. Potential confounding factors include: child factors (age, sex); maternal factors (age, caste group, education level) and household factors (wealth index, household size and rural/urban location).

<sup>10</sup> Four component questions make up the cognitive social capital variable and a score of 1 is assigned to each positive response: majority of people in community can be trusted; majority of people in the community get along; feel a part of the community; majority of people would not take advantage. A negative response to all four questions was classified as 'no cognitive social capital'; a score between 1-3 was classified as 'some cognitive social capital', while a maximum score of 4 was coded as 'high social capital'.

### ***2.2.3 Household poverty / wealth index***

The household wealth index is an average score ranging between 0 and 1 and constructed from the following components:

- housing quality – the average number of rooms per person; floor, roof and wall type;
- consumer durables – the scaled sum of consumer durables (radio, refrigerator, bicycle, television, motorbike, motor vehicle, mobile phone, land phone, a working fan, working clock and some additional consumer durable indicators specific to the AP context);
- services – the simple average of drinking water, electricity, toilet facilities and cooking fuel, all of which are 0/1 variables.

In AP, the wealth index is grouped into three categories:

- less than 0.2 : the 'poorest',
- between 0.2 and 0.4 : 'very poor', and
- 0.4 and above : 'least poor'.

### ***2.2.4 Caregiver / maternal mental health status***

This was measured using the WHO (1994) recommended Self-Report Questionnaire (SRQ-20). The scale is used as a screening tool for mental health problems and uses 20 statements with associated yes/no answers to investigate the occurrence of behaviours characteristic of depression and anxiety. A standard cut-off of 7/8 is used to determine a probable case of common mental disorder.

It was hypothesised that mothers who had higher levels of social capital were less likely to have mental health problems, and that this would have a positive impact on their child's nutritional status.

### ***2.2.5 Safe motherhood strategies***

The variables considered include antenatal care (number of months pregnant at first antenatal visit) and place of delivery (hospital or home). It was hypothesised that mothers who had higher levels of social capital were more likely to adopt safe motherhood practices such as 6 months exclusive breastfeeding, introduction of nutritious solids from 6 months and participation in supplements programmes, which would have a positive impact on their child's subsequent nutritional status.

### ***2.2.6 Child nutritional practices***

A number of variables were considered, including number of months that the child was breastfed, age at which child was introduced to solid food, and whether the child had participated in a food supplementation programme. It was hypothesised that mothers who had higher levels of social capital were more likely to adopt nutritional practices (6 months exclusive breastfeeding, introduction of nutritious solids from 6 months and participation in supplementary programmes) which would benefit their child's nutritional status.

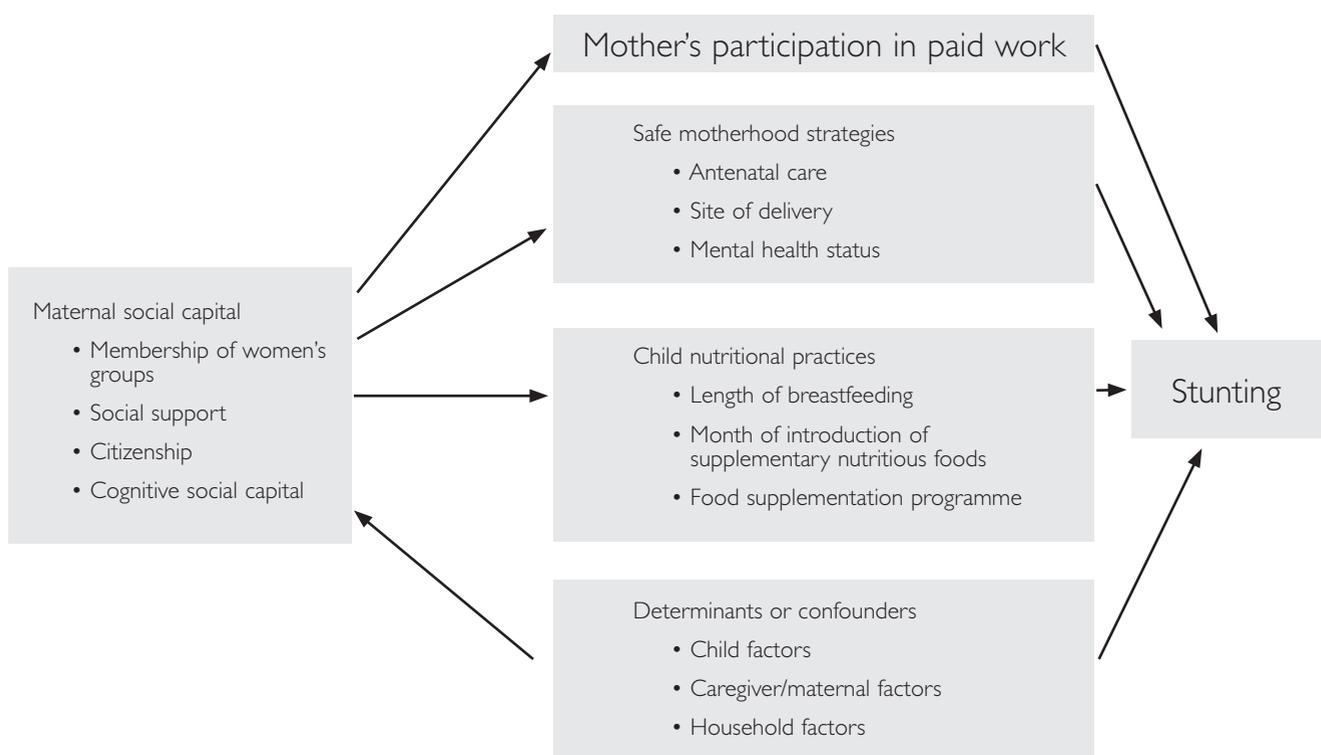
## 3. Social capital and chronic child malnutrition in the Young Lives sample

### 3.1 Data analysis

Data analysis was carried out using SPSS 12 and analysis followed the conceptual framework outlined in Figure 1. Preliminary analysis explored the distribution of maternal social capital (component questions and composite measures) and child stunting by location (rural/urban), maternal caste group and household wealth index where relevant. We used Pearson chi-squared tests for categorical variables and students' t-tests and F-tests for continuous variables. Statistical significance was considered at the 5 per cent level.

Multiple linear regression models were then fitted to explore the relationship between maternal social capital and child stunting controlling for the effect of potential confounding factors. Separate models were fitted for each caste group. Subsequent analysis was planned to examine variables hypothesised to lie on the causal pathway between maternal social capital and stunting.

**Figure 1: Conceptual framework: relationship between caregiver's social capital and child stunting**



### 3.2 Descriptive results

Preliminary descriptive data are presented which explore the differential patterns of the outcome (child stunting) and the dependent variable (maternal social capital) with regard to key socio-demographic factors. The crude bivariate relationship between maternal social capital and child stunting is described and multiple linear regression used to examine this relationship controlling for potential confounders.

#### 3.2.1 Child stunting

Table A describes the prevalence of stunting by sex, location, mother's caste group and household poverty levels. There was no significant difference in the prevalence of stunting between boys and girls, with 28.7 per cent of boys and 25.9 per cent of girls stunted. However, children living in rural communities have a significantly higher prevalence of stunting than their counterparts in urban areas.

The prevalence of child stunting with respect to mother's ethnic group mirrors the relative pattern of social disadvantage that might be expected, with OC (Other Castes) children having a lower prevalence of stunting relative to children whose mothers are from the most socially disadvantaged groups, the SC and ST. In addition, the prevalence of stunting among children from the poorest households is significantly higher than among children from the least poor households.

**Table A: Prevalence of stunting**

| Factor                |                | N       | % Prevalence of stunting (z-score < -2) |
|-----------------------|----------------|---------|---|
| Gender of child       | Male           | 304     | 28.7                                    |
|                       | Female         | 235     | 25.9                                    |
|                       |                | p-value | 0.187                                   |
| Urban/Rural           | Urban          | 89      | 18.0                                    |
|                       | Rural          | 450     | 30.5                                    |
|                       |                | p-value | 0.00                                    |
| Mother's ethnic group | SC             | 120     | 33.1                                    |
|                       | ST             | 114     | 39.6                                    |
|                       | BC             | 237     | 26.2                                    |
|                       | OC             | 68      | 16.5                                    |
|                       |                | p-value | 0.00                                    |
| Poverty               | WI < 0.2       | 213     | 35.8                                    |
|                       | WI: 0.2 to 0.4 | 194     | 29.0                                    |
|                       | WI >= 0.4      | 132     | 18.8                                    |
|                       |                | p-value | 0.00                                    |

p-values based on Pearson's chi-square test.

### 3.2.2 Maternal social capital and support networks

Results presented in Table B list the affirmative responses to the component questions of the A-SCAT tool. Table C presents the composite measures of social capital disaggregated by household location, maternal caste group and household wealth group.

**Table B: Individual components of maternal social capital**

| Structural  |                             | Rural |      | Urban |      | Total |       |
|---|-----------------------------|-------|------|-------|------|-------|-------|
|   |                             | N     | %    | N     | %    | N     | %     |
| 1. Formal women's group membership                    |                             | 436   | 29.2 | 39    | 7.8  | 475   | 23.80 |
| 2. Support received from formal network <sup>11</sup> | Community leaders           | 65    | 4.4  | 5     | 1.0  | 70    | 3.51  |
|   | Politicians                 | 21    | 1.4  | 5     | 1.0  | 26    | 1.30  |
|   | Government sources          | 68    | 4.6  | 8     | 1.6  | 76    | 3.81  |
|   | Charities                   | 50    | 3.4  | 1     | 0.2  | 51    | 2.56  |
|   | Others                      | 4     | 0.4  | 1     | 0.3  | 5     | 0.25  |
| 2. Support received from informal network             | Family                      | 1065  | 71.6 | 317   | 63.3 | 1382  | 69.24 |
|   | *Neighbours                 | 788   | 53.0 | 172   | 34.3 | 960   | 48.10 |
|   | Friends (not neighbours)    | 250   | 16.8 | 57    | 11.4 | 307   | 15.38 |
|   | Religious leaders           | 21    | 1.4  | 5     | 1.0  | 26    | 1.30  |
| 3. Citizenship  | Joined together with others | 488   | 32.7 | 120   | 24.0 | 608   | 30.46 |
|   | Talked with local authority | 258   | 17.3 | 84    | 16.8 | 342   | 17.13 |
| Cognitive   |                             |       |      |       |      |       |       |
| 4. Cognitive  | Majority of people trusted  | 1417  | 95.9 | 465   | 94.7 | 1882  | 94.29 |
|   | Most people get along       | 1438  | 96.4 | 463   | 92.6 | 1901  | 95.24 |
|   | Feel part of community      | 1442  | 97.2 | 472   | 95.4 | 1914  | 95.89 |
|   | People take advantage       | 618   | 41.4 | 223   | 45.0 | 841   | 42.13 |

\* In part, 'neighbours' are likely to represent fellow members of a caste group: support from them was not explicitly asked about

<sup>11</sup> Support incorporates anything that the mother considered as support, including emotional, financial support.

**Table C: Composite measures of maternal social capital by household location, caste and wealth group**

| Factor                 | Structural                |      |                       |      |                   |      |             | Cognitive |                          |      |
|------------------------|---------------------------|------|-----------------------|------|-------------------|------|-------------|-----------|--------------------------|------|
|                        | Women's group membership: |      | Support received from |      |                   |      | Citizenship |           | Cognitive social capital |      |
|                        |                           |      | Formal networks       |      | Informal networks |      |             |           |                          |      |
| Yes                    | %                         | Yes  | %                     | Yes  | %                 | Some | %           | High      | %                        |      |
| Household location     |                           |      |                       |      |                   |      |             |           |                          |      |
| Urban                  | 39                        | 7.8  | 13                    | 2.6  | 346               | 69.1 | 121         | 24.2      | 239                      | 47.7 |
| Rural                  | 436                       | 29.2 | 162                   | 10.8 | 1170              | 78.3 | 496         | 33.2      | 788                      | 52.7 |
| P value                | 0.00                      | 0.00 | 0.00                  | 0.00 | 0.052             |      |             |           |                          |      |
| Mother's caste         |                           |      |                       |      |                   |      |             |           |                          |      |
| SC                     | 109                       | 29.8 | 51                    | 13.9 | 283               | 77.3 | 118         | 32.2      | 171                      | 46.7 |
| ST                     | 90                        | 30.8 | 23                    | 7.9  | 192               | 65.8 | 136         | 46.6      | 150                      | 48.3 |
| BC                     | 218                       | 23.8 | 85                    | 9.3  | 725               | 79.1 | 243         | 26.5      | 502                      | 54.7 |
| OC                     | 58                        | 13.8 | 16                    | 3.8  | 316               | 75.1 | 120         | 28.5      | 204                      | 48.5 |
| P value                | 0.00                      | 0.00 | 0.00                  | 0.00 | 0.033             |      |             |           |                          |      |
| Household wealth group |                           |      |                       |      |                   |      |             |           |                          |      |
| <0.20                  | 154                       | 25.5 | 50                    | 8.3  | 467               | 77.1 | 187         | 30.9      | 329                      | 54.3 |
| 0.20-0.40              | 198                       | 29.4 | 83                    | 12.3 | 537               | 79.6 | 230         | 34.1      | 326                      | 48.3 |
| >=0.40                 | 123                       | 17.2 | 42                    | 5.9  | 512               | 71.6 | 200         | 28.0      | 372                      | 52.0 |
| P value                | 0.00                      |      | 0.00                  |      | 0.00              |      | 0.05        |           | 0.093                    |      |

### Informal support

There is strong evidence that informal support far outweighs that received from formal structures. In the previous year, more mothers reported that they had received some form of emotional or economic support from informal networks (76 per cent) than from formal networks (8.8 per cent), a pattern reflected across geographical location, caste group and household wealth group. While nearly 70 per cent of mothers surveyed received informal support from their families and nearly 50 per cent received support from their neighbours, less than 5 per cent reported receiving formal support from community leaders, politicians, government sources or charitable organisations.

A differential pattern of informal support was observed by household location. Compared to those from urban areas (63.3 per cent), mothers who lived in rural areas were more likely to receive support from their families (71.6 per cent,  $p < 0.01$ ); neighbours (53.0 per cent vs 34.3 per cent,  $p < 0.001$ ) and friends (16.8 per cent vs 11.4 per cent,  $p < 0.01$ ).

<sup>12</sup> A p-value is a measure of how much evidence we have against the null hypotheses. The smaller the p-value, the more evidence we have against the null hypothesis.

Significant caste differences were observed with respect to informal support. ST mothers were the least likely to receive support from family (61.6 per cent), neighbours (39.2 per cent) or friends (9.3 per cent) compared to mothers from the other three caste groups. Overall, a significantly lower proportion of ST mothers (65.6 per cent) received some form of support from informal networks compared to BC mothers (79.1 per cent), SC mothers (77.3 per cent) and OC mothers (75.1 per cent), ( $p < 0.001$ ).

Unsurprisingly, a significantly lower proportion of mothers from the 'least poor' households received support from their family (30.61 per cent,  $p < 0.05$ ) and neighbours (33.7 per cent,  $p < 0.001$ ) compared to mothers from the two poorer groups.

### **Formal support**

Membership of women's groups is distinguished from other formal support discussed in section 3.2.3 below. Considering the formal networks listed under section 2 of Table B, in the year prior to survey, less than 10 per cent of mothers reported that they had received some form of support from formal networks. However, rural mothers were more likely to draw support from this source than urban mothers (10.8 per cent vs 2.6 per cent,  $p < 0.001$ ), particularly with regard to receiving support from community leaders (4.4 per cent vs 1.0 per cent,  $p < 0.001$ ), government sources (4.6 per cent vs 1.6 per cent,  $p < 0.01$ ) and charitable organisations (3.4 per cent vs 0.2 per cent,  $p < 0.001$ ).

Significant caste differences were observed, with SC mothers (13.9 per cent) the most likely to receive some form of formal support compared to BC (9.3 per cent), ST (7.9 per cent) and OC mothers (3.8 per cent,  $p < 0.001$ ). A significantly higher proportion of SC (5.8 per cent) and ST (5.2 per cent) mothers received support from government sources compared to OC mothers (0.5 per cent,  $p < 0.001$ ), while SC mothers were the most likely to receive support from charitable organisations (5.85 per cent,  $p < 0.001$ ). Mothers from 'least poor' households (8.25 per cent) were the least likely to receive some form of formal support ( $p < 0.001$ ).

It is noteworthy that 'middle wealth' households were the most likely to access support from government (5.7 per cent,  $p < 0.01$ ) and charitable (3.9 per cent,  $p < 0.05$ ) sources. This points to a failure of these support mechanisms to focus effectively on the poorest. Qualitative research in Young Lives could potentially in the future explore the type and quality of linkages that citizens have with local government, with a view to identifying and documenting instances and approaches where the barriers to effective access have been reduced or removed.

### **Citizenship**

Nearly a third of mothers reported some form of citizenship behaviour in the previous year. While nearly a third of mothers reported that they had joined with others to address a common issue, only half of those (17.1 per cent of the total) took the issue further by bringing it to the attention of the local authority. Although a significantly higher proportion of mothers from rural communities joined together compared to those in urban areas (32.7 per cent vs 24.0 per cent,  $p < 0.001$ ), as a relative proportion, urban caregivers were more likely to bring their concerns to the attention of the local authority once they became involved.

Caste differences are observed with regard to citizenship behaviour. A significantly higher proportion of ST mothers joined together (46.6 per cent), compared to other castes (32.2 per cent of SC, 28.5 per

cent of OC and 26.5 per cent of BC,  $p < 0.001$ ). However, OC mothers (22.3 per cent,  $p < 0.01$ ) were significantly more likely to take issues to the attention of the local authority. Therefore, while less than 30 per cent of OC mothers demonstrated citizenship behaviour, nearly 80 per cent of these women took their issues further. This suggests a higher level of access and empowerment, which contrasts with ST mothers where only a third of those involved took their issue further. This clearly exemplifies the comment by Harriss (2002: 117) that “it is perfectly possible for resource poor people to have strong social networks but deliver little.”

No significant differences exist between wealth groups with regard to the proportion of mothers who joined together to address a common problem. However, a significantly lower proportion of mothers from the ‘poorest’ households (12.7 per cent) brought their problem to the attention of the local authority compared to mothers from the ‘very poor’ (19.0 per cent) and ‘least poor’ (19.2 per cent) households ( $p < 0.01$ ). This provides further evidence of lower levels of access and empowerment of the most disadvantaged groups.

### **Cognitive social capital**

If the component factors of cognitive social capital are considered, mothers report extremely high levels of trust (94.2 per cent), harmony (95.2 per cent) and integration (95.9 per cent) within their communities. However, 42.1 per cent of mothers felt that the majority of people in their community would take advantage of them if given the opportunity. This is inconsistent with the result that they believed most people were trustworthy. Just over half the mothers had ‘high’ levels of cognitive social capital, responding in a positive manner to questions relating to trust, harmony and integration and fairness.

No significant difference exists between the proportions of rural and urban mothers who reported that they trust people in their community and feel integrated, although rural mothers were significantly more likely to report that people get on with each other (96.4 per cent vs 92.6 per cent,  $p < 0.01$ ). High levels of the component measures of cognitive social capital were observed across caste groups, but no significant intra-group differences exist. There are no significant differences between mothers from the three different household wealth groups with regard to their perceptions of community trust and integration.

These somewhat contradictory findings suggest that the Young Lives 2002 interrogation of this aspect of social capital was under-conceptualised or poorly expressed for the Indian context, where there is a need to distinguish between the ethnic group and caste. An important lesson for future rounds of the longitudinal YL research and for other research in general is that issues of social capital have to be studied with explicit and clear reference to differences in perception within and between castes.

### **3.2.3 Participation in women's formal groups**

For the purposes of this analysis, women's group participation is taken as the key indicator of formal group participation, since few women participated in the other groups considered: work trade union (2.5 per cent), co-operative (2.8 per cent), religious groups (0.6 per cent) and political groups (2.1 per cent). Membership of informal groups was negligible, with only 11 women reporting involvement in religious groups and no women reporting membership of credit or sports groups.

Nearly a quarter of mothers surveyed reported that they had been active members of formal women's groups in the previous year. However, distinct patterns were seen by household location, caste and wealth groups. Mothers living in rural areas were significantly more likely ( $p < 0.001$ ) to participate in these groups (29.2 per cent) than mothers living in urban areas (7.9 per cent), while mothers from the 'least poor' households had the lowest participation rate (17.2 per cent) compared to mothers from the poorer groups ( $p < 0.001$ ). Significant differences exist in the patterns of women's group participation between mothers from different castes: ST (30.8 per cent) and SC (29.8 per cent) mothers have higher participation rates than the more socially advantaged OC mothers (13.8 per cent,  $p < 0.001$ ).

Membership of women's groups is expected to be an increasingly interesting feature of the social capital picture in AP because of the emphasis on women's groups in the DPIP and RPRP development programmes. The tables below provide a profile of the women's groups in the Young Lives 2002 sample. Note that Table D provides an age profile of women's group members who had a one-year-old child and not of the full membership of the women's groups.

**Table D: Women's group participation by age**

| Location           | Mother's age group |       |       |       |       |            | TOTAL |
|--------------------|--------------------|-------|-------|-------|-------|------------|-------|
|                    | Below 20           | 20-24 | 25-29 | 30-34 | 35-39 | 40 or more |       |
| <b>Non-Members</b> |                    |       |       |       |       |            |       |
| Urban              | 31                 | 228   | 146   | 41    | 15    | 1          | 462   |
|                    | 6.71               | 49.35 | 31.6  | 8.87  | 3.25  | 0.22       | 100   |
| Rural              | 140                | 512   | 306   | 67    | 26    | 6          | 1057  |
|                    | 13.25              | 48.44 | 28.95 | 6.34  | 2.46  | 0.57       | 100   |
| TOTAL              | 171                | 740   | 452   | 108   | 41    | 7          | 1519  |
|                    | 11.26              | 48.72 | 29.76 | 7.11  | 2.7   | 0.46       | 100   |
| <b>Members</b>     |                    |       |       |       |       |            |       |
| Urban              | 3                  | 23    | 11    | 2     |       |            | 39    |
|                    | 7.69               | 58.97 | 28.21 | 5.13  |       |            | 100   |
| Rural              | 40                 | 217   | 117   | 39    | 20    | 3          | 436   |
|                    | 9.17               | 49.77 | 26.83 | 8.94  | 4.59  | 0.69       | 100   |
| TOTAL              | 43                 | 240   | 128   | 41    | 20    | 3          | 475   |
|                    | 9.05               | 50.53 | 26.95 | 8.63  | 4.21  | 0.63       | 100   |
| <b>All</b>         |                    |       |       |       |       |            |       |
| Urban              | 34                 | 251   | 157   | 43    | 15    | 1          | 501   |
|                    | 6.79               | 50.1  | 31.34 | 8.58  | 2.99  | 0.2        | 100   |
| Rural              | 180                | 729   | 423   | 106   | 46    | 9          | 1493  |
|                    | 12.06              | 48.83 | 28.33 | 7.1   | 3.08  | 0.6        | 100   |
| TOTAL              | 214                | 980   | 580   | 149   | 61    | 10         | 1994  |
|                    | 10.73              | 49.15 | 29.09 | 7.47  | 3.06  | 0.5        | 100   |

**Table E: Women's group participation by ethnic group and wealth index**

|     | Group member |          | Poverty status |              |          | Total |
|-----|--------------|----------|----------------|--------------|----------|-------|
|     |              |          | WI <0.2        | WI 0.2 & 0.4 | WI >=0.4 |       |
| SC  | No           | Count    | 92             | 114          | 51       | 257   |
|     |              | Per cent | 35.8           | 44.36        | 19.84    | 100   |
|     | Yes          | Count    | 41             | 52           | 16       | 109   |
|     |              | Per cent | 37.61          | 47.71        | 14.68    | 100   |
|     | Total        | Count    | 133            | 166          | 67       | 366   |
|     |              | Per cent | 36.34          | 45.36        | 18.31    | 100   |
| ST  | No           | Count    | 127            | 52           | 23       | 202   |
|     |              | Per cent | 62.87          | 25.74        | 11.39    | 100   |
|     | Yes          | Count    | 47             | 35           | 8        | 90    |
|     |              | Per cent | 52.22          | 38.89        | 8.89     | 100   |
|     | Total        | Count    | 174            | 87           | 31       | 292   |
|     |              | Per cent | 59.59          | 29.79        | 10.62    | 100   |
| BC  | No           | Count    | 199            | 224          | 276      | 699   |
|     |              | Per cent | 28.47          | 32.05        | 39.48    | 100   |
|     | Yes          | Count    | 62             | 86           | 70       | 218   |
|     |              | Per cent | 28.44          | 39.45        | 32.11    | 100   |
|     | Total        | Count    | 261            | 310          | 346      | 917   |
|     |              | Per cent | 28.46          | 33.81        | 37.73    | 100   |
| OC  | No           | Count    | 34             | 87           | 242      | 363   |
|     |              | Per cent | 9.37           | 23.97        | 66.67    | 100   |
|     | Yes          | Count    | 4              | 25           | 29       | 58    |
|     |              | Per cent | 6.9            | 43.1         | 50       | 100   |
|     | Total        | Count    | 38             | 112          | 271      | 421   |
|     |              | Per cent | 9.03           | 26.6         | 64.37    | 100   |
| ALL | No           | Count    | 452            | 477          | 592      | 1,521 |
|     |              | Per cent | 29.72          | 31.36        | 38.92    | 100   |
|     | Yes          | Count    | 154            | 198          | 123      | 475   |
|     |              | Per cent | 32.42          | 41.68        | 25.89    | 100   |
|     | Total        | Count    | 606            | 675          | 715      | 1,996 |
|     |              | Per cent | 30.36          | 33.82        | 35.82    | 100   |

From Table E, it can be seen that overall participation rates were highest for ST women (30.8) in the sample, followed by SC (29.8), then BC (23.7), with the lowest rates for OC women (13.7). The participation rates were similar for the two higher wealth groups, and lowest for the poorest. The poorest ST women had a low participation rate, while the poorest OC women had the lowest rate. There are probably various reasons underlying these findings, although further explanatory qualitative work is required to understand these better.

There are a number of indications in the Young Lives 2002 data that membership of women's groups may be associated with behaviours which are supportive of children's wellbeing. This requires further study as DPIP-type self-help groups have the potential for an increasing impact in the future. We found that the majority of mothers breastfeed their children up to the age of 6 months. Supplementary foods (such as mashed *dal*, rice, potato and fruits) were introduced after 6 months and before one year. However, the time of introduction of solids varies across caste. Among SC and ST, supplementary nutritious foods were introduced much later than one year of age. There were also differences in the introduction of supplementary foods between rural and urban areas, with urban mothers introducing solids at an earlier age. However, mother's membership in SHGs did not show any impact on the duration of breastfeeding nor on the introduction of supplementary nutritious foods. Prevalence of stunting increased among mothers who continued to breastfeed their children up to 15 months (see Annex Tables 1-11).

In terms of health-seeking behaviour, questions included asking if the child ever had any serious illnesses or injuries when the caregiver thought s/he might die, and whether the child was taken to a health facility for treatment. In rural areas, among women's group members, the child was *not* taken for treatment in less than 12 per cent of such episodes; among non-members, the figure was a little over 22 per cent. In both groups, boys were left untreated more often than girls. This surprising finding requires further investigation.

Table D illustrates the fact that women's group members are, on average, older mothers of one-year-olds. The average age difference is only about 7 months, but this disguises the fact that there are substantially fewer members than would be expected on the basis of proportionality in the 'Less than 20' age-group, and relatively more in the '30+' age-groups. If group membership is believed or shown to have beneficial effects, particularly for poorer women in society, this should encourage the promotion of membership among younger and vulnerable mothers.

In the conceptual framework in Figure 1, maternal mental health is suggested as an intermediate factor between maternal social capital and child wellbeing outcomes, in this case stunting. There are substantial complexities in attempting to draw any causal linkages between such factors. A fuller explanation of how observations are linked would clearly require both longitudinal observation (to record child outcomes subsequent to, and maybe consequent on, current observations of maternal mental health) and deeper forms of study (to understand sociological and psychiatric aspects).

Below are reported scores on the SRQ 'maternal mental health' inventory, with the conventional cut-off that more than seven out of 20 questions answered in the affirmative constitutes a 'case': ie crudely stated, such a value flags a case for investigation in that the responses *may* reflect clinical conditions of stress, anxiety or depression.

**Table F: SRQ scores and women's group membership – number (percentage)**

| Women's group members' SRQ 20 scores     |            |            |            |            |             |
|--|------------|------------|------------|------------|-------------|
|  | SC         | ST         | BC         | OC         | Total       |
| Normal                                   | 65 (59.6)  | 55 (61.1)  | 152 (69.7) | 45 (77.6)  | 317 (66.7)  |
| Case                                     | 44 (40.4)  | 35 (38.9)  | 66 (30.3)  | 13 (22.4)  | 158 (33.3)  |
| Total                                    | 109        | 90         | 218        | 58         | 475         |
| Women's group non-members' SRQ 20 scores |            |            |            |            |             |
|  | SC         | ST         | BC         | OC         | Total       |
| Normal                                   | 163 (63.4) | 138 (68.3) | 535 (76.5) | 278 (76.6) | 1114 (73.2) |
| Case                                     | 94 (36.6)  | 64 (31.7)  | 164 (23.5) | 85 (23.4)  | 407 (26.8)  |
| Total                                    | 257        | 202        | 699        | 363        | 1521        |

Overall, about 28 per cent of the sample of mothers of one-year-old children had results which suggest that they have a problem. For the purposes of this paper, suffice it to note that among members and non-members, there is a plausible pattern of results, with the highest proportion of possible 'cases' being among SC women, followed by ST, BC, and lowest of all, OC women, in keeping with the greater poverty, discrimination and disadvantage suffered by the first group. It suggests that this 0/1 variable might serve an explanatory role in our conceptual framework. An interesting fact is that women's group members have, on average, a 6.5 per cent higher rate of 'cases'. From the YL 2002 cross-sectional data alone, there is no way of inferring that group membership is a cause or an effect of high SRQ20 scores. The survey data need to be supplemented with qualitative research on participation and the motivation of members.

Other analyses of the SRQ20 0/1 variable suggest there is very little difference in case rates between the wealth categories ( $WI < 0.2$  and  $0.2 < WI < 0.4$ ), but that the top wealth category has roughly half that of the poorer groups. Disaggregating by the sex of the child suggests that the proportion is higher among the mothers of boys.

Given the significance in AP of women's groups, it is important that future Young Lives research continues to pay attention to them. In the existing dataset, there is no information about the amount or quality of women's involvement in the groups of which they are members, their motivations for joining, the benefits they perceive themselves to have derived or which they anticipate, nor the mechanisms or pathways by which these may be achieved.

### 3.3 Analytical results

#### 3.3.1 *t*-tests

Table G shows *t*-test results regarding the differences in mean HAZ scores for one-year-old children according to the Yes/No levels of the composite measures of maternal social capital. The results indicate no significant associations.

**Table G: Crude relationships between social capital and stunting**

| Social capital                  | Mean HAZ-Scores (SD) | p-value* |
|---------------------------------|----------------------|----------|
| <b>Women's group membership</b> |                      |          |
| No                              | -1.30 (1.43)         | 0.87     |
| Yes                             | -1.28 (1.42)         |          |
| <b>Informal social support</b>  |                      |          |
| None                            | -1.29 (1.38)         | 0.97     |
| Some                            | -1.29 (1.46)         |          |
| <b>Formal social support</b>    |                      |          |
| None                            | -1.28 (1.41)         | 0.47     |
| Some                            | -1.37 (1.31)         |          |
| <b>Citizenship</b>              |                      |          |
| None                            | -1.29 (1.41)         | 0.85     |
| Some                            | -1.30 (1.46)         |          |
| <b>Cognitive social capital</b> |                      |          |
| Some (< 4)                      | -1.30 (1.42)         | 0.64     |
| High (=4)                       | -1.31 (1.43)         |          |

### 3.3.2 Multiple regression analysis

These associations were investigated using multiple linear regression modelling techniques controlling for the specified confounders.

The relationship between maternal social capital and child HAZ scores was not significant when the effect of a series of potential child, maternal, household and community level confounders were simultaneously controlled for in the regression model (Model 1, Table G). After adjusting for the effects of the other social capital and confounding factors, a borderline significant effect was seen for children born to mothers who had some citizenship behaviour. On average, their stunting scores were 0.08 higher (better) in the z-score scale than children born to mothers with a zero score for citizenship ( $p=0.06$ ).

The model shows that older children and male children are more likely to be stunted. For the age range covered (6-17.9 months), a child's HAZ score drops by 0.1 ( $p<0.001$ ) as the child's age increases by one month. Male children's HAZ scores are on average 0.2 lower than their female counterparts ( $p<0.01$ ).

The model shows that older mothers tend to have better nourished children: with every year that a mother's age increases, their child's HAZ score increases by on average 0.02 ( $p<0.05$ ). Caste differences are observed with regard to child stunting. Children born to ST mothers have HAZ scores that are on average 0.3 lower than children born to SC mothers ( $p<0.05$ ), while children born to OC mothers have HAZ scores that are on average 0.2 z-scores higher than children born to SC mothers ( $p<0.07$ ).

On average, there is a difference of 0.9 HAZ scores between children from the very poorest and the least poor households (using continuous wealth index score) ( $p<0.001$ ). With each additional person in the household, a child's HAZ score drops by, on average, 0.03 ( $p<0.05$ ).

Although the preliminary model shows that social capital is not associated with the outcome when controlling for potential confounders, the analysis was extended to consider each caste separately because of the importance of caste for social and health inequalities within Indian society. Caste or ethnicity is a good example of the negative dimensions of social capital whereby social networks and norms may undermine social development by reinforcing conservative, hierarchical and exclusivist values (Portes and Lanholt, 1996).

**Table H: Multiple linear regression estimates of maternal social capital as predictors of stunting in 1 year old children (N=1996)**

| Urban  | Model 1 |         | Model 2   |         | Model 3   |         | Model 4   |         | Model 5   |         | Model 6        |         |
|--|---------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|----------------|---------|
|  | All     |         | SC        |         | ST        |         | BC        |         | OC        |         | Working mother |         |
|  | B       | P-Value | B         | P-Value | B         | P-Value | B         | P-Value | B         | P-Value | B              | P-Value |
| (Constant)   | -1.614  | 0.001   | -3.010    | 0.065   | -2.016    | 0.538   | -0.948    | 0.214   | -1.275    | 0.133   | -1.591         | 0.002   |
| Women's group membership<br>(0=No, 1=Yes)                          | -0.040  | 0.836   | 0.476     | 0.316   | (dropped) |         | -0.008    | 0.976   | -0.366    | 0.414   | -0.042         | 0.828   |
| Support from formal network<br>(0 = No Support, 1= Some Support)   | 0.019   | 0.952   | -0.434    | 0.485   | (dropped) |         | 0.335     | 0.448   | 0.114     | 0.873   | 0.017          | 0.959   |
| Support from informal network<br>(0 = No Support, 1= Some Support) | -0.057  | 0.641   | 0.761     | 0.106   | -0.013    | 0.990   | -0.094    | 0.613   | -0.074    | 0.703   | -0.064         | 0.599   |
| Citizenship  | -0.015  | 0.839   | 0.122     | 0.590   | -0.691    | 0.404   | 0.038     | 0.734   | 0.000     | 0.997   | -0.019         | 0.793   |
| Cognitive social capital   | 0.021   | 0.765   | -0.017    | 0.952   | -0.044    | 0.953   | -0.001    | 0.991   | 0.080     | 0.493   | 0.023          | 0.741   |
| Age of child / months  | -0.089  | 0.000   | -0.088    | 0.056   | -0.101    | 0.515   | -0.117    | 0.000   | -0.069    | 0.005   | -0.088         | 0.000   |
| Sex of child (female=0 and Male=1)                                 | -0.078  | 0.450   | 0.123     | 0.688   | 0.690     | 0.501   | -0.254    | 0.108   | -0.066    | 0.702   | -0.081         | 0.432   |
| Age of mother / years  | 0.043   | 0.001   | 0.063     | 0.152   | 0.075     | 0.515   | 0.049     | 0.027   | 0.038     | 0.059   | 0.044          | 0.001   |
| Mother's level of education :<br>PRIMARY                           | 0.015   | 0.933   | 0.379     | 0.395   | (dropped) |         | -0.071    | 0.780   | 0.112     | 0.744   | 0.016          | 0.931   |
| MIDDLE   | 0.035   | 0.838   | 0.185     | 0.714   | -2.076    | 0.282   | 0.183     | 0.498   | -0.013    | 0.964   | 0.028          | 0.870   |
| HIGHSCHL   | 0.143   | 0.326   | -0.242    | 0.547   | 0.699     | 0.686   | 0.146     | 0.494   | 0.223     | 0.405   | 0.149          | 0.308   |
| Mother's caste group : ST  | -0.053  | 0.862   | (dropped) |         | (dropped) |         | (dropped) |         | (dropped) |         | -0.051         | 0.869   |
| BC   | 0.171   | 0.338   | (dropped) |         | (dropped) |         | (dropped) |         | (dropped) |         | 0.171          | 0.339   |
| OC   | 0.137   | 0.454   | (dropped) |         | (dropped) |         | (dropped) |         | (dropped) |         | 0.135          | 0.460   |
| Household wealth index   | 1.098   | 0.005   | 2.759     | 0.008   | 1.434     | 0.602   | 0.678     | 0.272   | 0.200     | 0.791   | 1.041          | 0.010   |
| Household size   | -0.016  | 0.537   | -0.102    | 0.222   | -0.048    | 0.919   | -0.020    | 0.662   | 0.007     | 0.848   | -0.018         | 0.497   |
| SRQ scores   | -0.028  | 0.070   | -0.057    | 0.187   | -0.057    | 0.670   | -0.002    | 0.946   | -0.052    | 0.052   | -0.028         | 0.076   |
| Mother working<br>(3-7 days per week)                              | --      | --      | --        | --      | --        | --      | --        | --      | --        | --      | -0.156         | 0.431   |

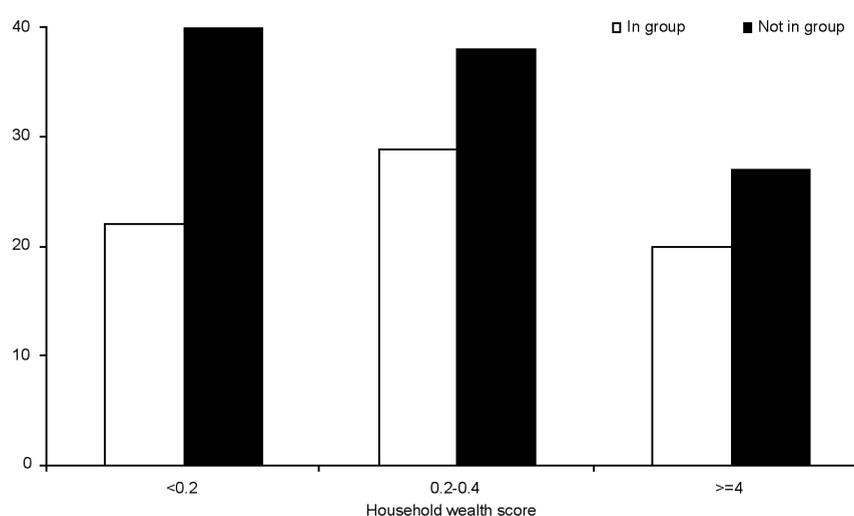




|   |        |       |           |       |           |       |           |       |           |       |        |       |
|---|--------|-------|-----------|-------|-----------|-------|-----------|-------|-----------|-------|--------|-------|
| Mother's caste group : ST                   | -0.272 | 0.013 | (dropped) |       | (dropped) |       | (dropped) |       | (dropped) |       | -0.264 | 0.016 |
| BC  | -0.047 | 0.588 | (dropped) |       | (dropped) |       | (dropped) |       | (dropped) |       | -0.041 | 0.637 |
| OC  | 0.187  | 0.079 | (dropped) |       | (dropped) |       | (dropped) |       | (dropped) |       | 0.190  | 0.074 |
| Household wealth index                      | 0.832  | 0.000 | 1.090     | 0.101 | 0.321     | 0.558 | 0.863     | 0.009 | 0.564     | 0.228 | 0.785  | 0.001 |
| Household size                              | -0.029 | 0.031 | -0.067    | 0.068 | -0.085    | 0.031 | -0.021    | 0.286 | 0.010     | 0.706 | -0.028 | 0.038 |
| SRQ Scores                                  | -0.017 | 0.040 | -0.029    | 0.163 | 0.004     | 0.827 | -0.009    | 0.468 | -0.030    | 0.074 | -0.016 | 0.046 |
| Household location<br>(Urban=0 and Rural=1) | 0.150  | 0.133 | 0.244     | 0.371 | 0.052     | 0.879 | 0.040     | 0.796 | 0.263     | 0.148 | 0.179  | 0.079 |
| Mother working<br>(3-7 days per week)       | --     | --    | --        | --    | --        | --    | --        | --    | --        | --    | -0.028 | 0.742 |
| Mother working<br>(1-2 days per week)       | --     | --    | --        | --    | --        | --    | --        | --    | --        | --    | -0.173 | 0.037 |
| R-Square                                    | 0.103  |       | 0.127     |       | 0.103     |       | 0.115     |       | 0.074     |       |        |       |
| P-Value of F statistic                      | 0.000  |       | 0.000     |       | 0.011     |       | 0.000     |       | 0.009     |       |        |       |

Model 1 was repeated separately for each of the four castes. In Model 2, it is interesting to note that for SC, the effect of mother's membership of a women's group appears to be associated with lower levels of stunting but with borderline statistical significance. Among SC, if a mother belongs to a women's group her child has a stunting score which is on average 0.33 higher on the z-score scale than children whose mothers do not belong to a group ( $p=0.07$ ), after adjusting for specified social capital, child, maternal and household factors in the model. This is illustrated below.

**Figure 2: Comparison of SC child stunting prevalence according to mother's membership of women's groups and wealth group status**



From Figure 2, it can be seen that for SC mothers, belonging to a women's group seems to protect against child stunting across the three wealth groups. It is not clear why this effect is so much more substantial for this caste than for the others. This may be elucidated by further detailed analysis and later rounds of the YL study.

Lastly, mother's participation in paid work for 1-2 days per week was associated with lower levels of child stunting. However, this was not the case with higher levels of work. This may be due to the offset between the benefits of working (especially the income effect) and a lack of time to provide adequate care for their children. Among different caste categories, an increase in the number of days of paid work of mothers led to increased incidence of stunting among children of all caste groups except OC. The same positive relationship was found between the mother's working days and the incidence of stunting among children across all the wealth groups, except the poorest of the poor (see Annex tables 12-21).

### 3.4 Discussion

We *a priori* hypothesised that strategies associated with safe motherhood and child nutrition, together with maternal mental health, may mediate the relationship between maternal social capital and child stunting. However, as can be seen from the results in Table H, no statistically significant relationships exist between maternal social capital and child stunting even after accounting for the effects of confounding factors in the specified multivariate model.

These results could in part be due to data limitations. The Phase 1 Young Lives social capital questions used were relatively thin and did not ask detailed questions about, for example, the nature of women's participation in self-help groups (active membership, leadership role, token participation, etc.) nor the types of activities in which community groups or informal collective action initiatives are involved. Moreover, given the complex picture that emerges from our analysis of social capital patterning, we hypothesise that the data were unable to capture feedback mechanisms or causal circularities where, for example, high levels of social capital lead to higher access to information, which in turn enhances individual social capital. In addition, given that major policy initiatives to foster social capital in Andhra Pradesh (especially women's self-help groups and village committees) have been relatively recent, there may be a lag time in detecting the spill-over impact of maternal structural social capital on child wellbeing indicators. We would therefore not want to entirely dismiss the idea that social dimensions of nutritional wellbeing may be important.

Nevertheless, the patterning of maternal social capital in Andhra Pradesh does underscore the limitations of fostering social capital as a solution to address the multi-dimensions of childhood poverty, especially because it is characterised by marked income inequalities and entrenched social hierarchies. Our results highlight the fact that existing power relations at the community-level present a considerable challenge for government and donor agencies interested in supporting community empowerment or providing targeted cash transfers as an anti-poverty mechanism.

Not surprisingly, we found that rates of stunting were higher among rural, lower caste and the poorest children. This pattern of deprivation is consistent across Young Lives sites despite the fact that rural families have more opportunities to be involved in community groups and have access to informal and formal support mechanisms. Similarly, although rural women were involved in more collective action initiatives, more urban women took their grievances forward to authorities, suggesting that class and caste positions mediate relationships between individuals or sub-groups of the community and political authority.

Higher levels of trust among rural women are not translating into changed outcomes, indicating that policy-makers should refrain from postulating any linear relationships between levels of trust and better wellbeing outcomes. (Moreover, the value of these types of questions is called into doubt when the same respondents who report high levels of trust also have the greatest fears of being taken advantage of by community members).

## 4. Conclusions, policy implications and further research agenda

Our results indicate that debates about development should not be de-politicised through an over-emphasis on horizontal bonding. Stronger community relationships may enhance poverty reduction initiatives but they need to be complemented with adequate financial investment in the delivery of quality services, as well as targeted programmes to ensure that the socially marginalised are not excluded from these services. Rather than relying on community co-operation alone, the state still has a key role to play in striving to ensure social justice for the poor. Higher social capital may help to enhance households' access to food, uptake of health services or knowledge about appropriate caring practices of young children, but our initial findings suggest that social capital levels are unlikely to replace the need for these three core inputs.

### Policy implications

A number of policy implications emerge from our findings. First, this study highlights the important distinction between assuming a general spill-over impact on wellbeing outcomes — for example, relying on greater maternal empowerment to translate into improved child outcomes without additional inputs — compared to ensuring that the desired outcomes (in this case reduced child stunting) are integrated as part of a deliberate policy and programming strategy. Child malnutrition rates are a major concern in Andhra Pradesh. A recent MDG progress report indicated that one third of children between 0 and 3 years in rural areas will continue to suffer from malnutrition in 2015. If maternal social capital is to be effectively harnessed to improve children's nutritional status, it will be important to **support maternal nutritional knowledge and caring practices as part of the official mandate of women's community groups**. Working with leaders of women's self-help groups to link mothers to village health providers to jointly discuss weaknesses in current services might be a useful starting point.

This is in keeping with the outcome of the generally successful family planning initiative in AP which was channelled through community groups and, more recently, women's self-help group federations, as well as the positive linkages found in the DPIIP mid-term evaluation between women's group membership and children's school attendance. In the latter case, the evidence suggests that where women's groups had specific 'non-negotiable' goals such as non-involvement of children in child labour activities, a clear link between social capital and improved child education was more likely. It was mediated by adults' greater awareness of education in general, access to financial support to ease the cost implications, and by the non-negotiable requirement that members' school age children be sent to school.

Secondly, our results showed that the poorest are missing out on formal support and do not participate equally in women's self-help groups. Lack of information and/or disposable time, energy and money, may deter or exclude the poorest from accessing support from government sources. This indicates a need for **better targeting of poverty reduction mechanisms**. At present, the poor rather than the

poorest are the greatest beneficiaries, suggesting that there is a need to either revise the targeting criteria or expand the coverage of the initiatives to ensure that both groups benefit.

Third, given significant socio-economic inequalities, government and donor agencies will need to pay particular attention to **mechanisms that will help to overcome entrenched community power relations** if social capital is to be used as an effective public health promotion tool. The fact that poor rural women in particular were less likely to take grievances and demands for improved services forward to authorities, suggests that there is a strong need for rural-based policy initiatives that will help bridge improved levels of social capital with political capital. This could, for example, include support for community transparency and budget monitoring initiatives in order to improve governmental and service provider accountability.

### Future research

In order to better maximise synergies between social capital and child-related public health concerns, including malnutrition, this study has also served to highlight a number of important areas for further research. These include i) an analysis of community level social capital, ii) exploring the timing and sustainability of links between structural social capital and wellbeing outcomes and iii) understanding the factors underpinning the (in)efficacy of community approaches to poverty alleviation aims. The latter is particularly important as in some contexts social capital may serve as a constraint to improving child wellbeing — eg by preserving conservative or traditional values at the expense of accessing adequate healthcare for infants.

Given significant differences in community caste and class compositions and the important mediating role these structural constraints can play in shaping child wellbeing outcomes, future research could usefully consider community-level social capital. On account of the stratified nature of society – within villages, within sentinel sites – such analysis would, however, demand careful attention to context-appropriate definitions of ‘community’ and shifts in these definitions over time due to economic, institutional and policy factors.

At both the community and individual levels, the longitudinal nature of the Young Lives project offers an opportunity to discover and measure which aspects of social capital turn out to be ‘volatile’. By this, we mean that the social capital benefits externally induced by a state programme, for instance, may disappear quickly after programme funding ends. On the other hand, locally-based protective social structures may be non-volatile – ie much more stable and durable over time.

Similarly, future research could usefully explore the lag time between the implementation of programmes to foster social capital and when impacts start to be detected. This would have important implications for the duration of funding of such projects. In the case of Young Lives India, for example, the data collection was undertaken in the early phases of the DPIP development intervention under which women’s groups were to be (re)activated, so that in most cases there had been limited or no opportunity for any hypothesised ‘social capital benefit’ to materialise. The connections being established with the DPIP evaluation process may provide opportunities for increased insight into the progress of this and other development initiatives in AP, for synergies between that process and YL, and for insights into ways to influence the successor RPRP projects in a child-friendly direction.

## References

- Antony, P. (2002) *Towards Empowerment: Experiences of Organizing Women Workers*, New Delhi: ILO.
- Arnold, F., Nangia, P. and Kapil, U. (2004) 'Indicators of Nutrition for Women and Children: Current Status and Recommendations', *Economic and Political Weekly*, Vol. 39, No.7, pp. 664.
- Bebbington, A. (2000) 'Induced Social capital and federations of the rural poor', *SCI Working Paper* No. 19, Washington D.C.: World Bank.
- Blomkvist, H. and Swain, A. (2001) 'Investigating Democracy and Social Capital in India', *Economic and Political Weekly*, 24 January.
- Bolin, K., Lindgren, B., Lindstrom, M., and Nystedt, P. (2003) 'Investments in Social Capital - Implications of Social Interactions for the Production of Health', *Social Science And Medicines*, Vol. 56, pp. 2379-2390.
- Bourdieu, P. (1986) 'The Forms of Capital', in J. Richardson (ed.) *Handbook of Theory and Research for the Sociology of Education*, New York: Greenwood Press.
- Carter, M.R and Maluccio, J.A. (2003) 'Social Capital and Coping with Economic Shocks: An Analysis of Stunting of South African Children', *World Development*, Vol. 31, No. 7, pp. 1147-1163.
- Chambers, R. (1999) 'Foreword' in I. Guijt and M.K. Shah (eds.), *The Myth of Community: Gender issues in Participatory Development*, New Delhi: Sage Publications.
- Charsley, S.R. and Karanth, G.K. (1998) *Challenging Untouchability: Dalit Initiatives and Experience from Karnataka*, New Delhi: Sage Publications.
- Coleman, J.S. (1990) *Foundations of Social Theory*, Harvard University Press.
- Collier, P. (1998) 'Social capital and Poverty', *SCI Working Paper* No. 4, Washington D.C.: World Bank.
- Deshmukh-Ranadive, J. (2004) 'Women's Self-Help Groups in Andhra Pradesh – Participatory Poverty Alleviation in Action', A case study from Reducing Poverty, Sustaining Growth – What Works, What Doesn't and Why- A Global Exchange for Scaling Up Success, Scaling Up Poverty Reduction: A Global Learning Process and Conference, Shanghai, May 25-27.
- Dev, M.S., Galab, S. and Ravi, C. (2005a) *Mid –Term Appraisal of Andhra Pradesh District Poverty Initiatives Project*, CESS, Hyderabad.
- Dev, M.S., Galab, S. and Ravi, C. (2005b) *Poverty free, Healthy and Educated Rural Andhra Pradesh by 2015: Where will AP be in 2009?* Government of Andhra Pradesh, Office of the Commissioner, Rural Development.
- Dev, M.S., James, K.S. and Sen, B. (2002) 'Causes of fertility decline in India and Bangladesh', *CESS Working Paper* No.45, July.

- Durlauf, S.N. (2002) *The Empirics of Social Capital: Some Skeptical Thoughts, Social Development Strategy*, Washington D.C.: World Bank.
- Eklund, P.A., Felloni, F. and Imai, K. (2003) 'Women's Organizations, Maternal Knowledge, and Social Capital to Reduce Prevalence of Stunted Children – Evidence from Rural Nepal', *Discussion Paper Series* No. 144, University of Oxford, Department of Economics.
- Galab, S. and Rao, C.N. (2003) 'Women and Self-Help Groups: Poverty Alleviation and Empowerment' in C.H.H. Rao and M. Dev (eds.) *Andhra Pradesh Development: Economic Reforms and Challenges Ahead*, Hyderabad: Centre for Economic and Social Studies.
- GOAP (2002) *Achievements under Women Action Plan 2002-2003*, Rural Development Department, Government of Andhra Pradesh, Hyderabad.
- Government of India (2000) *Annual Report*, Chapter 13, New Delhi: Ministry of Health and Family Welfare.
- Government of India (2003) *Tenth Five Year Plan 2002-2007, Vol.II, Sectoral Policies and Programmes*, Planning Commission, New Delhi.
- Griffith, P. (2004) 'The Policy applications of Social Capital', in *The Global Exchange Forum, Social Capital: A policy tool for North and South?* Conference report, 29 March, The Foreign Policy Centre, London.
- Goetz, A.M. and Sen Gupta, R (1996) 'Who Takes the Credit? Gender, Power, and Control over Loan Use in Rural Credit Programs in Bangladesh', *World Development* 24 (1), pp. 45-63.
- Grootaert, C. (1998) 'Social Capital: Missing Link', *SCI Working Paper* No. 3, Washington D.C.: World Bank.
- (1999) 'Social Capital and Development Outcomes in Burkina Faso', *LLI Working Paper* No. 7, Washington D.C.: World Bank.
- (1999) 'Social Capital, Household Welfare and Poverty in Indonesia', *LLI Working Paper* No. 6, Washington D.C.: World Bank.
- (2001) 'Understanding and Measuring Social Capital: A Synthesis of Findings and Recommendations from the Social Capital Initiative', *SCI Working Paper* No. 24, Washington D.C.: World Bank.
- Gugerty M.K and Kremer, M. (2000) 'Does Development Assistance Help Build Social Capital?' *SCI Working Paper* No. 20, Washington D.C.: World Bank.
- Guijt, I. and Shah, M.K. (eds.) (1999) *The Myth of Community: Gender Issues in Participatory Development*, New Delhi: Sage Publications.
- Harpham, T., Grant, E. and Thomas, E. (2002) 'Measuring social capital within health surveys: some key issues', *Health Policy and Planning*, Vol. 17, No.1, pp. 106-111.

- Heller, P. (1990) 'Social Capital as a Product of Class Mobilization and State Intervention: Industrial Workers In Kerala, India', *World Development*, Vol. 24, No.6, pp.1055-1072.
- James, K.S. and Subramanian, S.V. (2003) 'Towards a Demographic Transition' in C.H.H. Rao and S. Mahendra Dev (eds.) *Andhra Pradesh Development: Economic Reforms and Challenges Ahead*, Hyderabad: Centre for Economic and Social Studies.
- Jennings, R. (2000) *Participatory Development as New Paradigm: The Transition of Development Professionalism*, Prepared for the "Community Based Reintegration and Rehabilitation in Post-Conflict Settings" Conference, October, Washington, D.C.
- Kabra, K.N. (1997) *Development Planning in India: Exploring an Alternative Approach*, New Delhi: Sage Publications.
- Kanaiaupuni, S.M., Donato, K.M., Thompson-Colón, T. and Stainback, M. (2005) 'Counting on Kin: Social Networks, Social Support and Child Health', *Social Forces*, 83 (3), pp. 1137-1164.
- Kawachi, I. (1999) 'Social capital and community effects on population and individual health', *Annals of New York Academy of Sciences*, pp. 120-130.
- Knack, S. (1999) 'Social Capital, Growth and Poverty; A survey of Cross-Country Evidence', *SCI Working Paper No. 7*, Washington D.C.: World Bank.
- Krishna, A. and Uphoff, N. (1999) 'Mapping and Measuring Social Capital: A Conceptual and Empirical Study of Collective Action for Conserving and Developing Watersheds in Rajasthan, India', *SCI Working Paper No. 13*, Washington D.C.: World Bank.
- Mellor, J.M. and Milyo, J. (2003) 'State Social Capital and Individual Health Status', *Working Paper No. 10*, University of Chicago.
- Morris, M. (1998) 'Social Capital and Poverty in India', *IDS Working Paper No. 61*, Brighton: Institute of Development Studies.
- Muntaner, C., Lynch, J., Smith, G. (2000) 'Social capital and the third way in public health,' *Critical Public Health*, Vol. 10, No. 2.
- Pantoja, E. (1999) 'Exploring the Concept of Social Capital and its Relevance for Community Based Development: The Case Of Coal Mining Areas In Orissa, India', *SCI Working Paper No. 18*, Washington D.C.: World Bank.
- Pearce, N. and Smith, D. (2003) 'Is Social Capital the Key to Inequalities in Health?' *American Journal of Public Health*, Vol. 93, No.1, pp. 122-129.
- Pope, J. (2000) 'Social Capital should not be Incorporated into Surveys Designed to Monitor Population Health', *Australian and New Zealand Journal of Public Health*, Vol. 24, No.1, p. 341.
- Putnam, R. (1995) 'Bowling Alone: America's Declining Social Capital,' *Journal of Democracy*, January, 6 (1), p. 65-78.

- Ray, N. and Vasundhara, D.P. (1996) "Like my mothers' house; Women's Thrift and credit cooperatives in South India" in M. Carr, M. Chen and R. Jhabvala (eds.) *Speaking out - Women's Economic Empowerment in South Asia*, New Delhi: Vistaar Publications.
- Rose, R. (1999) 'What does social capital add to individual welfare?' *SCI Working Paper* No. 15, Washington D.C.: World Bank.
- Rose, R. (1998) 'Getting Things Done in an Anti-Modern Society: Social Capital Networks in Russia', *SCI Working Paper* No. 6, Washington D.C.: World Bank.
- Rose, R. (2000) 'How Much Does Social Capital Add to Individual Health? A Survey Study of Russians' *Social Science and Medicine* 51, pp. 1421-1435.
- Runyan, D., Hunter, W.M., Socolar, R.R., Amaya-Jackson, L., English, D., Landsverk, J., Dubowitz, H., Browne, D.H., Bangdivala, S.I. and Mathew, R.M. (1998) 'Children who Prosper in Unfavourable Environments: the Relationship to Social Capital', *Pediatrics*, Vol. 101, pp. 12-18.
- Ryan, B.A. and Adams, G.R. (1999) 'Family Relationships and Children's School Achievement', *Working Paper* 98-13 E, Hull Quebec, Canada: Applied Research Branch Human Resources Development.
- Serra, R. (1999) 'Putnam in India: Is Social Capital a meaningful and a measurable concept at Indian state level', *IDS Working Paper* No. 92, Brighton: Institute of Development Studies.
- Shariff, A. (1999) *India Human Development Report: A profile of Indian States in the 1990s*, National Council of Applied Economic Research, New Delhi: Oxford University Press.
- Subramanian, S.V., Lochner, K., Kawachi, I. (2003) 'Neighborhood differences in social capital in the US: compositional artifact or a contextual construct?' *Health and Place*, 9, 1, pp. 33-44.
- Szreter, S. and Woolcock, M. (2002) 'Health by Association? Social Capital, Social Theory and The Political Economy of Public Health', *von Hugel Institute Working Paper*, WP2002-13.
- Thacker, N.S.N. (2004) 'Current Status of Polio Eradication and Future Prospects', *Indian Journal of Pediatrics*, Vol. 71, No.3, pp. 241-245.
- Vimpani, G. (2000) 'Child development and the civil society: does social capital matter?' *Journal of Developmental and Behavioural Pediatrics*, Vol.21, pp. 44-47.
- Woolcock, M. and Narayan, D. (2000) 'Social Capital: Implications for Development Theory, Research and Policy', *World Bank Research Observer*, Vol. 15, No. 2, pp. 225-249.
- WHO (1994) *A User's Guide to the Self Reporting Questionnaire (SRQ)*, Brochure, World Health Organization, Division of Mental Health, Geneva: WHO.
- World Bank (1993) *World Development Report 1993: Investing in health*, Oxford: Oxford University Press.

# Annex I

**Table 1: Distribution of mothers, who are caregivers, by location**

| Location | Number | Per cent |
|----------|--------|----------|
| Urban    | 501    | 25.1     |
| Rural    | 1,495  | 74.9     |
| Total    | 1,996  | 100      |

**Table 2: Distribution of mothers who breastfed their children according to the months of feeding and location**

| Months of feeding |       | Location |       |       |
|-------------------|-------|----------|-------|-------|
|                   |       | Urban    | Rural | Total |
| None              | Count | 13       | 52    | 65    |
|                   | %     | 2.59     | 3.48  | 3.26  |
| <3 months         | Count | 26       | 38    | 64    |
|                   | %     | 5.19     | 2.54  | 3.21  |
| 3-6 months        | Count | 16       | 26    | 42    |
|                   | %     | 3.19     | 1.74  | 2.1   |
| 6-9 months        | Count | 113      | 301   | 414   |
|                   | %     | 22.55    | 20.13 | 20.74 |
| 9-12 months       | Count | 132      | 344   | 476   |
|                   | %     | 26.35    | 23.01 | 23.85 |
| 12-15 months      | Count | 107      | 352   | 459   |
|                   | %     | 21.36    | 23.55 | 23    |
| >15 months        | Count | 94       | 382   | 476   |
|                   | %     | 18.76    | 25.55 | 23.85 |
| Total             | Count | 501      | 1,495 | 1,996 |
|                   | %     | 100      | 100   | 100   |

**Table 3: Distribution of mothers who breastfed their children by months of feeding and poverty status**

| Months of feeding |       | Poverty status |           |            |       |
|-------------------|-------|----------------|-----------|------------|-------|
|                   |       | Poorest        | Very Poor | Least Poor | Total |
| None              | Count | 16             | 24        | 25         | 65    |
|                   | %     | 2.64           | 3.56      | 3.5        | 3.26  |
| <3 months         | Count | 5              | 14        | 45         | 64    |
|                   | %     | 0.83           | 2.07      | 6.29       | 3.21  |
| 3-6 months        | Count | 5              | 14        | 23         | 42    |
|                   | %     | 0.83           | 2.07      | 3.22       | 2.1   |
| 6-9 months        | Count | 129            | 135       | 150        | 414   |
|                   | %     | 21.29          | 20        | 20.98      | 20.74 |
| 9-12 months       | Count | 157            | 157       | 162        | 476   |
|                   | %     | 25.91          | 23.26     | 22.66      | 23.85 |
| 12-15 months      | Count | 143            | 150       | 166        | 459   |
|                   | %     | 23.6           | 22.22     | 23.22      | 23    |
| >15 months        | Count | 151            | 181       | 144        | 476   |
|                   | %     | 24.92          | 26.81     | 20.14      | 23.85 |
| Total             | Count | 606            | 675       | 715        | 1,996 |
|                   | %     | 100            | 100       | 100        | 100   |

**Table 4: Distribution of mothers who breastfed their children by months of feeding and women's group membership**

| Months of feeding |       | Women's group member |       |       |
|-------------------|-------|----------------------|-------|-------|
|                   |       | No                   | Yes   | Total |
| None              | Count | 54                   | 11    | 65    |
|                   | %     | 3.55                 | 2.32  | 3.26  |
| <3 months         | Count | 54                   | 10    | 64    |
|                   | %     | 3.55                 | 2.11  | 3.21  |
| 3-6 months        | Count | 35                   | 7     | 42    |
|                   | %     | 2.3                  | 1.47  | 2.1   |
| 6-9 months        | Count | 326                  | 88    | 414   |
|                   | %     | 21.43                | 18.53 | 20.74 |
| 9-12 months       | Count | 358                  | 118   | 476   |
|                   | %     | 23.54                | 24.84 | 23.85 |
| 12-15 months      | Count | 318                  | 141   | 459   |
|                   | %     | 20.91                | 29.68 | 23    |
| >15 months        | Count | 376                  | 100   | 476   |
|                   | %     | 24.72                | 21.05 | 23.85 |
| Total             | Count | 1,521                | 475   | 1,996 |
|                   | %     | 100                  | 100   | 100   |

**Table 5: Distribution of mothers who breastfed their children by months of feeding and nutritional status**

| Months of feeding | Nutritional status |         |       |
|-------------------|--------------------|---------|-------|
|                   | Normal             | Stunted | Total |
| None              | 51                 | 14      | 65    |
|                   | 3.57               | 2.6     | 3.3   |
| <3 months         | 45                 | 18      | 63    |
|                   | 3.15               | 3.34    | 3.2   |
| 3-6 months        | 31                 | 10      | 41    |
|                   | 2.17               | 1.86    | 2.08  |
| 6-9 months        | 339                | 73      | 412   |
|                   | 23.72              | 13.54   | 20.93 |
| 9-12 months       | 372                | 101     | 473   |
|                   | 26.03              | 18.74   | 24.03 |
| 12-15 months      | 305                | 142     | 447   |
|                   | 21.34              | 26.35   | 22.71 |
| >15 months        | 286                | 181     | 467   |
|                   | 20.01              | 33.58   | 23.73 |
| Total             | 1,429              | 539     | 1,968 |
|                   | 100                | 100     | 100   |

**Table 6: Distribution of mothers who breastfed their children by months of feeding and their age group**

| Months of feeding | Mother's age group |           |           |           | Total |
|-------------------|--------------------|-----------|-----------|-----------|-------|
|                   | <20 years          | 20-30 yea | 30-40 yea | >=40 year |       |
| None              | 8                  | 51        | 5         | 1         | 65    |
| %                 | 3.74               | 3.27      | 2.37      | 10        | 3.26  |
| <3 months         | 12                 | 48        | 4         | 0         | 64    |
| %                 | 5.61               | 3.07      | 1.9       | 0         | 3.21  |
| 3-6 months        | 3                  | 35        | 4         | 0         | 42    |
| %                 | 1.4                | 2.24      | 1.9       | 0         | 2.1   |
| 6-9 months        | 57                 | 317       | 40        | 0         | 414   |
| %                 | 26.64              | 20.31     | 18.96     | 0         | 20.74 |
| 9-12 months       | 47                 | 375       | 52        | 2         | 476   |
| %                 | 21.96              | 24.02     | 24.64     | 20        | 23.85 |
| 12-15 months      | 45                 | 357       | 54        | 3         | 459   |
| %                 | 21.03              | 22.87     | 25.59     | 30        | 23    |
| >15 months        | 42                 | 378       | 52        | 4         | 476   |
| %                 | 19.63              | 24.22     | 24.64     | 40        | 23.85 |
| Total             | 214                | 1,561     | 211       | 10        | 1,996 |
| %                 | 100                | 100       | 100       | 100       | 100   |

**Table 7: Distribution of mothers by month started giving solids and by location**

| Month started giving solids | Location |       |       |
|-----------------------------|----------|-------|-------|
|                             | Urban    | Rural | Total |
|                             | None     | 53    | 301   |
| %                           | 10.58    | 20.13 | 17.74 |
| <3 months                   | 16       | 45    | 61    |
| %                           | 3.19     | 3.01  | 3.06  |
| 3-6 months                  | 278      | 533   | 811   |
| %                           | 55.49    | 35.65 | 40.63 |
| 6-9 months                  | 111      | 450   | 561   |
| %                           | 22.16    | 30.1  | 28.11 |
| 9-12 months                 | 37       | 147   | 184   |
| %                           | 7        | 9.83  | 9     |
| >12 months                  | 6        | 19    | 25    |
| %                           | 1.2      | 1.27  | 1.25  |
| Total                       | 501      | 1,495 | 1,996 |
| %                           | 100      | 100   | 100   |

**Table 8: Distribution of mothers by month started giving solids and poverty status**

| Month started giving solids | Poverty status |           |            |       |
|-----------------------------|----------------|-----------|------------|-------|
|                             | Poorest        | Very poor | Least poor | Total |
| None                        | 130            | 124       | 100        | 354   |
| %                           | 21.45          | 18.37     | 13.99      | 17.74 |
| <3 months                   | 18             | 20        | 23         | 61    |
| %                           | 2.97           | 2.96      | 3.22       | 3.06  |
| 3-6 months                  | 213            | 253       | 345        | 811   |
| %                           | 35.15          | 37.48     | 48.25      | 40.63 |
| 6-9 months                  | 177            | 213       | 171        | 561   |
| %                           | 29.21          | 31.56     | 23.92      | 28.11 |
| 9-12 months                 | 62             | 57        | 65         | 184   |
| %                           | 10.23          | 8.44      | 9.09       | 9.22  |
| >12 months                  | 6              | 8         | 11         | 25    |
| %                           | 0.99           | 1.19      | 1.54       | 1.25  |
| Total                       | 606            | 675       | 715        | 1,996 |
| %                           | 100            | 100       | 100        | 100   |

**Table 9: Distribution of mothers by month started giving solids and women's group status**

| Month of started giving solids | Women's group member |       |       |
|--------------------------------|----------------------|-------|-------|
|                                | No                   | Yes   | Total |
| None                           | 262                  | 92    | 354   |
| %                              | 17.23                | 19.37 | 17.74 |
| <3 months                      | 50                   | 11    | 61    |
| %                              | 3.29                 | 2.32  | 3.06  |
| 3-6 months                     | 639                  | 172   | 811   |
| %                              | 42.01                | 36.21 | 40.63 |
| 6-9 months                     | 413                  | 148   | 561   |
| %                              | 27.15                | 31.16 | 28.11 |
| 9-12 months                    | 136                  | 48    | 184   |
| %                              | 8.94                 | 10.11 | 9.22  |
| >12 months                     | 21                   | 4     | 25    |
| %                              | 1.38                 | 0.84  | 1.25  |
| Total                          | 1,521                | 475   | 1,996 |
| %                              | 100                  | 100   | 100   |

**Table 10: Distribution of mothers by month started giving solids and nutritional status of children**

| Month started giving solids | Nutritional status |         |       |
|-----------------------------|--------------------|---------|-------|
|                             | Normal             | Stunted | Total |
| None                        | 238                | 112     | 350   |
| %                           | 16.66              | 20.78   | 17.78 |
| <3 months                   | 41                 | 18      | 59    |
| %                           | 2.87               | 3.34    | 3     |
| 3-6 months                  | 621                | 177     | 798   |
| %                           | 43.46              | 32.84   | 40.55 |
| 6-9 months                  | 402                | 152     | 554   |
| %                           | 28.13              | 28.2    | 28.15 |
| 9-12 months                 | 111                | 71      | 182   |
| %                           | 7.77               | 13.17   | 9.25  |
| >12 months                  | 16                 | 9       | 25    |
| %                           | 1.12               | 1.67    | 1.27  |
| Total                       | 1,429              | 539     | 1,968 |
| %                           | 100                | 100     | 100   |

**Table 11: Distribution of mothers by month started giving solids and mother's age group**

| Month started giving solids | Mother's age group |           |           |           | Total |
|-----------------------------|--------------------|-----------|-----------|-----------|-------|
|                             | <20 years          | 20-30 yea | 30-40 yea | >=40 year |       |
| None                        | 52                 | 264       | 38        | 0         | 354   |
| %                           | 24.3               | 16.91     | 18.01     | 0         | 17.74 |
| <3 months                   | 6                  | 49        | 6         | 0         | 61    |
| %                           | 2.8                | 3.14      | 2.84      | 0         | 3.06  |
| 3-6 months                  | 74                 | 650       | 82        | 5         | 811   |
| %                           | 34.58              | 41.64     | 38.86     | 50        | 40.63 |
| 6-9 months                  | 62                 | 432       | 66        | 1         | 561   |
| %                           | 28.97              | 27.67     | 31.28     | 10        | 28.11 |
| 9-12 months                 | 16                 | 147       | 17        | 4         | 184   |
| %                           | 7.48               | 9.42      | 8.06      | 40        | 9.22  |
| >12 months                  | 4                  | 19        | 2         | 0         | 25    |
| %                           | 1.87               | 1.22      | 0.95      | 0         | 1.25  |
| Total                       | 214                | 1,561     | 211       | 10        | 1,996 |
| %                           | 100                | 100       | 100       | 100       | 100   |

**Table 12: Distribution of mothers by working days per week**

| Working days    | Number | Per cent |
|-----------------|--------|----------|
| None            | 1,013  | 50.75    |
| 6-7 days a week | 374    | 18.74    |
| 3-5 days a week | 92     | 4.61     |
| 1-2 days a week | 508    | 25.45    |
| <one day a week | 9      | 0.45     |
| Total           | 1,996  | 100      |

**Table 13: Distribution of mothers by working days per week and location**

| Working Days    | Location |       |       |
|-----------------|----------|-------|-------|
|                 | Urban    | Rural | Total |
| None            | 439      | 574   | 1,013 |
| %               | 87.62    | 38.39 | 50.75 |
| 6-7 days a week | 36       | 338   | 374   |
| %               | 7.19     | 22.61 | 18.74 |
| 3-5 days a week | 2        | 90    | 92    |
| %               | 0.4      | 6.02  | 4.61  |
| 1-2 days a week | 23       | 485   | 508   |
| %               | 4.59     | 32.44 | 25.45 |
| <one day a week | 1        | 8     | 9     |
| %               | 0.2      | 0.54  | 0.45  |
| Total           | 501      | 1,495 | 1,996 |
| %               | 100      | 100   | 100   |

**Table 14: Distribution of mothers by working days per week and poverty**

| Working days    | Poverty status |           |            |       |
|-----------------|----------------|-----------|------------|-------|
|                 | Poorest        | Very poor | Least poor | Total |
| None            | 204            | 254       | 555        | 1,013 |
| %               | 33.66          | 37.63     | 77.62      | 50.75 |
| 6-7 days a week | 139            | 153       | 82         | 374   |
| %               | 22.94          | 22.67     | 11.47      | 18.74 |
| 3-5 days a week | 44             | 41        | 7          | 92    |
| %               | 7.26           | 6.07      | 0.98       | 4.61  |
| 1-2 days a week | 215            | 224       | 69         | 508   |
| %               | 35.48          | 33.19     | 9.65       | 25.45 |
| <one day a week | 4              | 3         | 2          | 9     |
| %               | 0.66           | 0.44      | 0.28       | 0.45  |
| Total           | 606            | 675       | 715        | 1,996 |
| %               | 100            | 100       | 100        | 100   |

**Table 15: Distribution of mothers by working days per week and women's group membership status**

| Working days    | Women's group member |       |       |
|-----------------|----------------------|-------|-------|
|                 | No                   | Yes   | Total |
| None            | 833                  | 180   | 1,013 |
| %               | 54.77                | 37.89 | 50.75 |
| 6-7 days a week | 254                  | 120   | 374   |
| %               | 16.7                 | 25.26 | 18.74 |
| 3-5 days a week | 67                   | 25    | 92    |
| %               | 4.4                  | 5.26  | 4.61  |
| 1-2 days a week | 360                  | 148   | 508   |
| %               | 23.67                | 31.16 | 25.45 |
| <one day a week | 7                    | 2     | 9     |
| %               | 0.46                 | 0.42  | 0.45  |
| Total           | 1,521                | 475   | 1,996 |
| %               | 100                  | 100   | 100   |

**Table 16: Distribution of mothers by working days per week and nutritional status of children**

| Working days    | Nutritional status |         |       |
|-----------------|--------------------|---------|-------|
|                 | Normal             | Stunted | Total |
| None            | 776                | 226     | 1,002 |
| %               | 54.3               | 41.93   | 50.91 |
| 6-7 days a week | 252                | 119     | 371   |
| %               | 17.63              | 22.08   | 18.85 |
| 3-5 days a week | 69                 | 21      | 90    |
| %               | 4.83               | 3.9     | 4.57  |
| 1-2 days a week | 327                | 169     | 496   |
| %               | 22.88              | 31.35   | 25.2  |
| <one day a week | 5                  | 4       | 9     |
| %               | 0.35               | 0.74    | 0.46  |
| Total           | 1,429              | 539     | 1,968 |
| %               | 100                | 100     | 100   |

**Table 17: Distribution of mothers by their working status and nutritional status of children**

| Working status | Nutritional status |         |       |
|----------------|--------------------|---------|-------|
|                | Normal             | Stunted | Total |
| Non Worker     | 776                | 226     | 1,002 |
| %              | 54.3               | 41.93   | 50.91 |
| Worker         | 653                | 313     | 966   |
| %              | 45.7               | 58.07   | 49.09 |
| Total          | 1,429              | 539     | 1,968 |
| %              | 100                | 100     | 100   |

**Table 18: Distribution of mothers by their working status of and location**

| Working status | Location |       |       |
|----------------|----------|-------|-------|
|                | Urban    | Rural | Total |
| Non Worker     | 439      | 574   | 1,013 |
| %              | 87.62    | 38.39 | 50.75 |
| Worker         | 62       | 921   | 983   |
| %              | 12.38    | 61.61 | 49.25 |
| Total          | 501      | 1,495 | 1,996 |
| %              | 100      | 100   | 100   |

**Table 19: Distribution of mothers by their working status and poverty**

| Working status | Poverty status |           |            |       |
|----------------|----------------|-----------|------------|-------|
|                | Poorest        | Very poor | Least poor | Total |
| Non Worker     | 204            | 254       | 555        | 1,013 |
| %              | 33.66          | 37.63     | 77.62      | 50.75 |
| Worker         | 402            | 421       | 160        | 983   |
| %              | 66.34          | 62.37     | 22.38      | 49.25 |
| Total          | 606            | 675       | 715        | 1,996 |
| %              | 100            | 100       | 100        | 100   |

**Table 20: Distribution of mothers by their working status and women's group membership status**

| Working status | Women's group member |       |       |
|----------------|----------------------|-------|-------|
|                | No                   | Yes   | Total |
| Non Worker     | 833                  | 180   | 1,013 |
| %              | 54.77                | 37.89 | 50.75 |
| Worker         | 688                  | 295   | 983   |
| %              | 45.23                | 62.11 | 49.25 |
| Total          | 1,521                | 475   | 1,996 |
| %              | 100                  | 100   | 100   |

**Table 21: Percentage of stunted children by mother's ethnicity, household wealth status and extent of work participation**

| Mother's ethnicity/wealth status | Percentage of stunted children |          |          |
|----------------------------------|--------------------------------|----------|----------|
|                                  | None                           | 1-2 days | 3-7 days |
| SC                               | 26.16                          | 35.63    | 42.72    |
| ST                               | 37.27                          | 40.26    | 41.58    |
| BC                               | 22.48                          | 26.75    | 32.37    |
| OC                               | 14.79                          | 24.64    | 15.00    |
| Poorest                          | 36.14                          | 35.36    | 35.85    |
| Very Poor                        | 22.92                          | 29.32    | 35.56    |
| Least Poor                       | 17.37                          | 22.47    | 25.00    |

# The Young Lives Partners

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**Young Lives is an international longitudinal study of childhood poverty, taking place in Ethiopia, India, Peru and Vietnam, and funded by DFID. The project aims to improve our understanding of the causes and consequences of childhood poverty in the developing world by following the lives of a group of 8,000 children and their families over a 15-year period. Through the involvement of academic, government and NGO partners in the aforementioned countries, South Africa and the UK, the Young Lives project will highlight ways in which policy can be improved to more effectively tackle child poverty.**

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