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RESEARCH REPORT

Maternal social capital and child health in Vietnam

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Study objective: To explore the association between maternal social capital and child physical and mental health in Vietnam.
Design: Cross sectional survey. Measures of maternal structural social capital comprised group membership, citizenship, and social support. Measures of cognitive social capital comprised trust, social harmony, sense of fairness, and belonging. Child health was measured by anthropometrics and mothers' reports of acute and chronic physical health problems and child mental health.
Participants: 2907 mothers and their 1 year old or 8 year old children from five provinces in Vietnam.
Main results: The study found low levels of group membership and citizenship and high levels of cognitive social capital and support, and generally higher levels of social capital among the mothers of 8 year old compared with 1 year old children. All but one association was in the hypothesised direction (that is, higher levels of social capital associated with reduced risk of child health problems). There were more statistically significant relations between maternal social capital and the health of 1 year olds compared with 8 year old children, and between measures of social support and cognitive social capital and child health, than with group membership and involvement in citizenship activities.
Conclusion: This study is the first to explore the association between multiple dimensions of social capital and a range of different child health outcomes in the developing world. These results now need to be tested using longitudinal data.

There are several economic and demographic dynamics that may affect social relations in Vietnam. These include rapid economic growth, growing inequalities, urbanisation, and social exclusion.[1] These changes may affect the nature and extent of social capital, which can be defined as the resources that people can access through their social connections. In this paper we refer to social capital within a local community and recognise the difference between cognitive social capital, which refers to attitudes about social connections, and structural social capital, which refers to the behaviours that form the connections. While there are a growing number of studies in developed countries that examine the association between social capital and health[2–5] there are still comparatively few studies in developing countries, where arguably the nature of social capital is changing more rapidly than in developed countries.[6]

An electronic search of Medline found only nine studies examining the association between social capital and child physical and/or mental health, only one of which was set in the developing world. Six of the studies explore child mental health, four of which show a significant positive association between high cognitive social capital and better child mental health,[7–10] and two of which show no association.[11 12]

The results in relation to child physical health are also varied with four studies showing no association between social capital and child physical health or nutritional status,[8 12–14] and one showing a positive association between state level social capital and indicators of child wellbeing including reduced infant mortality in the USA.[15]

The approach to social capital in this study avoids focusing on either trust and norms or interactions but considers both, as recommended by most recent texts on social capital.[16] However, this study recognises the importance of separating out structural social capital (objective measures of what people ''do'', such as membership of networks) from cognitive social capital (subjective measures of what people ''feel'', such as notions of trust and reciprocity).[17] It is important to separate these indicators of social capital as they may have different effects on health. For example, high maternal cognitive social capital might be associated with good maternal mental health that might in turn be related to good child health. While high structural social capital might be associated with a mother having many community roles that might detract from individual child care and health. This study also avoids covering both the causes and consequences (or outcomes) of social capital in the measure of social capital itself, a common criticism of social capital measures.[18]

We hypothesise that high levels of maternal social capital may be positively related to child health by permitting mothers to access more services (health, education, child care), by permitting them to access more assets (jobs, money, durables etc), and by being positively related to maternal physical and/or mental health. If the basic relation between maternal social capital and child health is confirmed, then future studies will examine these pathways of mediation. While previous research has shown positive associations between adult social capital and various adult (or household) indicators of wellbeing, the association between maternal social capital and child health has not previously been examined.[19]Figure 1 presents the conceptual framework.

METHODS

Sample

This study uses data from the Young Lives project and full details of the sample can be found at http://www.younglives.org.uk. A random sample of 100 children aged between 6 and 18 months (referred to as ''1 year olds'' throughout the paper) and 50 children aged between 7.5 and 8.5 years (referred to as ''8 year olds'') was taken from each of 20 sentinel sites across Vietnam. In total, 2000 1 year olds and 1000 8 year olds were sampled. Sentinel sites were over sampled to include poor areas, and comprised 31 communes, or communities, spread over five provinces. The child's primary caregiver was interviewed. For the purposes of this study the sample is restricted to biological mothers, resulting

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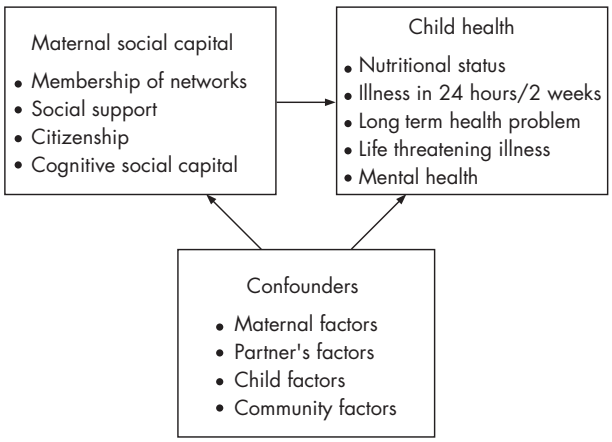

Figure 1 Conceptual framework.

in 1953 mothers of 1 year olds, and 954 mothers of 8 year olds.

Measures

Social capital was measured using a shortened version of the adapted social capital assessment tool (A-SCAT) developed by Harpham *et al*.[17] The questionnaire has been psychometrically and qualitatively validated in Vietnam[20 21] where the separateness of the different components was shown to be robust. Structural social capital was measured in three ways: (1) active membership of formal (women's union, coop, trade union, political) and informal (religious, revolving credit, life insurance, sports) groups in the community in the past year; (2) support received from informal (family, relatives, neighbours, friends, religious leaders) and formal (government officials, politicians, NGOs) networks during the past year; (3) citizenship activities in the past year comprising joining together with other community members to tackle an issue/problem and communication with community leaders. Membership of groups and support from persons was dichotomised into formal and informal groups/sources to reflect the distinction in Vietnam between formal, communist structures, and informal people led structures. Cognitive social capital was measured by asking respondents four questions about perceptions of trust, sense of belonging, social harmony, and perceived fairness. Preliminary analyses showed the relation between the continuous social capital variables and child health to be non-linear, and so all social capital variables were categorised into appropriate categories.

Child health outcomes included indicators of both short and long term health and nutritional status. Acute physical illness was measured in the 1 year olds by caregiver reports of illness in the past 24 hours (measured using 10 questions developed by WHO for screening diarrhoea and respiratory infections), and in the 8 year olds by reports of illness in the two weeks preceding the survey. More long term indicators of physical health comprised whether the child has had any serious illnesses or injuries when the caregiver thought that the child might die, measured since birth for the 1 year olds and in the past three years for the 8 year olds. Long term health problems were also recorded for the 8 year olds, as was child mental health measured using the strengths and difficulties questionnaire (SDQ). A total difficulties score ranging from 0 to 40 was generated by summing the scores from four scales (emotional symptoms score, conduct problem score, hyperactivity score, and peer problem score). A score of less than or equal to 17 was classified a probable case of child mental disorder.

Anthropometric measurements were taken by trained fieldworkers on all children. Weight for age z scores were used as an indicator of acute, and height for age z scores as a measure of chronic nutritional status in both age groups. Both were computed using the EpiNut module of EpiInfo 2000 with the WHO international growth reference as a standard.

Other factors that may confound the association between maternal social capital and child health were explored. These comprised: maternal factors (age, religion, ethnicity, education level, occupation, number of years lived in commune, and mental health status measured using the WHO recommended self report questionnaire 20 items (SRQ20) with a cut off of 7/8 to determine a probable case of common mental disorder); partners' factors (partner at home, age, education, occupation); household factors (household wealth index, number of economic shocks in past three years, number of children under 5 in household); child's factors (age, sex); and community factors (rural/urban).

Household wealth index was constructed as an average of three components providing a score between zero and one: (1) housing quality, which is the simple average of rooms per person, floor, roof, and wall; (2) consumer durables, being the scaled sum of nine consumer durables (radio, bicycle, television, electric fan, motorbike, refrigerator, land phone, mobile phone, and car/truck); and (3) services of drinking water, electricity, toilet, and fuel. The wealth index was divided into four groups: <0.25 the poorest, $0.25–<0.5$ very poor, $0.5–<0.75$ less poor, ≥ 0.75 better off.

Data analysis

Data were analysed using the survey commands in Stata 8.0 (Stata Corporation, College Station, TX). Sampling weight factor (p weight) was the reverse of the probability of eligible children being sampled in each sentinel site. Strata were defined as sentinel site, and primary sampling unit as the household. Appropriate multivariable models (linear for the nutrition z scores and logistic for all other outcomes) for each child health outcome were fitted to explore the association between each dimension of maternal social capital and child health outcomes, controlling for potential confounding factors and the other social capital variables.

RESULTS

Descriptive results

Description of sample

The average age of the mothers of 1 year olds is 27 years, and of the 8 year olds 35 years. Nearly all of the mothers of 8 year olds (98%), and three quarters of the mothers of 1 year olds have lived in their commune for more than five years, and 3% are single parents (results not shown).

Child health

Table 1 presents the distribution of health outcomes for 1 and 8 year olds respectively. The 8 year olds have lower mean z scores for both weight for age and height for age than the 1 year olds, and high levels of acute physical illness with one third reported to have had an illness in the two weeks before the survey. One in five of the 1 year olds are reported to have had an illness in the past 24 hours, and similar proportions (about one in 10) have been so ill that their mother thought that they might die. One in five of the 8 year olds are classified as probable cases of child mental illness.

Maternal social capital

Table 2 describes the distribution of each aspect of maternal social capital by child age group. Levels of structural social capital are low, particularly among mothers of 1 year olds. Involvement in citizenship activities is also nearly twice as

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Table 1 Indicators of child health by child age group

Child health outcomes	1 year olds (n = 1953)	8 year olds (n = 954)
Health outcomes reported by mother		
Acute health outcomes		
% had illness in past 24 hours	17.4	–
% illness in two weeks before the survey	–	33.2
Long term health outcomes		
% life threatening event since birth/in past three years†	13.3	10.4
% having long term health problems	–	14.3
% probable case of mental ill health	–	21.5
Nutritional outcomes measured on child	**n = 1946‡**	**n = 954**
mean weight for age z score	−1.29	−1.55
mean height for age z score	−1.03	−1.42

–, Outcome not measured for age group. †Life threatening illness since birth was measured for the 1 year old children, and in the past three years for the 8 year old children. ‡Anthropological measurements were missing for seven children. *p⩽0.05, **p⩽0.01, ***p⩽0.001 based on Pearson's χ^2 test for categorical, and *t* test for continuous variables.

Table 2 Individual components of maternal social capital by child age group

	Mothers of 1 year olds (n = 1953) (%)	Mothers of 8 year olds (n = 954) (%)	Significance
Structural social capital			
Group membership			
In past year, been an active member of formal group			
Prof/trade union	7	10	*
Coop	5	6	
Women's union	17	31	***
Political/social group	1	2	
In past year, been an active member of informal group			
Religious group	1	2	
Credit/life insurance group	6	7	
Sports group	0.3	0	
Composite variable			
None	73	59	**
Any formal groups	23	37	***
Any informal groups	7	8	***
Social support			
Received support in the past year from formal networks			
Commune leaders	15	17	
Politicians	0.1	0	
Government officials	5	6	
Non-government/charity officials	6	9	*
Other source	7	12	***
Received support in the past year from informal networks			
Family/relatives	94	91	**
Neighbours	77	81	*
Friends (not neighbours)	71	74	
Religious leaders	1	2	
Composite variable			
None	3.4	3.6	
Any formal networks	32	42	***
Any informal networks	96	94	**
Citizenship activities			
Joined with other households to address a problem	30	50	***
Talked with commune leaders about a problem in the community	4	8	***
Composite variable			
None	69	49	
Some (either joined together or contacted leaders)	31	51	**
Cognitive social capital			
In general, most people in commune can be trusted	83	87	**
Most people in commune get along well	91	94	*
Feel part of the commune	98	99	**
Feel people would take advantage if they got the change	9	7	
Composite variable†			
Low (<3 yes)	10	6	**
Medium (=3 yes)	14	13	
High (=4 yes)	76	81	**

†Cognitive social capital variables coded 0 for low (that is, no trust) and 1 for high cognitive social capital. Variables added together to create continuous score that was categorised into low, medium, and high levels of cognitive social capital. *p⩽0.05, **p⩽0.01, ***p⩽0.001 based on Pearson's χ^2 test.

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high among mothers of older children ($p<0.01$), although the overall level of citizenship is surprisingly low given the communist political structures.

Membership of formal groups is three times more common than informal group membership among both groups, with around a quarter of mothers members of the Women's Union, a state sponsored community based mass organisation. In contrast, levels of social support from informal networks such as friends, family, and neighbours are much higher than support received from formal government structures. While nearly all mothers receive support from informal networks, only around one in three receives support from formal networks.

In contrast with structural social capital, levels of cognitive social capital are very high among both groups (76% and 81%). Nevertheless, mothers of 1 year old children do have significantly lower levels of generalised trust, social harmony and sense of belonging than mothers of 8 year old children ($p<0.01$).

Relation between social capital and child health

Tables 3 and 4 present the results of the multivariate analysis for 1 and 8 year olds respectively. Associations between maternal social capital and child health vary by specific outcomes and by specific components of maternal social capital. Among the four components of maternal social capital, social support and cognitive social capital display the most statistically significant associations with child health. Membership of groups and involvement in citizenship activities display few significant associations with child health.

Nutrition

No associations are seen between any aspect of maternal social capital and child nutrition among the 8 year old children. For the 1 year olds, only social support from both formal and informal sources and cognitive social capital are significantly associated with higher z scores (table 3). After controlling for a wide range of confounding factors, mothers who receive support from either formal or informal networks have significantly heavier but not taller children for their age than mothers who receive no support (increase in z score of 0.25, $p>0.05$). Children of mothers with high cognitive social capital are significantly heavier ($\beta = 0.17$, 95% CI 0.03, 0.31) and taller ($\beta = 0.18$, 95% CI 0.04, 0.31) than children of mothers with low social capital.

Interestingly, membership of formal organisations is significantly associated with child nutrition, with membership of formal groups associated with worse height for age z scores ($\beta = -0.17$; 95% CI −0.29, −0.03).

Physical health

As with nutrition, only social support and cognitive social capital are associated with some aspects of child physical health. High maternal cognitive social capital is associated with a halving of the odds of a 1 year old child being ill in the past 24 hours (OR 0.52 95% CI 0.35, 0.77). The equivalent acute measure for 8 year olds (illness in past two weeks) shows a similar association with cognitive social capital in the crude analysis, but the association is attenuated after adjustment for other variables (table 4).

Cognitive social capital is also associated with reduced odds of having suffered a life threatening illness or injury among 8 but not 1 year olds (OR 0.32, 95% CI 0.16, 0.64). Among one year olds, social support from both formal and informal networks is associated with a halving of the odds of having had a life threatening event, but this association is not replicated among the 8 year olds. No association is found

Table 3 Multivariable regression: association between maternal social capital and child wellbeing in 1 year olds (n = 1953)

	Nutrition†—linear regression				Physical health—logistic regression			
	Weight for age z score		Height for age z score		Illness in past 24 hours		Life threatening since birth	
	Crude	Adjusted‡	Crude	Adjusted‡	Crude	Adjusted‡	Crude	Adjusted‡
Structural								
Group membership								
None	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Any formal groups	0.05 (−0.06, 0.17)	0.04 (−0.07, 0.15)	0.05 (−0.06, 0.17)	0.008 (−0.10, 0.12)	1.07 (0.80, 1.44)	1.14 (0.84, 1.56)	1.03 (0.74, 1.45)	1.12 (0.78, 1.61)
Any informal groups	0.004 (−0.17, 0.18)	−.03 (−0.18, 0.12)	0.10 (−0.07, 0.29)	0.02 (−0.14, 0.19)	0.96 (0.58, 1.59)	1.04 (0.62, 1.74)	1.34 (0.79, 2.29)	1.59 (0.92, 2.74)
Social support received from								
None	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Any formal networks	0.44*** (0.21, 0.68)	0.25* (0.02, 0.47)	0.37** (0.11, 0.64)	0.15 (−0.11, 0.41)	0.62 (0.33, 1.17)	0.59 (0.31, 1.12)	0.46* (0.25, 0.86)	0.52* (0.28, 1.00)
Any informal networks	0.41*** (0.19, 0.64)	0.25* (0.04, 0.47)	0.34**0(0.09, 0.59)	0.17 (−0.08, 0.42)	0.65 (0.36, 1.17)	0.61 (0.33, 1.11)	0.43** (0.24, 0.78)	0.47* (0.25, 0.88)
Citizenship activities								
None	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Some	−0.02 (−0.12, 0.08)	0.02 (−0.07, 0.12)	−0.04 (−0.14, 0.06)	−0.01 (−0.10, 0.08)	0.90 (0.68, 1.19)	0.88 (0.67, 1.17)	0.99 (0.73, 1.34)	0.91 (0.65, 1.26)
Cognitive								
Low (<3 yes)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Medium (=3 yes)	0.34(−0.15, 0.22)	0.05 (−0.12, 0.22)	0.09 (−0.10, 0.27)	−11 (−0.06, 0.27)	0.95 (0.60, 1.50)	1.00 (0.63, 1.59)	1.11 (0.64, 1.94)	1.12 (0.61, 2.06)
High (=4 yes)	0.18* (0.02, 0.33)	0.17** (0.03, 0.31)	0.18** (0.03, 0.32)	0.18** (0.04, 0.31)	0.49*** (0.33, 0.71)	0.52*** (0.35, 0.77)	0.77 (0.49, 1.22)	0.80 (0.49, 1.31)

†Seven missing observations. * $p \leqslant 0.05$, ** $p \leqslant 0.01$, *** $p \leqslant 0.001$ ‡Adjusted for: social capital variables: group membership, social support from people, citizenship, and cognitive social capital. Maternal characteristics: age, education level, length of living in commune, ethnic group, occupation, mental health status; household characteristics: wealth index, shock events past three years; community characteristics: rural/urban; child characteristics: sex, age.

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Table 4 Multivariate regression: association between maternal social capital and child wellbeing in 8 year olds (n = 951)

	Nutrition†—linear regression				Physical health—logistic regression				Logistic regression			
									Physical health		Mental health	
	Weight for age z score		Height for age z score		Illness in past two weeks		Life threatening in past three years		Long term health problem		Probable case of mental illness	
	Crude	Adjusted‡	Crude	Adjusted‡	Crude	Adjusted‡	Crude	Adjusted‡	Crude	Adjusted‡	Crude	Adjusted‡
Structural												
Group membership												
None	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Any formal groups	−0.04 (−0.16, 0.07)	−0.07 (−0.19, 0.04)	−0.10 (−0.24, 0.03)	−0.17** (−0.29, −0.03)	1.0 (0.73, 1.33)	1.14 (0.82, 1.58)	1.05 (0.67, 1.65)	1.33 (0.82, 2.16)	0.98 (0.65, 1.48)	1.00 (0.65, 1.54)	1.19 (0.84, 1.68)	1.37 (0.95, 2.0)
Any informal groups	0.19 (−0.06, 0.45)	−0.11 (−0.13, 0.36)	0.17 (−0.10, 0.44)	0.04 (−0.23, 0.30)	0.86 (0.73, 1.37)	0.80 (0.45, 1.40)	1.24 (0.57, 2.69)	1.48 (0.65, 3.35)	2.0* (1.07, 3.74)	1.88 (0.95, 3.70)	1.56 (0.88, 2.79)	1.28 (0.68, 2.10)
Social support received from												
None	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Any formal networks	0.01 (−0.29, 0.31)	−0.12 (−0.42, 0.18)	0.04 (−0.32, 0.40)	−0.09 (−0.46, 0.27)	1.53 (0.64, 3.63)	1.62 (0.67, 3.95)	0.70 (0.25, 1.95)	0.71 (0.25, 2.0)	0.87 (0.34, 2.26)	0.83 (0.31, 2.19)	0.55 (0.24, 1.24)	0.34* (0.15, 0.80)
Any informal networks	−0.001 (−0.29, 0.29)	−0.08 (−0.38, 0.21)	0.08 (−0.27, 0.44)	−0.008 (−0.37, 0.35)	1.75 (0.75, 4.07)	1.77 (0.74, 4.12)	0.64 (0.24, 1.75)	0.59 (0.22, 1.58)	0.82 (0.33, 2.08)	0.77 (0.30, 1.84)	0.61 (0.28, 1.35)	0.40* (0.18, 0.89)
Citizenship activities												
None	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Some	0.03 (−0.08, 0.14)	−0.02 (−0.13, 0.09)	−0.05 (−0.17, 0.08)	0.001 (−0.12, 0.12)	1.23 (0.92, 1.64)	1.36 (1.0, 1.86)	1.23 (0.80, 1.90)	1.22 (0.79, 1.90)	0.82 (0.56, 1.21)	0.76 (0.50, 1.15)	0.69* (0.49, 0.96)	0.64* (0.44, 0.92)
Cognitive												
Low (<3 yes)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Medium (= 3 yes)	0.11 (−0.15, 0.37)	0.15 (−0.10, 0.39)	0.11 (−0.18, 0.40)	0.14 (−0.13, 0.41)	0.83 (0.43, 1.60)	0.99 (0.49, 1.98)	0.18*** (0.07, 0.47)	0.18*** (0.07, 0.47)	0.54 (0.24, 1.22)	0.55 (0.23, 1.28)	0.86 (0.43, 1.73)	1.15 (0.54, 2.42)
High (= 4 yes)	0.10 (−0.11, 0.32)	0.09 (−0.12, 0.30)	0.12 (−0.11, 0.36)	0.07 (−0.15, 0.29)	0.48** (0.27, 0.83)	0.58 (0.32, 1.06)	0.30*** (0.15, 0.59)	0.32*** (0.16, 0.64)	0.44* (0.23, 0.86)	0.50 (0.24, 1.00)	0.39* (0.22, 0.72)	0.45* (0.24, 0.85)

*$p \leq 0.05$, **$p \leq 0.01$, ***$p \leq 0.001$. ‡Adjusted for: maternal characteristics: age, education level, length of living in commune, ethnic group, occupation, mental health status; household characteristics: wealth index, shock events past three years; community characteristics: rural/urban; child characteristics: sex, age. †N = 1946 as seven missing values for anthropometric data.

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between having a long term health problem and any social capital variable.

Mental health

Among 8 year olds, the most consistent associations are between good child mental health and high levels of maternal social capital (table 4). Maternal support from both formal and informal networks, involvement in citizenship activities, and high cognitive social capital are all associated with roughly a halving of the odds of a child being a probable case of mental illness.

DISCUSSION

High levels of cognitive social capital and social support are positively associated with a range of acute and chronic child health indicators among 1 year olds, and with child mental health among 8 year olds. In contrast, maternal membership of groups and citizenship show few associations with child health.

Strengths and weaknesses of study

This study is the first to explore the association between multiple dimensions of maternal social capital and a range of different child health outcomes. We include a wide range of confounding factors, and use a specifically designed and validated tool to measure social capital.

As with all cross sectional studies, causality cannot be attributed to the associations found in this paper. It is possible that some of the associations are attributable to reverse causality whereby the mother reports lower levels of cognitive social capital or receives more social support because her child is sick.

This study only measures the social capital of a child's mother. However, children are likely to be influenced by the social capital of other members of the household, and indeed a composite measure of ''household social capital'' may show stronger associations with child health. In addition, some measurement of the child's social capital, particularly of the 8 year olds, and of levels of social capital in the community, may help to explain some aspects of child health, and should be explored by further research.

Discussion of results

Structural social capital is remarkably low in a context where mass organisations still exist. The only other quantitative study of social capital in Vietnam found higher levels of structural social capital but included men in its sample.[22] However, when analysing active membership of groups (as was done in this study) they found a general ''social disconnectedness''.[23] Although women's unions remain an important formal network in Vietnam with roughly 20% of mothers active members, other types of informal and formal groups have a much smaller influence, in particular informal organisations.

Maternal social support and high cognitive social capital show the most consistent associations with child health, mirroring results from developed countries.[7–10] The fact that these variables relate to a more nurturing environment in which the child develops may explain the importance of these variables for child health. Associations between maternal social capital and child health are much stronger among the 1 year old children than among the 8 year olds, with the exception of child mental health. We hypothesise that this is because infants have much greater contact with their mother, and are therefore influenced by the social world in which she moves to a greater extent. Perhaps by the age of 8, children have begun to develop their own social capital, although their emotional development may still be influenced by the social capital of their mother.

There is some evidence to suggest that active membership of formal organisations in Vietnam may be damaging to the health of 8 but not of 1 year olds. Active participation in formal groups was significantly associated with an increase in stunting among 8 year olds. With these cross sectional data it is not possible to discover if the costs imposed on mothers participating in formal groups leads to child stunting, or whether mothers with a stunted child are more willing to participate in formal groups to receive social support from those groups. However, one previous study did find a negative impact of membership of groups on mental health, showing the potentially damaging side to group membership.[24] We hypothesise that group membership can damage mental health by being an extra burden on top of the productive and reproductive roles of women and/or it can produce stigma (when the group exists to provide help to the vulnerable) and peer pressure, which increase stressors upon a woman.

A positive association between social support from informal networks and the nutritional status of 1 year old children (weight for age) was found. These networks comprise family, friends, and neighbours and are a strong feature of Vietnamese society, with 96% of mothers receiving support from this source. For 62% of mothers, this constitutes their only source of support. Confucian traditions often promote trust in a comparatively narrow realm of family and the Vietnamese family has been characterised as ''residentially nuclear but functionally extended'' (page 189)[25] with extensive support offered by the family.[26] Dalton *et al*[22] hypothesise that development in Vietnam will not diminish traditional family networks but add work and friendship networks to them: ''further development in Vietnam is not so likely to exchange one set of social networks for another, but to expand the number and activity levels of the networks that connect individuals to society, and which help form their

What is already known on this subject?

While there is a significant body of work exploring the association between social capital and adult health, few studies have explored the effects of social capital for child health, particularly in the developing world. This study seeks to bridge this gap by exploring the association between multiple dimensions of maternal social capital and aspects of physical and mental health among children in Vietnam.

What does this study add?

Maternal social support and high cognitive social capital show the most consistent associations with child health. With the exception of child mental health, associations between maternal social capital and child health are much stronger among 1 year children than among 8 year olds.

Policy implications

This first quantitative study of maternal social capital in Vietnam has shown it to be associated with some aspects of child health. Current policy debate in Vietnam on strengthening social relations (including a new law to permit ''grass roots participation'') needs to target mothers to increase their social support.

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social and political identities'' (page 4). Such social support may influence child nutrition by provision of knowledge about appropriate feeding, actual food, and/or child care.

Some previous studies have shown levels of trust to be generally low in developing countries.[19] In contrast, Vietnam has extremely high levels of trust, with 84% of mothers stating that people in general can be trusted. Dalton and Ong[27] also found high levels of trust in Vietnam. High maternal cognitive social capital is associated with better child health in terms of nutritional status and physical health among 1 year olds, and in physical and mental health among the 8 year olds.

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