

## Beyond the Boundary of Healthcare Systems: Can social capital complement the health outcomes of the aging?

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### ABSTRACT

*This paper delves into the association between social capital and health outcomes of the aging in Bangladesh. Methodological triangulation was used to synthesize primary data in this study. The data were collected based on a sample survey from 310 aging people in the aged  $\geq 60$  years in 2016. Findings reveal that social networks, norms of reciprocity, trust, neighborhood social cohesion and civic participation, and economic hardship are associated with self rated health status. The aging who had low social networks, norms of reciprocity and neighborhood cohesion and economic hardship were 1.917, 2.354, 2.185, and 1.949 times more likely to say that they had poor self rated health status. The synergy index between low social network and economic hardship, low norm of reciprocity and economic hardship and low neighborhood cohesion were 1.592 and 1.939 and, 2.067 supported that effect of joint exposure (low social capital and presence of economic hardship) is greater than the effect predicted from the sum of effects of each factor acting separately. The study concludes that economic hardship reduction is more important to access health care.*

**Keywords:** Social capital, healthcare systems, economic hardship, self rated health, health outcomes, interaction effects

### INTRODUCTION

Individual health status is not shaped only by the healthcare system but also by genetic factors as well as a wide range of individuals' demographic characteristics and health behaviors. Research communities have already identified many social, cultural, economic, political and environmental factors that determine health outcomes of individuals regardless of societies (Morgan 2004). A growing number of initiatives are emerging to address these broader determinants of health, and develop integrated solutions within the context of the healthcare system (Artiga & Hinton 2018). Evidence acknowledges that those who live in disadvantaged social circumstances have more illness, greater suffering, more disability and shorter lives than

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those who are in affluent society (Morgan 2004). Apart from these, many researchers are now paying attention to individuals' interactions with healthcare system for measuring the peoples' health outcomes. However, some societies have an effective healthcare system that contributes to healthy citizens while other societies do not. Social researchers are more interested to find community-level characteristics in attaining the desired health outcomes such as social capital and its relationship to healthcare access (Derose & Varda 2009). That's why, along with other socioeconomic factors, social capital of individuals has also been used to explain such differences as well as supplementing the gaps of peoples' health outcomes (Mohseni & Lindstrom 2007). Many systematic reviews show a positive relationship between social capital (SC) and various health outcomes, and predict that social capital yields better mental and physical health, and indicators of social capital are protective against mortality. In chorus, many reviews also elicit numerous insignificant and off-putting relationships that are imperative to consider (Ehsana, Klaas, Bastianena & Spiniab 2019).

Social capital exists at three different levels: micro level (family), meso level (neighborhood) and macro level (nation). The explanation of social capital focuses on the relationships among individuals whereas human capital spotlights on individual abilities, economic capital includes possession, social capital concentrates on the networks and ties, in which individuals are woven. Linkage with networks gives the person an advantage by obtaining information, support, access and trust. These sequentially perk up life satisfaction and wellbeing. Putnam mentions three forms of social capital such as bonding, bridging and linking have been mentioned where bonding focuses on strong direct relations between individuals in a similar socio-demographic and socio-economic or socio-cultural background, bridging relate to comparatively weak horizontal connections between different groups originated from a similar social class, and linking permeates through vertical links between privileged and less privileged groups (Klocke & Stadtmüller 2018).

Many researchers mention that social capital includes social cohesion, civic participation, norms of reciprocity, interpersonal relationship, trust, social support, social networks, etc. Social structures and socioeconomic patterns are the major determinants of population health and health care system in a country (Ahnquis et al. 2012). Dimensions of social capital have been frequently examining in the context of many socioeconomic choices and health outcomes in recent days (Agampodi, Agampodi, Glozier & Siribaddana 2015). Evidence derived from many empirical researches acknowledges that social capital is positively related to health (Ferlander 2007). Different mechanisms developed by social capital formation process promote individuals health and health care utilization at community level. Both horizontal and vertical social capital provide effectual support being a source of self-esteem and mutual respect, increase access to local services and amenities, promote community level health insurance, adopt health-related behaviors and norms, control over deviant health-related behaviors, disseminate health information, and prevent social violence and crime (Mohseni & Lindstrom 2007). At macro-level, social capitals facilitate health service delivery through social networks, promotes effective disease prevention efforts through formal and informal networks from which people receive information and medicine. At individual level, intensive social interactions provide a channel for information transmission and sharing of past experience on health facilities, doctors, drugs and diseases. Strong social capital reduces the cost of health information (Nayale 2009). Social capital is an important social determinant of well-being among older populations across countries

and cultures. Evidence, thus, acknowledge that social capital has manifold impacts on the self-rated health outcomes of individuals regardless of society and healthcare systems (Zhang & Lu 2019).

Elderly people in Bangladesh are basically dependent on personal efforts for survival, predominantly on their families for socio-economic support and health care access. Kin networks such as spouse, daughter, son / daughter-in-law are the main providers of emotional, practical or material support to elderly people (Nilsson et al. 2006). Hardcore poverty, rural to urban migration, decline joint and extended family, and changes in life style are leading to smaller families that have put the elderly population in a vulnerable situation and caused a higher trouble of ill health and disability. Most of the elderly are especially deprived of sufficient social supports due to their dependency on family and society (Nilsson et al. 2006). Since, social capital affects individuals’ health outcomes at different places differently, this study was conducted emphasizing the attempt how social capital and health outcomes of aging people are associated beyond the boundaries of health care system in Bangladesh.

**OBJECTIVES AND METHODOLOGY**

**Objectives**

The primary objective of the study was to find the effects of social capital on health outcomes of ageing people living at the Madhobde municipality in Narsingdi District of Bangladesh. The specific objectives are to investigate the social capital forms and status of the ageing; assess the effects of social capital on yielding health outcomes of the ageing; find out the interactional effects of social capital and economic hardship on self-rated health status of the ageing.

**Method**

The study was quantitative and followed a cross-sectional study design. A total of 1596 aging people (60+) live in nine wards of the Madhobde municipality in Narsingdi District of Bangladesh. By using the following Cochran’s sample size formula, a sample of 310 aging people was randomly selected from the population.

$$n_0 = \frac{(t)^2 \cdot (p)(q)}{(d)^2} = n_0 = \frac{(1.96)^2 \cdot (.5) (.5)}{(0.05)^2} = 384$$

Where t = value for selected alpha level of .025 in each tail = 1.96; where (p)(q) = estimate of variance = .25; and d = acceptable margin of error for proportion being estimated = 0.5.

Therefore, for a population of 1596, there required sample size is 384. Cochran’s (1977) correction formula has been used to calculate the final sample size. These calculations are as follows:

$$n1 = \frac{n_0}{(1 + n_0 / Population)} \quad \text{or,} \quad n1 = \frac{384}{(1 + 384/1596)} = 309.52=310$$

Where population size = 1596;  $n_0$  = required return sample size according to Cochran's formula= 1596;  $n_1$  = required return sample size because sample > 5% of population (Bartlett et al. 2001).

Mainly quantitative were collected from the respondents. Data was collected through face-to face interview. Both closed-ended and open ended questions were included in the interview schedule.

### Data Analysis

The SPSS 20 program was used to analyze the data. Univariate analyses were used to make socio-demographics profile of the respondents. Bivariate analysis such as cross tabulation was used to presentation of the data and Chi-square test was applied to check the association between independent variables and dependent variable. Logistic regression models were used to explore the association between social capital and health outcomes. Synergy index was computed to examine the interaction effect between lack of social capital and presence of economic hardship as a predictor of poor health status.

### Calculation of interaction effects

Six components of social capital e.g. social support, neighborhood social cohesion, civic participation, norms of reciprocity and trust were taken as independent variables of the study. The synergy index was used to measure the interaction effects between low social capital and presence of economic hardship on health outcomes (Kalilani and Atashili 2006). To quantify interaction based on Rothman's model, the synergy index (S) was computed using the following equation:

$$S = \frac{R_{11} - R_{00}}{(R_{10} - R_{00}) + (R_{01} - R_{00})} = \frac{RR_{11} - 1}{(RR_{10} - 1)(RR_{01} - 1)}$$

## MAJOR FINDINGS

### Socio-demographic Profiles

Table 1 shows that almost half of the respondents i.e. 43.2% were from the age category 60-64 and only 10.6% respondents belong in the age category 75+. Data shows that, 37.4 percent had less than 7000 BDT (Bangladesh Taka) and family income was greater than 21000 BDT among the only 11.6% respondents. Univariate analysis finds that at individual level 79.0% respondents had high close neighborhood. Majority of the respondents (60.6%) had high social networks, 71.6% social cohesion, 71.6% high norms of reciprocity, 57.7% social support, 70.6% civic participations. Majority of the respondents (53.5%) had presence of economic hardship and 46.5% absence of economic hardship. The four-fifth of respondents said that they had good self-rated health whereas 22.6% had poor self rated health.

**Table 1: Socio-demographic Profile of Aging People**

<b>Age of the respondent</b>	<b>Frequency</b>	<b>Percent</b>
<i>60-64</i>	<i>134</i>	<i>43.2</i>
<i>65-69</i>	<i>92</i>	<i>29.7</i>
<i>70-74</i>	<i>51</i>	<i>16.5</i>
<i>75+</i>	<i>33</i>	<i>10.6</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Income of the respondent</b>		
<i>0-7000</i>	<i>116</i>	<i>37.4</i>
<i>7000-14000</i>	<i>135</i>	<i>43.5</i>
<i>14000-21000</i>	<i>23</i>	<i>7.4</i>
<i>21000+</i>	<i>36</i>	<i>11.6</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Presence of Economic Hardship</b>		
<i>No</i>	<i>144</i>	<i>46.5</i>
<i>Yes</i>	<i>166</i>	<i>53.5</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Social networks</b>		
<i>Low</i>	<i>122</i>	<i>39.4</i>
<i>High</i>	<i>188</i>	<i>60.6</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Norms of Reciprocity</b>		
<i>Low</i>	<i>123</i>	<i>39.7</i>
<i>High</i>	<i>187</i>	<i>60.3</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Neighborhoods cohesion</b>		
<i>Low</i>	<i>65</i>	<i>21.0</i>
<i>High</i>	<i>245</i>	<i>79.0</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Social trust</b>		
<i>Low</i>	<i>88</i>	<i>28.4</i>
<i>High</i>	<i>222</i>	<i>71.6</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Social Support</b>		
<i>Low</i>	<i>131</i>	<i>42.3</i>
<i>High</i>	<i>179</i>	<i>57.7</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Civic participations</b>		
<i>Low</i>	<i>91</i>	<i>29.4</i>
<i>High</i>	<i>219</i>	<i>70.6</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>
<b>Self Rated Health</b>		
<i>Good</i>	<i>240</i>	<i>77.4</i>
<i>Poor</i>	<i>70</i>	<i>22.6</i>
<i>Total</i>	<i>310</i>	<i>100.0</i>

### Social Capital Dimensions and Health Outcomes of Aging People

Table 2 reveals that poor self rated health status is considerably lower (13.8%) among old people who have high social network. Poor self rated health status is considerably higher (36.1%) among the old people who have low social network. The Chi-square test also shows the association between social network and poor self rated health status is significant. Poor self rated health status is considerably lower (15.5%) among old people who have high social network. Poor self rated health status is considerably higher (33.3%) among the old people who have high norms of reciprocity. The Chi-square test also shows the association between norms of reciprocity and poor self rated health status is significant. Poor self rated health status is higher among aging people (26.0%) who have low social support compared to those (20.1%) who have high social support. The proportion of poor self rated health status problem increases with the decreases of social support. But the Chi-square test also shows the there is no association between social support and self rated health status. Poor self rated health status is considerably lower (19.4%) among old people who have high social trust. Poor self rated health status is considerably higher (30.7%) among the aging people who have low norms of reciprocity. The Chi-square test also shows the association between social trust and poor self rated health status is significant. Poor self rated health status is considerably lower (19.2%) among old people who have high Participation and Memberships. Poor self rated health status is considerably higher (30.8%) among the aging people who have low civic participation. The Chi-square test also shows the association between civics participation and poor self rated health status is significant. Poor self rated health status is considerably is lower (16.3%) among old people who have high neighborhood cohesion. Poor self rated health status is considerably higher (46.2%) among the old people who have low neighborhood cohesion. The Chi-square test also shows the association between neighborhood cohesion and poor self rated health status is significant.

**Table 2:** Association between Socio-economic Variable and Self-rated Health Status

Social networks	Self-rated Health					
	Good		poor		Total	
	N	%	n	%	n	%
<b>High</b>	162	86.2	26	13.8	188	100.0
<b>Low</b>	78	63.9	44	36.1	122	100.0
<b>Total</b>	240	77.4	70	22.6	310	100.0
<b><math>\chi^2=20.925</math>, <math>df=1</math>, <math>p</math> value&lt;0.000</b>						
Norms of reciprocity						
<b>High</b>	158	84.5	29	15.5	187	100.0
<b>Low</b>	82	66.7	41	33.3	123	100.0
<b>Total</b>	240	77.4	70	22.6	310	100.0
<b><math>\chi^2=13.486</math>, <math>df=1</math>, <math>p</math> value &lt;0.000</b>						
Social trust						
<b>High</b>	179	80.6	43	19.4	222	100.0
<b>Low</b>	61	69.3	27	30.7	88	100.0
<b>Total</b>	240	77.4	70	22.6	310	100.0
<b><math>\chi^2=4.613</math>, <math>df=1</math> <math>p</math> value=0.032</b>						

<b>Social support</b>						
High	143	79.9	36	20.1	179	100.0
Low	97	74.0	34	26.0	131	100.0
Total	240	77.4	70	22.6	310	100.0
$\chi^2=1.477, df=1$ p value=0.224						
<b>Civic participation</b>						
High	177	80.8%	42	19.2%	219	100.0%
Low	63	69.2%	28	30.8%	91	100.0%
Total	240	77.4%	70	22.6%	310	100.0%
$\chi^2=4.941, df=1$ p value=0.026						
<b>Neighborhood Cohesion</b>						
High	205	83.7%	40	16.3%	245	100.0%
Low	35	53.8%	30	46.2%	65	100.0%
Total	240	77.4%	70	22.6%	310	100.0%
$\chi^2=26.143 df=1$ p value <0.000						

**Effects of Social Capital on Health Outcomes of the Aging People**

**Table 3:** Social Capital and Health Outcomes by Logistic Regression Analysis

Variables	B	S.E.	Sig.	Odds ratio	95% C.I. for EXP(B)	
					Lower	Upper
Neighborhood Cohesion						
High(Ref)						
Low	.782	.361	.030	2.185	1.078	4.431
Social Networks						
High(Ref)						
Low	.651	.332	.0409	1.917	1.001	3.676
Trust						
High(Ref)						
Low	.143	.359	.690	1.154	.571	2.331
Norms of reciprocity						
High(Ref)						
Low	.856	.311	.006	2.354	1.279	4.331
Civic participation						
High(Ref)						
Low	.095	.328	.773	1.099	.578	2.091
Economic Hardship						
No(Ref)						
Yes	.667	.357	.061	1.949	.969	3.920
Constant	-2.614	.314	.000	.073		

Hosmer and Lemeshow goodness-of-fit test:  $\chi^2=4.2132; df=8; p=0.822$

The independent variables included named social network, norms of reciprocity, social trust, social support, neighborhood cohesion, social support, civic participation, economic

hardship were identified as significant through bi-variate analysis. The variable social support was not included in logistic regression because this variable was not found significantly associated with self rated health. However, multivariate analysis found that four variables namely social networks, norms of reciprocity, neighborhood cohesion and economic hardship were significantly associated with poor self rated health (table 3). The aging people who have low neighborhood cohesion are 2.185 (1.078-4.431) times more likely to say that they have poor self rated health status compared to the reference group who have high neighbored cohesion while other independent variables remain fixed. The aging people who have low social network are 1.917 (1.001-3.763) times more likely to say that they have poor self rated health status compared to the reference group who have high social network while other independent variables remain fixed. The aging people who have low norms of reciprocity are 2.354 (1.279-4.331) times more likely to say that they have poor self rated health compared to the reference group who have high norms of reciprocity while other independent variables remain fixed. The aging people who have low economic hardship are 1.949 (.969-3.920)times more likely to say that they have poor self rated health compared to the reference group who have high norms of reciprocity while other independent variables remain fixed.

### Interaction Effects of Low Social Capital and Economic Hardship on Self-rated Health Status

**Table 4:** Combine Effects of Social Capital and Economic Hardship on Self-rated Health Outcomes

Neighbored cohesion	Economic hardship	
	No	Yes
High	1	3.222(.888-11.689)
Low	2.014(1.015-3.996)	7.250 (3.584-15.532)

\*Synergy index=1.9397

Social network	Economic hardship	
	No	Yes

The variables found significant with poor self rated health through multivariate analysis were put in synergy index. The table 4 shows the combine effects between neighbored cohesion, and economic hardship on poor self-rated health status. Here the reference category is neighbored cohesion, social network, and norms of reciprocity (high and low) and economic hard ship (yes and no). When there are high social cohesion and presence of economic hardship, they are 2.275 times more likely to say that they have poor self rated health than who have no economic hardship and high social capital. When there are low social cohesion and no economic hardship, they are 2.014 times more likely to say that they have poor self rated health than who have no economic hard ship and high social capital. When there are low neighborhood cohesion and present of economic hardship, they are 7.250 times more likely to say that they have poor self rated health than who have no economic hard ship and high neighborhood cohesion. The synergy index was low neighborhood cohesion and economic hardship was 1.9397 indicated an interaction effect on health status. Poor self-rated health were 2.199 times higher than who have no economic hard ship and high social network. When there are high low social networks and no economic hardship, they are 3.135 times more likely to say that they have poor self rated health than who have no economic hard ship and high social capital. When there are low social network



and presence of economic hardship, they are 6.308 times more likely to say that they have poor self rated health than who have no economic hardship and high social capital. The synergy index was low social networks and health was 1.592082, indicating an interaction effect on health status. Here the reference category is (norms of reciprocity is high and no economic hardship). When there are high norms of reciprocity and presence of economic hardship, they are 2.275 times more likely to say that they have poor self rated health. When there are low norms of reciprocity and no economic hardship, they are 2.275 times more likely to say that they have poor self rated health than who have no economic hardship and high norms of reciprocity. When there are low norms of reciprocity and presence of economic hardship, they are 7.9576 times more likely say that they have poor self rated health than who have no economic hardship and high norms of reciprocity. The synergy index was low norms of reciprocity and economic hardship is 2.06745, indicating an interaction effect on health status.

## **DISCUSSION**

The question has already been arisen whether and how social capital can be complemented to generate the positive health outcomes of the ageing beyond the boundary of healthcare systems in the countries like Bangladesh. Aiming at this goal, a quantitative study was conducted covering a municipality i.e. Madhobde at Narsingdi District of Bangladesh. The study shows that not all but some of social capital dimensions are related to the self rated health outcomes of the elderly in the study area. The dimension of social support is not associated with self rated health status but community level variable: neighborhood social networks, norms of reciprocity and social cohesion are strongly associated with self rated health status. Chi-square test shows that social network is associated with self rated health among the aging people. People with higher level of network are more likely to say that they have better self rated health status than those have low level of social network. Evidence support that socially isolated individuals has the higher risk of poor health status because they have limited access to resources like instrumental aid, healthcare information, and emotional support from the close relatives. The social bondage as found in neighborhood is an important element of self rated health of the aging people in Bangladesh. Interlace neighborhood that provides effective psychosocial support to the aging people because of acting as the source of self-esteem and mutual respect helps them access local healthcare services and facilities, and improves their health status. Economic hardship than other economic factors is strongly associated with health status among the aging people as determines poor health status of the aging people. The study shows low social capital and economic hardship increase the probability of poor self rated health status.

## **CONCLUSION**

It is apparent from the study findings that all dimensions of social capital beyond the boundary of healthcare systems do not have the significant influence on the health outcomes of aging people. But some has found a noteworthy connection. Of them, neighborhood, social cohesion, social networks, and norms of reciprocity are highly associated with the self-rated health outcomes of the aging people. As a determinant, economic hardship defines the variation of health outcomes

as it has the potentiality of being created from poor distribution of health resources and services. In contrast, the reduction of economic hardship is also more important to the improvement of self-rated health status of the elderly. So, to improving social capital can a helpful way forward in reducing health inequality among the population segments of a society like Bangladesh. While improving social capital and reducing economic hardship should be implemented at the same time.

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