



Research article

Social capital and health beliefs: Exploring the effect of bridging and bonding social capital on health locus of control among women in Dhaka

Muhammad Rehan Masoom

School of Business & Economics, United International University, Dhaka-1212, Bangladesh

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ABSTRACT

This cross-sectional study examined if social capital affects women's health attributions. The study used the Internet Social Capital Scale (ISCS) and Multidimensional Health Locus of Control (MHLC) Scale to measure Social Capital and Health Locus of Control. A predefined 38-item questionnaire was used to survey 485 purposively selected women. A bidirectional reciprocal structural equation model was used to measure the covariance between Social Capital and Health Locus of Control. We hypothesized that women with strong social capital, particularly those rich in bridging ties, would exhibit a greater sense of agency and empowerment over their health, attributing their health outcomes less to internal factors like fate and more to external influences like powerful others and broader social support. However, we found that when women have higher social capital, their external health locus of control increases. Bridging and bonding social capital lower women's internal health control, but bridging social capital leads to higher attributes to powerful others. Likewise, we expected women with more social capital would exhibit a lower perception of uncontrollability over their health, but is not the case. The findings underscore the necessity for women to have more social capital.

1. Introduction

Women's beliefs about who controls their health affect what decisions to make and when to seek medical treatment [1]. These beliefs, commonly referred to as health locus of control (HLOC) [2], not only influence the inclination to search for health-related information [3] but also foster the growth of self-management skills [4]. Those who exhibit a perception of having agency over their health are more inclined to be involved in practices that promote their well-being [5]. For instance, a recent study has provided evidence that HLOC is among the most crucial factors that impact the awareness of human papillomavirus (HPV), the most prevalent sexually transmitted disease, and the willingness to get vaccinated for its prevention [6]. There is further evidence indicating a correlation between women's vaccination plans against COVID-19 and their HLOC [7]. Engaging in regular physical activity fostered a stronger sense of HLOC among middle-aged women, increased their appreciation for good health, and contributed to better mental well-being [8]. Stronger HLOC beliefs are also found to correlate with better adherence to diabetes self-management plans [9]. However, social support from friends and family and community integration can lead to a more favorable subjective assessment of one's health [10]. Therefore, social capital is likely to affect women's HLOC.

The relationship between social capital and health-related control beliefs and behaviours in women has been well-documented in

E-mail address: masoom@bus.uui.ac.bd.

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recent times. Studies have shown that strong social networks and support systems can significantly impact women's self-efficacy, health perceptions, and health-promoting behaviours. For example, research on Iranian women with gestational diabetes mellitus found a positive association between social capital and self-efficacy in managing their condition [11]. Similarly, a study in Japan revealed that higher social capital was associated with lower external locus of control and improved physical and mental health [12]. A study in Poland found that optimistic pregnant women stay positive, even during threatened preterm labour; they see negative circumstances as external and temporary, and positive circumstances as personal and lasting [13]. Various social networks have the potential to impact women's health intentions and behaviours, with the network structure also being a factor. For instance, Chinese women with denser social networks (more connections) were found more likely to have positive attitudes and social norms around using tampons, and felt more confident in their ability to use them; however, those in hierarchical networks (with clear power dynamics) were less positive about tampons (Y. [14]). Gender differences in health narratives and approaches also warrant attention. Research by Maldonado Brito and Camargo (2019) in Brazil highlighted how women adopt preventive healthcare practices and focus on overall well-being, while men often prioritize self-care in response to severe cases [15]. These findings suggest social factors play a crucial role in shaping women's health experiences and understanding the impact of social capital on women's empowerment demands an intricate analysis.

While numerous studies have established the link between strong social capital and a healthier lifestyle [16], understanding how this translates into health attributions, particularly for women, remains a crucial research gap. Social capital, encompassing the benefits and resources gained through social connections, can influence health in several ways particularly for women living in countries like Bangladesh [17]. Altruistic acts within social networks, for instance, foster a sense of reciprocity and encourage others to adopt healthier behaviours [18]. Additionally, access to information within these networks and social media, a vital form of social capital [19,20], can empower individuals to make informed health choices [17]. However, the impact of social capital on health attributions is not without its complexities [21]. For instance, short-term health education initiatives, while potentially affecting health locus of control [22], may not be sufficient to create lasting change. Sociodemographic factors, as Janowski et al. [23] argue, can influence engagement in health-related behaviours, further highlighting the need to consider individual circumstances [23]. Furthermore, gender disparities in building and accessing social capital warrant closer examination (S. [24]). Women often invest more effort in building social networks [25], but face institutional barriers that limit their access to education and employment, ultimately impacting their social capital [26]. The imbalanced distribution of household and caregiving responsibilities [27], along with the limited presence in leadership positions [28], deepens these inequalities, potentially impeding women's capacity to utilize social capital for better health outcomes. Therefore, the current study delves into this critical issue, investigating how social capital, considering its multifaceted nature and gendered implications, influences women's health attributions. By examining the specific mechanisms through which social capital shapes health perceptions, this research aims to contribute valuable insights to the field and inform interventions that empower women to navigate the complex interplay between social connections, health behaviours, and their understanding of their own health.

Overall, this study contributes to the existing literature on social capital by (1) intricately explaining the significance of social relationships for women to avail of health-related services; (2) differentiating the effects of bridging and bonding social capital on health beliefs; (3) acknowledging the cultural context of health locus of control and its implications; (4) identifying the role of collective decision-making in shaping health beliefs and behaviours; (5) opening up new research directions to explore the moderating factors influencing this complex relationship. Moving beyond simplistic assumptions and by differentiating between bridging and bonding, the study avoids the simplistic assumption that all social capital has the same effect on health attributes. Likewise, by looking at specific subtypes of social capital, the study helps identify the mechanisms through which each type influences the health locus of control; this allows for targeted interventions and strategies to promote health-enhancing social relationships. Finally, the study acknowledges that factors beyond social capital, such as cultural norms, can also shape health locus of control; this encourages a more holistic understanding of the individual's role in shaping their health beliefs.

2. Conceptualization and hypotheses

Social capital is "the ability of actors to secure benefits by virtue of membership in social networks and other social structures". ([18], p. 6). Being part of a social network gives access to emotional support and collaborative opportunities [29]. Distinct social networks have discrete properties; different social capital, such as "bridging" and "bonding", emerges from the presence of varying sets of social norms and networks [30,31]. Despite their similarities, these two forms of social capital serve distinct purposes [32]. Bridging social capital (BR) helps to create an environment of inclusivity and connects people from different social circles [33]. Those who have high bridging social capital may not have deep emotional bonds, but they have a broad network of acquaintances, which provides them with a wider social perspective, worldview, knowledge, and resource options [33]. On the other hand, stronger personal relationships that offer emotional or material support to one another are indicative of higher bonding social capital (BO) [34]. Often bonding forms among those who share similar upbringings [30] and provides support for mobilising resources when needed [34]. Overall, bridging social capital leads to increased access to resources and services that helps individuals to be more proactive in their own health, such as through health screenings, educational programs, and access to healthcare [30]; conversely, bonding creates a trusting atmosphere in which people openly discuss their health issues and destigmatize health topics, allowing them to feel more comfortable seeking help [35].

Several studies [1,36,37] have provided empirical support for the health locus of control's three-component structure: first, persons' degree of a personal domain of control over their health is measured under the 'Internal Health Locus of Control' (IHL); second, 'Powerful Others Health Locus of Control' (PHL) assesses how much people put their faith in influential third parties like doctors, the

government, and friends to decide about their health; third, the belief that one's health is largely determined by luck or chance is measured by the dimension of the 'Chance Health locus of control' (CHL) [2]. That is, HLOC can be internal, in which a person believes that their actions impact their health, or external, in which they attribute more control over their health to external factors such as chance as well as to influential people such as doctors [38]. These HLOC measures have been extensively used in studies aiming to quantify people's perceptions of their own agency in matters of health [37,39].

Having more social capital often means spending more time social mixing with friends, family, and people in the neighborhood and making a stronger bond with them [40]. Increased social influence, in which women believe that others have a substantial impact on their health decisions and outcomes, can result from such encounters [41]. Likewise, women are exposed to a variety of sources of health information as they broaden their social networks and engage with a greater spectrum of people [42]. They come to believe that outside forces beyond their control are influencing health outcomes as a consequence of their exposure to outside knowledge and bridging with others. Women in Bangladesh exhibit stronger communal ties and are consistently involved in collective decision-making processes [43]. Their involvement in communities leads to the realization that societal norms and the larger social context impact health outcomes. Women who often take on nurturing and caretaking roles believe they have less control over their health and attribute health outcomes to external causes [44]. Women who have more social capital often look to outside sources for assistance and support with their health concerns [27]. The dependence on external factors leads to the perception that health outcomes are not a matter of personal choice [45]. Hence, it is likely that there could be an association between Social Capital and Health Locus of Control. However, while bonding and bridging social capital are often considered the primary dimensions of social capital, there are compelling arguments for employing it as a second-order formative construct when investigating its association with other variables [46]. A second-order formative construct (Social Capital) is a complex statistical concept used in structural equation modelling (SEM) to represent some latent variables (unobservable traits, here bonding and bridging social capital) formed by multiple indicators in a hierarchical manner. Social Capital as a second-order formative construct can encompass the synergistic effects of both bonding and bridging ties, while distinct, contribute jointly to the multifaceted nature of social capital. A second-order formative construct allows us to capture this synergy. For example, both bridging (diverse ties) and bonding (close ties) can provide emotional support, access to information, and opportunities for social comparison, all contributing to a sense of external health locus of control [47,48]. The following hypothesis can be formulated.

H1. If the social capital of the women increases, it enhances their external health locus of control.

H2. Both the bridging and bonding social capital would decrease the internal health locus of control.

Bridging social capital necessitates interacting with people of various backgrounds and communities [49]. The exposure of women to a diverse set of people provides them with a wider range of perspectives and information sources, including those regarded as authoritative [49]. Moreover, women possessing high levels of bridging social capital are found seeking validation and counsel from external sources, such as experts, authorities, or esteemed members of the community [50]. Their health outcomes are attributed to powerful others because they believe these people hold greater sway over their well-being [51]. Likewise, women perceive having reduced control over their health outcomes when they interact with people possessing more knowledge or expertise related to health [52]. Being among a wide range of people can trigger social comparisons, and women may evaluate their health behaviours and outcomes relative to those they perceive as more influential [53]. This comparison convinces them to attribute their health outcomes to these influential role models. Matters related to health are significantly impacted by external authoritative figures in Bangladesh [54]. Women who have considerable bridging social capital are more likely to embrace these cultural norms and credit their health outcomes to the decisions and actions of powerful others. Therefore, we can hypothesize the following.

H3. Compared with bonding social capital, women with higher bridging social capital would have higher attributes to powerful others.

Finally, women's health perspectives can be enriched by their interactions with a wide range of people and their participation in supportive communities. Social capital facilitates women's access to a network that promotes preventive health measures [55]. Women who have access to credible health information through their social networks feel more empowered to avoid considering random chances, particularly during their pregnancy period [56]. Growing social capital leads to a greater sense of empowerment in making health-related decisions, and believing that their health is more the result of their own efforts than of random chance [57]. Similarly, those who have a strong support system are more prone to ascribe their positive health results to their personal efforts and the support they receive [58]. If they find people around them taking precautions, women are less likely to think their health is just a random chance [49]. Talking to others with the same health issues can help develop coping mechanisms [59]. If women learn to recognize frequent patterns and factors affecting health outcomes, they are less likely to rely on chance [59]. Therefore, engaging with diverse networks (bridging) and close-knit relationships (bonding) can help women better understand their health-related options and potential outcomes. This reduction in uncertainty can lead to a decreased belief in chance as a determining factor in health outcomes.

H4. if the bridging and bonding social capital of women increase, it would decrease their attribution to fate for their health condition.

The results of these hypotheses not only will benefit in understanding the significance of psychosocial determinants of health, but also can facilitate decision-making related to healthcare, social services, and community development.

3. Materials and methods

3.1. Data

This study sought female participants aged 16–55 residing in Dhaka City; it welcomed women from diverse backgrounds, including those employed (full-time, part-time, or freelance), homemakers, and students. A minimum high school diploma was required. Participants needed to be fluent in Bengali or English to understand and respond to the survey, and possess the cognitive ability to answer questions thoughtfully. Above all, it sought individuals willing to participate voluntarily and answer truthfully. In this vein, the study collected data from 485 women who were purposively chosen (non-probability sampling); about 243 participants were formally employed, 192 were homemakers and the rest of the 50 were students. They ranged in age from 16 to 55, with an average of 30.75 (± 9.16) years old; approximately 59 percent of them were married, approximately 41 percent of them had Honor's degrees, and nearly half of all the participants earned less than BDT 20,000 (about 185 USD). A group of undergraduate students were selected and trained to survey the target sample. Those surveyors were directed to different work locations in Gushan Circle 1, Gushan Circle 2, and Dhanmondi (commonly referred to as the primary commercial centres of Dhaka City) to gather responses on paper from women who were employed. These surveyors were sent to the shopping mall (mall-intercept method) in the same areas to collect data from the homemakers and students. Data were collected from March 2022 to August 2022, in the post-COVID period when the working condition of the country got back to the regular situation.

3.2. Measurement

The study used the Internet Social Capital Scale (ISCS) [60] to measure social capital; there were two primary sub-scales: Bonding and Bridging. Each subscale comprises 10 items designed to capture specific aspects of these social connections. Bonding Social Capital (BO) focuses on close-knit relationships and assesses the availability of trusted individuals for support, advice, and emotional connection. It addresses factors like multiple trusted confidantes for problems and advice (BO1, BO2, BO4), reliable sources for loans and personal support (BO5, BO6, BO7, BO8), strong sense of community and backing (BO10), and limited close confidantes or inability to rely on them (BO3, BO9). Two items (BO3 and BO9) of the bonding social capital were recoded as if the higher the value higher the bonding. Bridging Social Capital (BR) shifts the focus to broader social connections and explores how interactions with diverse individuals stimulate curiosity, engagement, and a sense of belonging to a larger community. It addresses factors interest in new things, different viewpoints, and the world beyond immediate surroundings (BR1-4, BR7), feeling connected to a larger social group and contributing to it (BR5, BR6, BR8), and meeting new people and broadening social networks (BR9, BR10). The ISCS scale (CFI = 0.90; RMSEA = 0.06; SRMR = 0.05; Cronbach's alpha = 0.87) was found valid and reliable for the present sample.

The Multidimensional Health Locus of Control (MHLC) Scale [2] was used to assess individuals' beliefs about who or what controls their health outcomes. It measures three key dimensions. First, Internal Health Locus of Control (IHL) reflects the belief that one's own actions and behaviors have the most significant impact on health. It includes considering Self-healing power (IHL1), Directly responsible for health (IHL6), Health issues are self-fault (IHL8), Physical well-being self-dependent (IHL12), Illness linked to self-care negligence (IHL13), and Stay healthy by self-care (IHL17). Second, Powerful others Health Locus of Control (PHL) focuses on the belief that powerful individuals or institutions, like doctors or healthcare systems, hold the primary control over one's health. It is based on the argument that individuals with a strong powerful others locus of control may feel regular excellent doctor prevents health problems (PHL3), health maintenance through professional consultation (PHL5), Others influence health (PHL7), Health professionals maintain well-being (PHL10), Recovery linked to care from others (PHL14), and Strictly following doctor's orders for optimal health (PHL18). Third, Chance Health Locus of Control (CHL) reflects the belief that health outcomes are largely determined by luck, fate, or chance, with little individual control possible. It is based on the argument that individuals with a strong chance locus of control may feel Health outcomes beyond control (CHL2), Health greatly influenced by accidents (CHL4), Sickness left to nature's course (CHL9), Staying healthy attributed to luck (CHL11), Sickness despite self-care (CHL15), Illness seen as a matter of fate (CHL16). A higher value for IHL indicates the person believes that their actions impact their health, a higher value for PHL indicates higher attribute to influential people such as doctors, and high scores on CHL mean they attribute more to external factors such as like chance. Please note that all the items of IHL were recoded in the structural equation model to maintain the uniformity of the directions of the scores: that is, the higher the value the higher the attribution to external values. The validity and reliability of the individual scales were estimated. The MHLC (CFI = 0.84; RMSEA = 0.06; SRMR = 0.06; Cronbach's alpha = 0.80) was found a valid and reliable scale for the current sample.

3.3. Procedure

By combining the 20-item Internet Social Capital Scale (ISCS) [60] and the 18-item Multidimensional Health Locus of Control (MHLC) Scale [2], a structured questionnaire was developed with a total of 38 items. Data were collected on a 5-point Likert scale, from "1" denotes 'Strongly Disagree' to "5" denotes 'Strongly Agree'. The Institutional Research Ethics Board (IREB) of United International University (UIU), Dhaka, Bangladesh, approved using the questionnaire to collect data and the informed consent form for the participants by stating that they are, "compliant with Ethical Standards of UIU" (Reference No.: IREB/2023/031). The participants gave their consent to be part of the survey, assuring that there would be no violation of privacy of any sort, in the present or future, and the information would be used for academic purposes only.

The study estimated the effect size between social capital and health locus of control by formulating a bidirectional reciprocal structural equation model (SEM). A second-order SEM was used to measuring the covariance between Social Capital and Health Locus

of Control. More than merely analysing relationships, this sophisticated statistical tool crafts a multi-level map of influences between unobservable traits, illuminating the hidden complexities of associations among the variables of interest. In addition, two Path-diagrams, one considering Bonding Social Capital as Exogenous Variable (X) and the other considering Bridging Social Capital as Exogenous Variable (X), were constructed to measure their effects on the Endogenous variables (Y) that include Powerful Others Health Locus of Control, Internal Health Locus of Control, and Chance Health Locus of Control. Considering the maximum acceptable probability of Type I error at 0.05 (5%) to estimate the Mean Difference (Independent sample t-tests and one-way ANOVA), and Covariance (SEM), the study used the frequentist method (Confidence Level: 95%; Confidence Interval: 5%; estimated sample size = 384) to calculate the minimum sample size needed (cf. [61]). Covariance was estimated by constructing a second-order formative construct using IBM SPSS AMOS (Version 24).

4. Results

4.1. Bidirectional reciprocal model Estimation

Results from the reciprocal model (consider Fig. 1) show that there is a positive correlation ($r = 0.32$; $p = 0.001$) between Social Capital and Health Locus of control. This indicates that women with high social capital attribute external factors to their health conditions (Consider Fig. 1). Health Locus of Control was equated by IHL ($\beta = 0.44$), PHL ($\beta = 0.84$) and CHL ($\beta = 0.61$), whereas Social Capital was equated by Bonding ($\beta = 0.78$) and Bridging ($\beta = 0.83$) social capital.

It is worth mentioning that the effect of powerful others was the most contributing factor to health beliefs. PHL is largely influenced by the beliefs that health relies entirely on professional medical guidance ($\beta = 0.63$) and the perception that health professionals play a major role in maintaining well-being ($\beta = 0.65$). Conversely, the item that had the least impact on addressing PHL was the belief that one's health was largely determined by other people ($\beta = 0.22$). The Internal Health Locus of Control construct was predominantly influenced by the belief that insufficient self-care is the primary factor contributing to illness ($\beta = 0.66$). Staying healthy depends on luck ($\beta = 0.55$) and becoming ill is a matter of fate ($\beta = 0.58$) were found contributing largely to Chance Health Locus of Control. On the other hand, the belief that individuals who are familiar with them would assist in job acquisition ($\beta = 0.72$) and their willingness to jeopardize their reputations to provide support ($\beta = 0.71$) had an impact on Bonding Social Capital. Bridging Social Capital was largely shaped by the belief that interacting with others fosters an inclination to seek new endeavors ($\beta = 0.69$) and fosters a sense of connection to a broader societal context ($\beta = 0.77$). Consider Table 1 for more results.

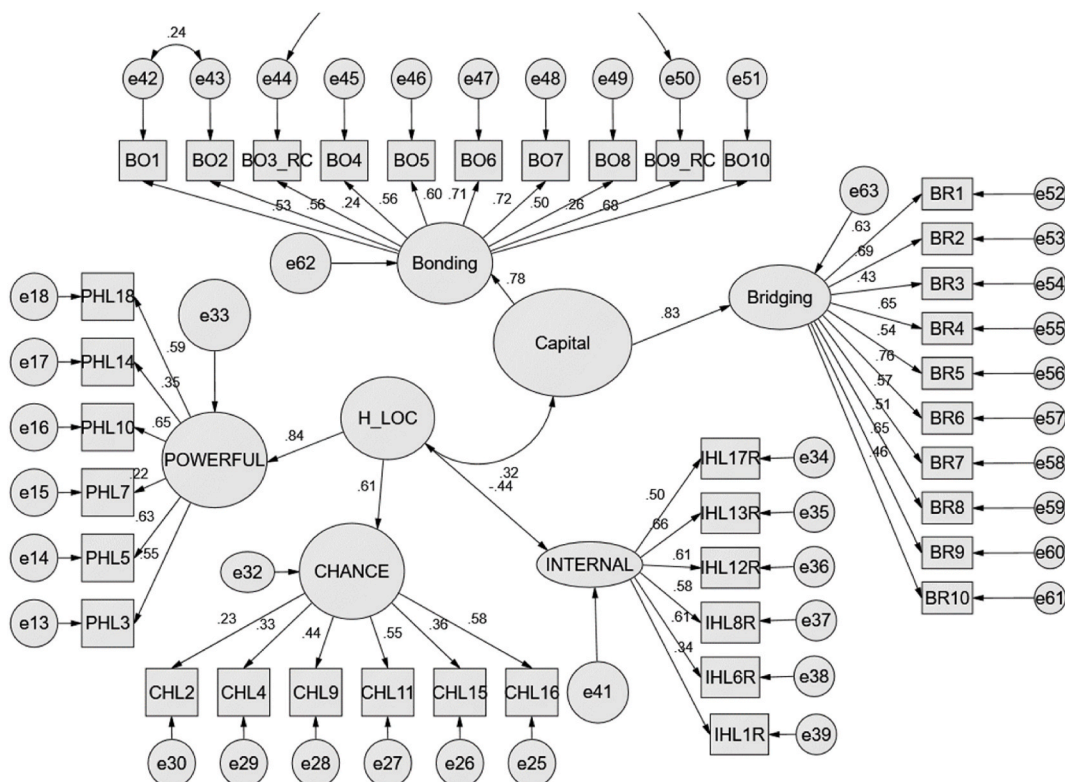


Fig. 1. Path-diagram (Standardized Regression Weight; N = 485) of Health Locus of control and Social Capital (Amos Output).

Table 1
Standardized and Unstandardized Regression Weights of the items and factors corresponding to variables.

Variables	Sr.	Factors and Items	Standardized Regression Weights	Unstandardized Regression Weights	S.E.	t	p
Health Locus of Control		Internal Health Locus of Control	0.437	0.315	0.087	3.622	0.001
	IHL1	If I become sick, I have the power to make myself well again.	0.338	1.000	0.137	5.709	0.001
	IHL6	I am directly responsible for my health	0.614	1.671	0.274	6.091	0.001
	IHL8	Whatever goes wrong with my health is my own fault.	0.578	1.649	0.275	5.993	0.001
	IHL12	My physical well-being depends on how well I take care of myself.	0.611	1.428	0.235	6.083	0.001
	IHL13	When I feel ill, I know it is because I have not been taking care of myself properly	0.660	1.681	0.272	6.190	0.001
	IHL17	I can pretty much stay healthy by taking good care of myself.	0.496	1.277	0.224	5.709	0.001
		Powerful others Health Locus of Control	0.842	1.000	0.341	4.174	0.001
	PHL3	If I see an excellent doctor regularly, I am less likely to have health problems	0.550	1.000	0.119	8.718	0.001
	PHL5	I can only maintain my health by consulting health professionals.	0.634	1.148	0.127	9.053	0.001
	PHL7	Other people play a big part in whether I stay healthy or become sick.	0.219	0.385	0.097	3.979	0.001
	PHL10	Health professionals keep me healthy.	0.651	1.119	0.122	9.167	0.001
	PHL14	The type of care I receive from other people is what is responsible for how well I recover from an illness.	0.346	0.592	0.099	5.967	0.001
	PHL18	Following doctor's orders to the letter is the best way for me to stay healthy.	0.589	0.961	0.110	8.718	0.001
		Chance Health Locus of Control	0.605	0.703	0.168	4.174	0.001
	CHL2	Often I feel that no matter what I do, if I am going to get sick, I will get sick	0.234	0.444	0.114	3.876	0.001
CHL4	It seems that my health is greatly influenced by accidental happenings.	0.327	0.623	0.121	5.143	0.001	
CHL9	When I am sick, I just have to let nature run its course.	0.443	0.815	0.127	6.393	0.001	
CHL11	When I stay healthy, I'm just plain lucky.	0.548	1.049	0.147	7.123	0.001	
CHL15	Even when I take care of myself, it's easy to get sick.	0.364	0.622	0.111	5.583	0.001	
CHL16	When I become ill, it's a matter of fate.	0.576	1.000	0.582	3.876	0.001	
Social Capital		Bonding Social Capital	0.784	1.000	0.216	3.906	0.001
	BO1	There are several people, I trust to help solve my problems	0.533	1.000	0.085	10.360	0.001
	BO2	There is someone, I can turn to for advice about making very important decisions	0.560	0.990	0.093	10.614	0.001
	BO3*	There is no one that I feel comfortable talking to about intimate personal problems.	0.240	0.506	0.109	4.644	0.001
	BO4	When I feel lonely, there are several people I can talk to.	0.557	1.141	0.125	9.160	0.001
	BO5	If I needed an emergency loan of BDT 1000, I know someone I can turn to.	0.602	1.039	0.108	9.621	0.001
	BO6	The people I interact with would put their reputation on the line for me.	0.710	1.203	0.114	10.570	0.001
	BO7	The people I interact with would be good job references for me.	0.718	1.161	0.109	10.637	0.001
	BO8	The people I interact with would share their last dollar with me.	0.495	1.008	0.119	8.459	0.001
	BO9*	I do not know people well enough to get them to do anything important.	0.259	0.502	0.101	4.984	0.001
	BO10	The people I interact with would help me fight an injustice	0.683	1.139	0.110	10.360	0.001
		Bridging Social Capital	0.832	1.183	0.303	3.906	0.001
	BR1	Interacting with people makes me interested in things that happen outside of my town	0.635	1.000	0.142	8.838	0.001
	BR2	Interacting with people makes me want to try new things.	0.692	1.005	0.080	12.569	0.001
BR3	Interacting with people makes me interested in what people unlike me are thinking.	0.426	0.684	0.082	8.334	0.001	
BR4	Talking with people makes me curious about other places in the world.	0.649	0.976	0.082	11.960	0.001	

(continued on next page)

Table 1 (continued)

Variables	Sr.	Factors and Items	Standardized Regression Weights	Unstandardized Regression Weights	S.E.	t	p
BR5		Interacting with people makes me feel like part of a larger community	0.542	0.939	0.091	10.306	0.001
BR6		Interacting with people makes me feel connected to the bigger picture.	0.765	1.152	0.085	13.533	0.001
BR7		Interacting with people reminds me that everyone in the world is connected.	0.569	0.831	0.077	10.728	0.001
BR8		I am willing to spend time to support general community activities.	0.511	0.710	0.073	9.788	0.001
BR9		Interacting with people gives me new people to talk to.	0.653	1.008	0.084	12.012	0.001
BR10		I come in contact with new people all the time.	0.455	0.797	0.090	8.838	0.001

Notes. *Recorded.

4.2. Causal models Estimation

The study found that an increase in the belief in powerful others' control over health is associated with an increase in bonding social capital ($\beta = 0.226$; $p = 0.001$). Women who have strong bonding social capital are more likely to believe that powerful others have control over their health outcomes. The results also suggest a significant ($p = 0.001$), negative association ($\beta = -0.343$) between bonding social capital and internal health locus of control. With the increase of bonding social capital within a community or group, women's belief in their ability to determine their health outcomes becomes less pronounced. However, bonding Social Capital does not significantly ($\beta = -0.03$; $p > 0.05$) affect the Chance Health Locus of Control. Similarly, while the effect of Bridging Social Capital on Chance Health Locus of Control is not statistically significant ($\beta = -0.07$; $p > 0.05$), there is a statistically significant ($p = 0.001$), detrimental association ($\beta = -0.405$) between bonding social capital and internal health locus of control. Women who have a diverse set

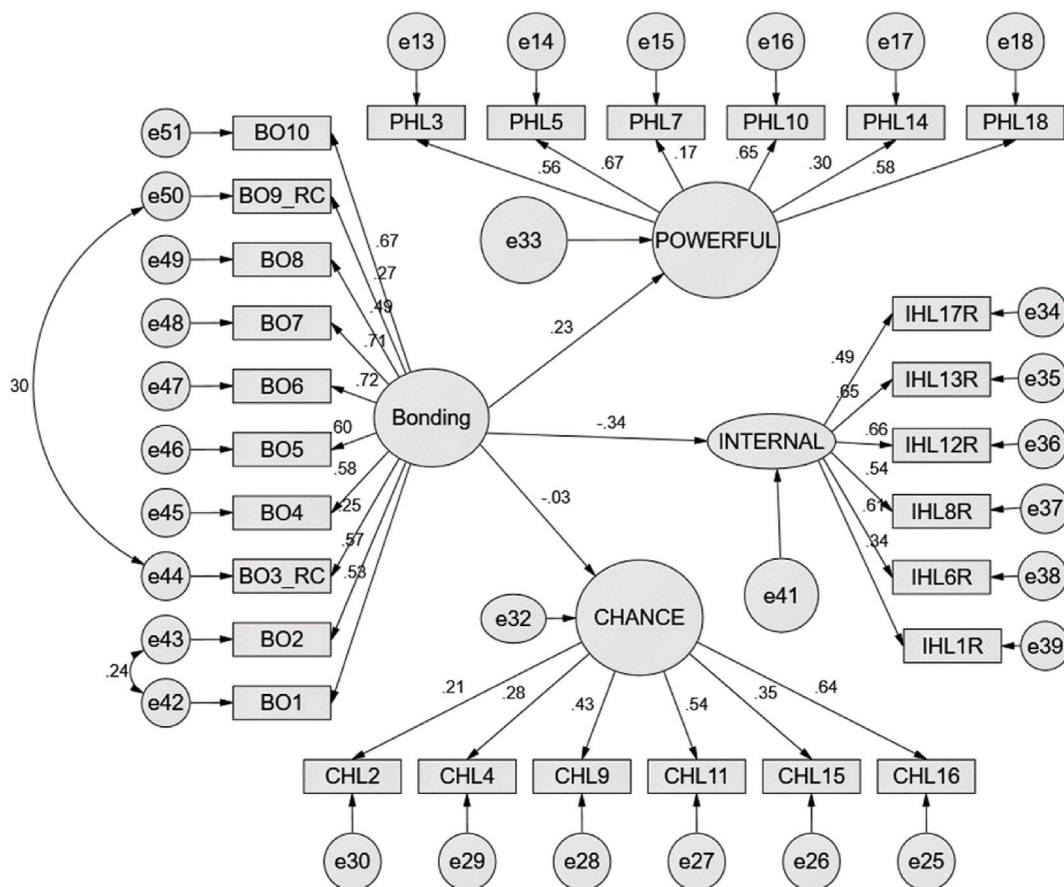


Fig. 2. Path-diagram (Standardized Regression Weight; N = 485) of Exogenous Variable (X) -Bonding Social Capital on Endogenous variables (Y) - Powerful Others Health Locus of Control, Internal Health Locus of Control, and Chance Health Locus of Control.

of social networks may diminish their reliance on personal actions and decisions to maintain their health. Likewise, an increase in the belief in powerful others' control over health is associated with an increase in bonding social capital ($\beta = 0.189$; $p = 0.002$). For more results, consider Fig. 2, Fig. 3, and Table 2.

5. Discussions

First, if the social capital of the women increases, it enhances their external health locus of control (H1). It suggests that women with strong social connections, community resources, and support feel less responsible for their health and more comfortable relying on the expertise of healthcare providers. Likewise, it is found that both the bridging and bonding social capital would decrease the internal health locus of control (H2). Previous studies suggested that people with internal health locus of control rely less on medical care, both preventive and curative [62]. In other words, when people have faith in healthcare professionals, they are more likely to seek medical care when necessary. This faith not only helps in early detection and intervention for health problems [63] but also better treatment outcomes can result from trusting medical experts and the healthcare system [64]. Particularly, people with a strong Powerful Others Health Locus of Control (PHLC) are more likely to follow medical advice, take their medications, attend check-ups, and follow treatments [65]. Similarly, the PHLC can alleviate anxiety and stress pertaining to health concerns [66]. However, healthcare decision-making in some cultures like Bangladesh involves a strong belief in powerful others, such as traditional healers or community leaders [67]. Sometimes, PHLC causes individuals to feel helpless about their health [68]. They may perceive themselves as passive recipients of care rather than actively involved in their own well-being [68]. It provides a reasonable cause, particularly for the poor or socially excluded to be skeptical of the healthcare system [69].

Second, compared with bonding social capital, women with higher bridging social capital would have higher attributes to powerful others (H3). It indicates that collective decision-making lowers the emphasis on personal control over health outcomes. Women who have unwavering trust in external entities are likely to delegate health-related information and decision-making to them [70]. Believing in external systems can reduce the sense of personal control over health [71]. Health-related social norms and expectations can also play a role in bridging social capital. Following social norms leads people to prioritize the opinions of others over their own beliefs, resulting in a decrease in personal conviction [72]. Likewise, the development of bonding social capital commonly occurs in

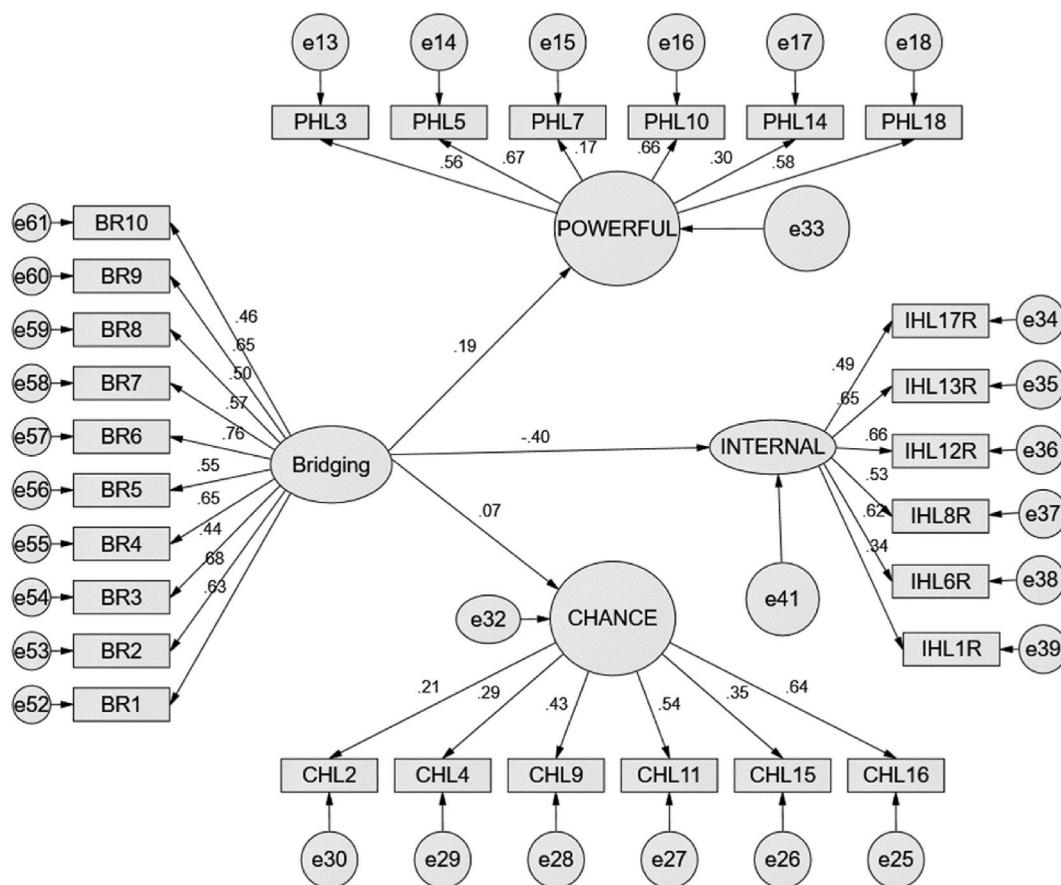


Fig. 3. Path-diagram (Standardized Regression Weight; N = 485) of Exogenous Variable (X) -Bridging Social Capital on Endogenous variables (Y) - Powerful Others Health Locus of Control, Internal Health Locus of Control, and Chance Health Locus of Control.

Table 2

The Effect of bonding and bridging social capitals on the components of Health Locus of Control and Social Capital (N = 485).

Exogenous Variable (X)	Endogenous variable (Y)	Standardized Regression Weight	Unstandardized Regression Weight	S.E.	t	p
Bonding Social Capital	Powerful Others Health Locus of Control	0.226	0.259	0.072	3.615	0.001
Bonding Social Capital	Internal Health Locus of Control	-0.343	-0.235	0.054	-4.360	0.001
Bonding Social Capital	Chance Health Locus of Control	-0.030	-0.036	0.076	-0.473	0.636
Bridging Social Capital	Powerful Others Health Locus of Control	0.189	0.191	0.060	3.159	0.002
Bridging Social Capital	Internal Health Locus of Control	-0.405	-0.250	0.051	-4.939	0.001
Bridging Social Capital	Chance Health Locus of Control	0.071	0.077	0.068	1.134	0.257

close-knit communities and groups that uphold social norms and expectations [73]. Being part of such tight networks can lead women to conform to the group's norms and behaviours [72]. People put aside their personal beliefs when conforming to their social group, leading to a decrease in IHLC. Trusting their social network makes women more likely to follow health advice [69]. The dependence on customary sources decreases IHLC, since they have faith in their network to guide them in the right direction [39]. Personal control over health may seem unnecessary to some if health decisions are made collectively as a family [74]. Bridging social capital connects people with external organizations and healthcare services, making them feel powerful people are important for their health [75].

Finally, our hypothesis that women with more social capital feel more control over their health (H4) was not supported by the results. The structure of social networks, such as the variety of relationships and the number of connections, is important in bonding and bridging social capital. However, the chance Health Locus of Control (HLC) suggests a belief or attribution about the management of health outcomes. Therefore, it is possible that while social capital affects women's access to resources or support systems; it does not determine their perspective on the role of chance in health. Factors like personal experiences, cultural norms, or psychological factors can shape beliefs about chance [76], which are distinct from social capital.

Overall, the present study adds to the current literature on the relationship between social relationships and health locus of control in women in several significant ways: first, the study recognizes the ambiguity of PHLC, which can both increase or decrease a person's sense of trust in healthcare professionals. Having a sophisticated comprehension of this matter is essential for recognizing the intricate correlation between social capital and health beliefs. Second, the existing body of research tends to overlook the potential distinct effects that can stem from the various subtypes of social capital, treating it as a homogeneous concept. This study differentiates bridging (diverse connections) and bonding (close ties) social capital, revealing their unique and sometimes contrasting influences on health locus of control. Bridging capital increases external health locus of control, suggesting reliance on external expertise and resources, while bonding capital has a less clear or even opposite effect depending on factors like cultural norms and trust in community sources. Third, the study acknowledges that the association between social capital and health locus of control is not universal. It emphasizes the crucial role of cultural context. For example, strong bonding ties in Bangladesh might foster reliance on traditional healers (external control), while in other cultures, they might promote collective decision-making with healthcare professionals (different types of external control). Fourth, it explored the underlying mechanisms by which each type of social capital influences health beliefs; bridging capital exposes women to diverse information and perspectives, potentially diminishing perceived personal control; bonding capital can involve reliance on community norms or traditional healers, further influencing health locus in specific contexts. Finally, the findings emphasize the necessity for additional research that investigates the moderating effects of individual factors, cultural contexts, and specific types of social connections on the relationship between social capital and health locus of control.

6. Implications and limitations

The Ottawa Charter from 1986 [77] outlines five focus areas for health promotion: building healthy public policy, creating supportive environments, strengthening community actions, developing personal skills, and reorienting health services. Caring for one another in a community fosters a supportive environment that includes participatory, supportive, and trusting atmospheres [78]. Hence, the most effective health promotion programs involve community members finding and implementing solutions to health problems [79]. It was found that successful community health promotion requires the mobilization of social capital [80]. To this end, we need to understand how social capital enables community action for health promotion. The study revealed that having social capital is associated with a positive perception of women's health, suggesting that enhancing social connections can contribute to healthier lifestyles. In this context, the present study establishes a helpful framework and starting point for identifying those in need of health-supportive environments and the key factors involved in leveraging social capital to enhance health.

There are various constraints in the study that restrict its capacity to draw comprehensive conclusions: one limitation is that the sample size is confined to Dhaka, Bangladesh, thus reducing the broader applicability of the results. To improve the generalizability of the findings and capture the intricacies of social capital and health locus of control relationships, future research should strive for larger and more diverse samples. This includes encompassing various geographic locations, demographics, and genders. With its narrow concentration on Bangladesh, the study's ability to provide insights into other cultures is questionable. To adequately explore

this matter, future research should conduct cross-cultural comparisons, considering how cultural norms and beliefs shape the associations between social capital and health locus of control. Likewise, by only focusing on women, the study's applicability to other genders or demographics is limited. To enhance our understanding of the relationship between social capital, health locus of control, and different groups, it is imperative for future research to widen its scope and include diverse populations. The study's cross-sectional design underscores the significance of longitudinal studies in establishing causality. Longitudinal designs provide researchers with the opportunity to observe how the relationships between social capital and health locus of control evolve and change over time, leading to a more comprehensive understanding of these dynamics. Similarly, the reliance on surveys as a means of collecting self-reported data is another limitation, as it can introduce biases and may not capture the complete range of individuals' true thoughts and behaviors. To address this, future research should integrate objective measures, such as medical records or observational data, in conjunction with self-reports, to bolster the accuracy and reliability of the collected information.

The study uses standardized measures for social capital and health locus of control, but these measures may not fully capture the intricacies of the Bangladeshi context. To expand the knowledge further, future research should employ culturally sensitive instruments that are customized to the specific context, offering a more precise depiction of these phenomena. Similarly, employing a combination of quantitative and qualitative approaches may provide a more comprehensive understanding of the relationships and underlying mechanisms. The effects of social connections on health beliefs and outcomes can be better understood by exploring various aspects, including formal and informal networks, community involvement, and online interactions. Likewise, taking into account individual factors, such as personality, health literacy, and experiences, can provide a deeper insight into how these factors influence the connection between social capital and health locus of control. Taking cultural factors into account when setting the research agenda will provide a more thorough insight into the impact of cultural norms and beliefs on the investigated relationships. Adapting measurement instruments to the specific research context and target population will enhance the accuracy and relevance of the findings. Investigating specific health outcomes will enable researchers to examine the relationship between social capital, health locus of control, and specific health behaviours and outcomes.

Finally, the practical implications of this study are limited by two factors. First, while collective social capital can help improve women's health, some studies have been criticized for focusing too much on psychological explanations and ignoring environmental factors [81,82]. Social capital is not a universal solution for easily creating collaborative environments and global social mobilization because it depends on specific contexts. Among the various factors influencing human interactions, cooperation, and community action for health promotion, social capital offers a unique perspective on the lesser-known mechanisms at work. Second, access to material necessities is crucial for improving health, and often, this access is contingent upon one's social network. Nonetheless, the macro-environment, specifically health, has always been shaped by governmental policies rather than being reliant on awareness of accessibility. Thus, the enhancement of social capital can cause heightened awareness, yet continuous structural improvements are equally indispensable. By acknowledging these constraints and integrating the proposed enhancements, forthcoming investigations can expand on the current study and offer a more intricate and widely applicable comprehension of the intricate relationship between social capital, health beliefs, and individual health outcomes across various cultural settings.

7. Conclusions

The current study examined if social capital affects women's health attributions. Social Capital and Health Locus of control exhibit a positive correlation; women who have strong social connections, access to community resources, and receive support tend to feel less accountable for their health and more at ease relying on the knowledge and expertise of healthcare professionals. Both bonding and bridging social capital significantly decrease the internal health locus of control. Increased bridging and bonding social capital leads to an increase in the health locus of control of powerful others. No significant association was found between any elements of social capital and chance health locus of control. While it confirmed some hypothesized connections, others revealed unexpected nuances, highlighting the multifaceted nature of this dynamic. The findings illuminate that diverse connections, characteristic of bridging social capital, positively influence women's reliance on external expertise and healthcare systems. This suggests that access to varied resources and strong connections empowers women to feel less responsible for their health and more comfortable trusting external figures. However, the impact of close-knit ties, or bonding social capital, is less straightforward and depends on cultural context and the level of trust in community sources. In certain settings, it can influence reliance on traditional healers or community decision-making, potentially contributing to increased external health locus of control. Interestingly, the study reveals no direct link between different types of social capital and chance health locus of control, suggesting that personal experiences, cultural norms, and individual characteristics likely play a stronger role in shaping beliefs about the role of chance in health outcomes.

Furthermore, the study underscores the complex interplay between social capital and the perception of powerful others regarding health control (PHLC). Increased social connections, both diverse and close-knit, can elevate PHLC, indicating a heightened reliance on figures like healthcare professionals. However, the interpretation of PHLC heavily depends on cultural context, and it can even foster helplessness in some individuals. These findings highlight the need for nuanced approaches to empowering women's health. While strengthening both bridging and bonding social capital can be beneficial, future efforts must consider cultural context and individual factors to ensure interventions offer effective support. Delving deeper into the influence of diverse connections (formal, informal, online) and exploring cross-cultural nuances through culturally sensitive research methods will be crucial for gaining a more comprehensive understanding of this intricate relationship. Ultimately, such insights can pave the way for interventions and policies that effectively empower women and communities to improve health outcomes.

Data availability

<https://data.mendeley.com/datasets/gbb64hxp4/draft?a=75295746-e49d-4bc0-89c9-5a7e1781d0a1>.

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CRedit authorship contribution statement

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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