Research Paper

Online Social Capital Contribution to Mental Health: A Cross-sectional Study

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ABSTRACT

Background: Declining student mental health is a growing concern, with over 60% of college students experiencing mental health issues, such as depression, exacerbated by the COVID-19 pandemic. Social capital is known to buffer against mental health challenges by promoting connection and support. This study aimed to examine the latent construct of online social capital in the context of COVID-19 and further test the relationship between multidimensional online social capital and mental health among university students at Shiraz University.

Methods: A quantitative study was conducted with 600 students at Shiraz University. Data were collected using questionnaires measuring online social capital (number of networks, usage, and activity level) and mental health. Likert scales were used, with lower scores indicating better mental health. Statistical analyses included Pearson correlation coefficient, path analysis, and regression analysis.

Results: A significant negative correlation was found between online social networks ($r=-0.137$, $P<0.05$) and mental health, suggesting that higher engagement in these networks is linked to better mental health. Trust ($r=-0.129$, $P<0.05$) and social support ($r=-0.027$, $P<0.05$) within online networks showed negative correlations with mental health, indicating that increased trust and support are associated with improved mental health. Path analysis revealed that all dimensions of online social capital influence mental health, with trust and social support identified as the strongest predictors.

Conclusion: The research underscores the importance of universities fostering online social networks and initiatives to enhance student mental health by cultivating social support and trust. Increased engagement in online social networks, along with higher levels of trust and social support, is linked to improved mental well-being among university students.

Keywords: Online social capital, Mental health, Social support, University students, COVID-19

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Introduction

The COVID-19 pandemic significantly worsened mental health worldwide; this has led to increased focus on identifying 'stress-buffering' characteristics that may have mitigated the pandemic's negative effects on mental well-being, especially among university students, who face unique challenges during this time. With the shift to remote learning and social isolation, many students have experienced heightened stress, anxiety, and depression. These pressures, compounded by academic demands and the transition to independence, place students at a higher risk for mental health issues. Exploring the role of social capital, particularly in the digital realm, becomes essential. Online social capital offers valuable insights into how virtual support networks can foster resilience and help students navigate these unprecedented challenges [1-4].

Previous studies have shown that the pandemic crisis has negatively affected the mental health of university students, leading to increased rates of depression, anxiety, and suicidal ideation in this

population. However, the precise impact of the COVID-19 pandemic on the mental health and suicidal ideation of Iranian university students has been less studied. Iran was among the countries with a high rate of COVID-19 cases. In response to this situation, Iranian schools and universities were closed. Soon after, face-to-face education turned to online education, which caused a variety of challenges for university students. These difficulties included technological issues, such as slow internet connection in certain regions of Iran caused significant disruption to online learning, resulting in inconsistent access to course material, difficulty in participating in live virtual classes, and overall academic anxiety and personal problems, such as unfamiliar online education system, lack of access to a laptop, being forced to leave dormitories and being separated from their classmates, lack of access to lecturers, and other factors, including financial insecurity, increased family responsibilities, and heightened uncertainty about future academic prospects [5-9]. The switch from face-to-face to online learning caused by COVID-19 is likely to negatively affect university students' mental health (2, 5, and 7). Students' isolation from their friends and university may result in behavioral and psychological problems. The anticipated impact of these changes on students' mental health is expected to manifest through increased levels of stress, anxiety, and depressive symptoms, as indicated by previous studies [1-9], since the incidence of emotional disorders in this population is high even in normal times [10]. Recent reports on Iranian universities showed that the new situation has affected the psychosocial aspects of university students' lives. Given the potential for adverse mental health outcomes, there is a pressing need for evidence-based strategies to support students' well-being." Globally, studies demonstrate that social capital can play the critical role of a "silver bullet" during public health crises and contribute to better mental health across communities and populations [11-14]. In this study, social capital was defined as the resources available to an individual through their social networks. This encompasses both the structural aspect, referring to the size and density of an individual's online networks, and the cognitive aspect, which involves perceptions of trust, support, and reciprocity within these networks [15-19]. Hence, the current situation has an enormous impact on the social interaction of people, especially university students. Different types of digital media, such as smartphones, chat rooms, Email, and social media, have played a dominant role in communications with other people beyond the home. This research focused specifically on social capital generated through online platforms, such as WhatsApp, Instagram, and online forums utilized by Shiraz University students. These virtual spaces facilitate synchronous and asynchronous interactions, creating unique pathways for relationship building and information exchange during periods of social distancing.

While previous research has explored the role of social capital on mental health, a critical gap remains in understanding the nuanced relationships between specific dimensions of online social capital and the mental well-being of Iranian university students in the context of the pandemic. Understanding the relationship between different dimensions of online social capital and mental health is crucial in this new landscape. Therefore, this study aimed to explore the latent construct of online social capital in the context of COVID-19 and examine how multidimensional online social capital relates to mental health among university students at Shiraz University. This research aimed to investigate the extent to which specific dimensions of online social capital – namely, network size, perceived trust, and social support – predict mental health outcomes among Shiraz University students during the COVID-19 pandemic, while also examining the mediating role of cognitive social capital in this relationship.

The following sections explore three key concepts central to this study:

A) Internet use and social capital: Putnam's theory highlights the potential for technology to negatively impact social capital by displacing social activities, promoting individualized leisure, homogenizing experiences, and weakening the social skills and trust necessary for community building. While his focus was primarily on television, his arguments raise broader questions about the social consequences of technology and the importance of fostering social connection in an increasingly digital world. Contrary to Putnam's statement that technology may transform leisure activities in ways that reduce the social capital of individuals [20], researchers have recently explicitly recognized the role of electronic networks, such as the Internet, in the development of social capital [21]. In addition, as weak and strong ties with people (across the network) who are not geographically close can be enhanced through the internet, it can be considered a tool for building and maintaining social capital [22]. The Internet also offers consumers opportunities to express themselves and build social capital, even if they are not able to capitalize on such opportunities offline. Through this virtual community, people are able to share knowledge, seek information, and obtain social support [23]. Mutual communication and perceived social support facilitated by online interactions are beneficial for trust building. Hence, getting involved in online interactions creates trust within those online networks, which in turn encourages people to expand their connections with people across them. In the current situation caused by the COVID-19 pandemic, this study followed the premise that, by using the Internet, people can maintain close relationships and build new connections [22]. The internet is an appropriate means, during the pandemic, by which people can maintain contact with family members or friends. The most important characteristic of the Internet is its open cyberspace where people from different backgrounds can communicate.

B) Cognitive social capital, structural social capital, and mental health: Putnam et al. argued that the concept of social capital is one of the most important ways to look at the relationship between society and mental health [20]. Many studies globally have confirmed the relationship between social capital and mental health [11, 12, 15, 16, 24]. More specific studies also revealed that the higher the level of university students' social capital, the better their mental health [17, 25, 26]. Extensive research on social capital and health shows the importance of the topic and the value of social capital in improving the health of people in society [27]. Studies show that social capital is a critical factor in the life satisfaction and happiness of young people [28]. It is also the main factor in solving health and treatment problems [29], improving self-esteem [30] and performance [31], and reducing the symptoms of depression [32, 33].

Social networks provide resources for individuals to meet their needs by receiving a variety of support through relationships with whom they share ties, even weak ties [11, 24, 27], and this can build more trust within the network. In return, as the level of trust improves, people will be more likely to participate in different networks (online or offline). Within this mechanism, different dimensions of social capital reinforce one another. Accordingly, as is shown in Figure 1, this study argues that promoting structural social capital (online social networks) will be associated with the development of cognitive social capital (trust and social support). Therefore, the study will test the direct effect of social capital dimensions on mental health, as well as the mediation role of cognitive social capital in the relationship between structural social capital and mental health among university students. Additionally, the current study focused on an individual's level of social capital. Whilst studies of individual-level social capital were uncommon when this concept was first introduced into

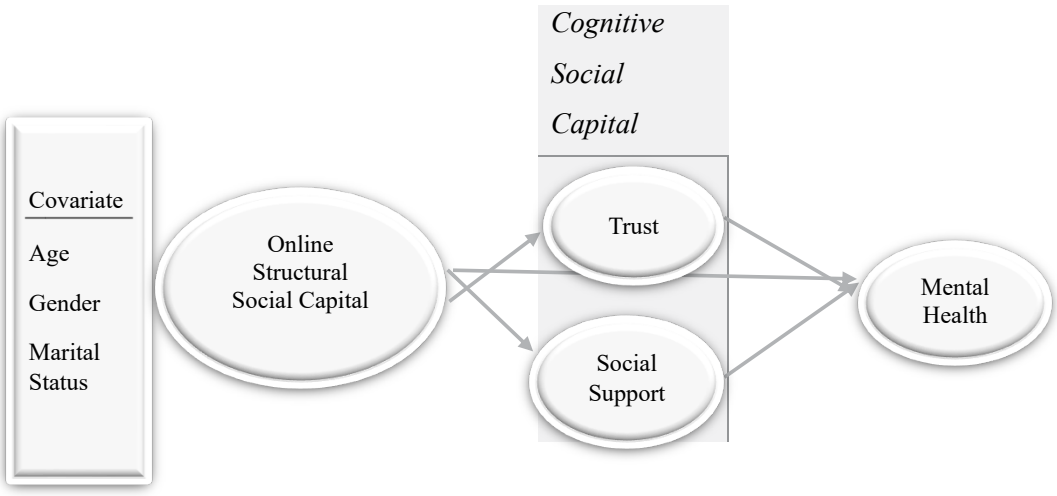

Figure 1. Theoretical model of the effects of the online social capital dimensions on mental health

public health research, conceptualizing social capital as an individual attribute has increasingly gained recognition [16, 17, 27].

C) Online social capital and mental health: Along with the previous literature that recognized the importance of social capital for mental health, recent studies have placed emphasis on the role of online social capital in helping individuals attain information, social support, trust, and a sense of belonging that are relevant to their mental health [13]. Online social networks facilitate communication among people and can be considered a pathway where individuals freely discuss their concerns. When people are unable to engage in face-to-face interactions, online social capital may serve as a solution for combating loneliness and achieving emotional and informational support.

Methods

A quantitative survey method was applied in this study in order to collect data atShiraz University. In the current study, there were 16,643 undergraduate full-time students across all undergraduate, master's, and doctoral levels at Shiraz University. Using Sample Power software, Cochran's formula was applied with a margin of error of 5% to estimate the sample size, resulting in an estimated sample size of 600 individuals. Then, the share of each class was determined using proportional stratified sampling, and in the next step, samples from each class were selected using a simple random method. A total of 600 students completed an online structured questionnaire in November of the academic year 2021-2022.

The study focused on students from Shiraz University, for whom a comprehensive list was accessible through the university's records. However, due to the widespread impact of the COVID-19 pandemic and the resultant absence of students on campus, a systematic random sampling method was employed. This approach allowed us to ensure a representative selection of participants despite the challenges posed by the pandemic, enabling the study to effectively capture the experiences and perspectives of students during this unprecedented time. By utilizing systematic random sampling, we aimed to minimize biases and enhance the reliability of our findings, ensuring that the sample adequately reflected the diverse student population at Shiraz University.

Demographic variables, such as age, gender, and marital status, were included as control variables. Online structural social capital, trust, and social support were considered independent variables, while mental health was a dependent variable.

The questionnaire comprised the respondents' background characteristics (5 questions) and three components of social capital: Online structural social capital (3 questions), trust (2 questions), and social support (2 questions). Specifically, structural social capital was measured through online social networks, while cognitive social capital was assessed through trust and social support.

The original questionnaire was used to give a quantitative measure of the online social capital of each participant in this research. The online structural social capital was measured through 3 questions, including the number of networks, daily use of networks, and activity level (very little, little, much, and very much). Also, the concept of trust consisted of two items: Trust in social networks itself, along with trust in people in the social networks. Furthermore, social support was assessed using 2 items in the questionnaire: Helping virtual friends and receiving support from them.

The short version of the instrument GHQ-28 has been validated to measure the mental health of university students in Iran [29]. The GHQ-28 contains four 7-item subscales (namely, somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression). For each item, there are 4 possible answers (1-not at all, 2-no more than usual, 3-rather more than usual, and 4-much more than usual). In the current study, the Likert scoring procedure (1, 2, 3, and 4) was applied, and the total scale score ranges from 28 to 112. A lower score indicates better mental health for the participants.

To assess the validity of the questionnaire, a combination of face validity and content validity was employed. Face validity refers to the extent to which the theoretical concept aligns with its measurement tool. Content validity, on the other hand, ensures that the items included are representative of the entire construct being measured. To achieve this, the questionnaire was thoroughly reviewed and approved by experts in sociology, demographics, social work, and health.

Reliability was assessed using Cronbach's α for the overall scale and each subscale. The overall Cronbach's α was 0.821, while it was 0.781 for the subscale of trust and 0.851 for the subscale of social support. Cronbach's α>0.7 indicate satisfactory internal consistency [34, 35].

The general health questionnaire (GHQ-28) was applied to analyze mental health. According to a comprehensive review by De Silva et al. the GHQ is one of the common questionnaires used in research regarding social capital and mental health [36, 37].

The collected data were analyzed by SPSS software, version 20. Prior to analyzing the data, the normality of the questionnaire was checked using Skewness and Kurtosis statistics. Skewness and kurtosis were equal to 0.122 and 0.081, respectively, which indicated the normal distribution of the collected data.

To examine the theoretical model (Figure 1), two tests were used: 1) Pearson correlation coefficient to examine the relationship between each independent variable and mental health, separately, and 2) Path analysis to determine the direct and indirect effects of dimensions of online social capital and to test which of them have a more significant effect on mental health.

The assumptions underlying the analysis and tests conducted were that the data follow a normal distribution, the dependent variable is quantitative, the observations are independent of one another, and the variance within the statistical population is homogenous.

Results

Table 1 summarizes the characteristics of the sample. The findings of the table indicate that the average age of the respondents was 24.18 years, with about 48% being 18-22 years old, close to 37% being 22-30 years old, and 14.5% being aged 30-47. Furthermore, about 56% of the sample were female. In addition, 84% of the surveyed students were never married. Approximately 65% of the participants were undergraduates, 28% were master's students, and about 7% were PhD students. According to the table, 7% of the students were members of an online social network, 25.8% were in 2 networks, 28% were in 3 networks, 17.5% were in 4 networks, and 21.5% were in 5 or more online social networks. Table 1 indicates that over 50% of the surveyed students spent between 2 to 6 hours online each day. Close to 25% of the respondents stated that they are highly active in online social networks.

It is important to keep in mind that a higher score on the mental health scale indicates a worsening mental health condition. Based on the Pearson correlation coefficient to examine the relationship between each independent variable and mental health, a statistically significant negative correlation was observed between online social network usage (-0.137) and mental health, indicating that increased engagement with social networks is associated with improved mental health status. Additionally, the findings revealed a statistically significant negative correlation between trust (-0.129), social support (-0.027), and mental health status. Specifically, increased trust and social support within online social networks were associated with improved mental health, suggesting that higher levels of these factors contribute to better mental health outcomes.

Figure 2 and Table 2 present the results of the path analysis test. The path analysis involved three sequential linear regression models: the first examining the direct impact of online structural social capital, trust, and social support on mental health; the second exploring the effects of online structural social capital on trust; and the third exploring the effects of online structural social capital on social support. Each regression analysis controlled for age, gender, and marital status. As presented in Figure 2, each relationship between the variables was found to be statistically significant at $P<0.05$, supporting the hypothesized positive associations among the constructs within the model. The results of the path analysis demonstrated that higher online structural social capital was associated with better mental health, indicated by a negative direct effect of $\beta=-0.155$. Additionally, it showed a negative total effect of -0.188, including the mediating effects of trust and social support. Specifically, each unit increase in online structural social capital was found to lead to a 0.155 decrease in negative mental health. However, the total negative impact of the online structural capital was 0.188 when we account for its impact on trust and social support in relation to mental health.

As shown in Table 2, online structural social capital had a negative impact on mental health. Increasing online structural social capital led to better mental health. Rising trust in online social networks resulted in improved mental health.

Overall, the path analysis results revealed that all dimensions of online social capital contributed to the prediction of mental health. Among the various dimensions of online social capital, trust ($\beta=-0.182$) and social support ($\beta=-0.017$) were the strongest predictors of mental health, as indicated by their direct effects. Specifically, for each unit increase in trust, there is a decrease of 0.182 in negative mental health, while for social support, there is a decrease of 0.017. This suggests that in this research, these two factors play the most significant role in an individual's mental health.

Table 1. Descriptive statistics of the participants' demographic characteristics and online social network engagement patterns (n=600)

Variables		No. (%)
Age (y) Mean±SD: 24.18±5.48	18-22	289(48.2)
	22-30	224(37.3)
	30-47	87(14.5)
Gender	Male	265(44.2)
	Female	335(55.8)
Marital status	Never married	504(84.0)
	Married	96(16.0)
Education	Undergraduate student	388(64.7)
	Master student	168(28.0)
	PhD student	44(7.3)
Year of university entrance	2013-2014	19(3.2)
	2015-2016	132(22.0)
	2017-2018	183(30.5)
	2019-2020	266(44.3)
Frequency of membership in online social networks	1	42(7.0)
	2	155(25.8)
	3	169(28.2)
	4	105(17.5)
	≥5	129(21.5)
Activity level in online social networks	Very little	189(31.5)
	Little	264(44.0)
	Much	115(19.2)
	Very much	32(5.3)
Daily online social networks use (hour)	<1	9(1.5)
	1-2	33(5.5)
	2-4	155(25.8)
	4-6	169(28.2)
	6-8	105(17.5)
	8-10	87(14.5)
	>10	42(7.0)

P<0.05.

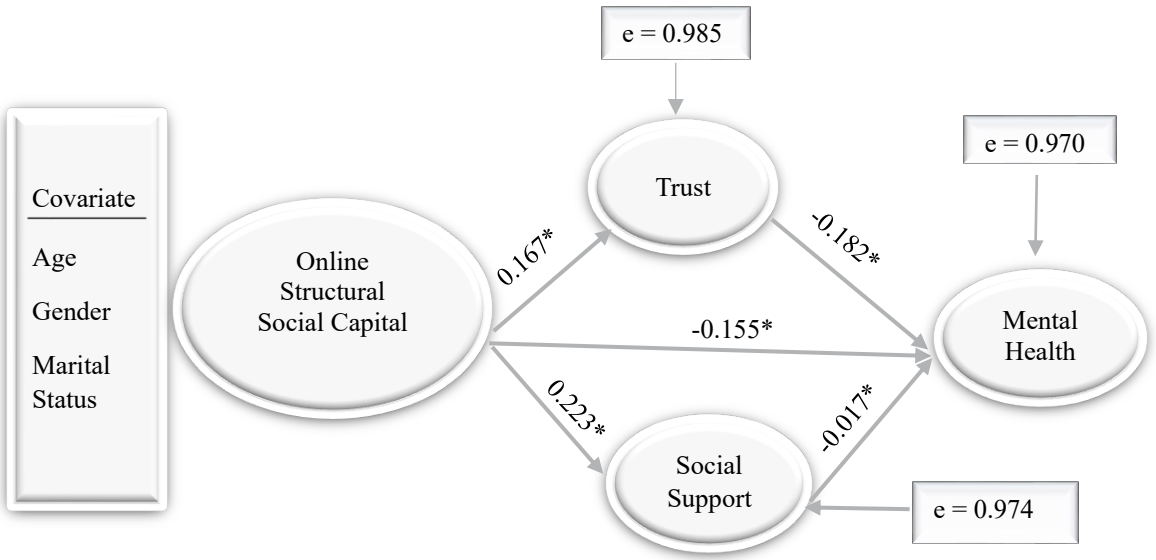

Figure 2. Path analysis model of the association between online social capital and mental health. notes: only standardized coefficients are reported (two-tailed)

P<0.05.

Table 2. Decomposition of the effects of online structural social capital, trust, and social support on mental health into direct, indirect, and total effects

Independent Variables	Direct Effect	Indirect Effect	Total Effect
Online structural social capital	-0.155	0.167×(-0.182)=-0.030 0.223×(-0.017)= 0.003	-0.188
Trust	-0.182	-	-0.182
Social support	-0.017	-	-0.017

Discussion

This study aimed to explore the latent construct of online social capital in the context of COVID-19 and examine how multidimensional online social capital relates to mental health among university students at Shiraz University.

While several prior studies have reported mixed results on the association between structural social capital and mental health, these inconsistencies might be attributed to methodological differences (type of instrument used to measure social capital, study populations, or contexts). Our study, which focused on the online environment during the COVID-19 pandemic, found a positive association. This suggests that during periods of heightened social isolation, online platforms become increasingly important in fostering social capital and consequently improving mental health [17, 35, 36, 38-40]. In situations where face-to-face interactions are limited, online social networking serves as a vital means for individuals to maintain contact and build supportive virtual communities. These platforms provide spaces for communication, enabling individuals to share concerns, exchange information, and offer mutual support, effectively combating loneliness exacerbated by social distancing measures.

These findings can be examined through the lenses of both social displacement and social compensation theories. Specifically, our findings seem to support the compensation theory; during the pandemic, as opportunities for in-person interactions were constrained, digital interactions may have provided a crucial resource for social connection and support, thereby mitigating the potential negative consequences highlighted by the social dis-

placement hypothesis. This perspective raises concerns about the adverse effects of relying too heavily on digital interactions, emphasizing the risk of developing feelings of loneliness and disconnection from real-world relationships.

Conversely, the social compensation theory posits that the Internet can serve as a crucial resource for enhancing mental health by providing social and psychological support. Research aligned with this theory indicates that as individuals engage more in online social networks, they often experience increased feelings of connection and belonging, which can enhance their self-confidence and overall mental well-being [41]. This perspective emphasizes the positive role that online communities can play, particularly for those who may find it challenging to connect in traditional social settings.

Besides, additional findings of the current study revealed a relationship between social capital dimensions, indicating that online structural social capital has a positive impact on trust and social support variables. In simpler terms, increased engagement with online social networks facilitated more frequent interactions and information sharing, thereby fostering a sense of familiarity and reciprocity. This, in turn, allowed students to form more trusting relationships, leading to a greater perception of social support, which could enhance mental well-being.

The structure of online social networks facilitates communication and support because users can readily initiate discussions, share emotional responses, and receive feedback in real-time or asynchronously from various individuals. These mechanisms create a more accessible and less intimidating space for seeking support and building trust, compared to traditional face-to-face interactions.

Ultimately, the findings indicate that a high level of online structural social capital not only enhances trust among users but also creates a nurturing environment where emotional support thrives. This is particularly important in mitigating loneliness, as students can rely on these digital interactions to maintain connections and seek help during times of stress. By fostering trust and promoting supportive relationships online, social networks play an essential role in enhancing overall mental well-being, demonstrating their value as integral components of modern social life [23].

Similarly, our findings also showed that increased social support was associated with better mental health. Online social networks provide resources for individuals to meet their needs by receiving a variety of support through relations with whom they share ties, even weak ties [16, 17]. In general, social support can lower people's anxiety as a positive psychological resource [42]. Also, recent evidence has shown that social support buffers the detrimental effects of acute stress reactions on COVID-19 anxiety among Chinese people [43].

Trust was also one of the predictors of mental health among the university students. As a key aspect of cognitive social capital, trust has been measured in several studies, with a significant association found with mental health [24]. High levels of trust not only reflect good-quality social relationships but also promote meaning in life and positive thoughts. These factors are important for improving mental health levels [12]. Consistent with previous studies, individuals who lack network ties have been shown to be at risk of developing mistrust and mental illness [7, 11].

Furthermore, in light of the findings from this study, it is essential to challenge the longstanding preconception that online interactions are inherently inferior to face-to-face interactions. Contrary to the idea in some studies highlighting the negative effects of social media on mental health, this research demonstrated that social capital cultivated in virtual spaces can positively influence the mental well-being of university students. During the COVID-19 pandemic, the dependence on online interaction increased significantly among students. The pandemic led to the closure of educational institutions, including universities, and necessitated a shift to online platforms for all teaching and assessment activities.

Our findings indicated that this reliance on online engagement during social distancing has created opportunities to build and maintain social connections that are typically established face-to-face, which can positively influence mental well-being during a period of heightened stress and isolation.

Ultimately, this study emphasized the importance of approaching social capital as a multidimensional and multilevel concept. Researchers must adopt a more refined approach toward studying social capital, recognizing that its dimensions are not interchangeable. For example, structural social capital, which focuses on the number of links and participation in online networks, can provide access to a broad range of resources and connections, whereas cognitive dimensions, like trust and social support might be crucial for the quality of those connections and their impact on mental health, especially during a time of crisis, like a pandemic.

Conclusion

This study found that online structural social capital has a significant positive impact on the mental health of university students during a period of crisis. This study suggests that universities should take measures to organize online social networks for the benefit of their students, which would promote their overall mental well-being. According to the results, social capital, as an effective factor in facing disasters, can help university students experience less damage. Since this pandemic has led to many changes in social relations, the members of different societies can better cope with this situation by strengthening social capital and resilience. Furthermore, the findings expand our knowledge of online social capital and its impact on mental health among the university student population, which, in turn, substantiates the scholarly work on online social capital and mental health theory. Importantly, the present study illustrates how social capital theory can be applied during critical times such as the COVID-19 pandemic.

In contrast to previous studies that concluded structural social capital has no significant association with mental health, our findings revealed a groundbreaking insight: online structural social capital emerges as the strongest predictor of mental health among the various dimensions of social capital. This novel discovery challenges existing paradigms and highlights the importance of reevaluating how researchers and practitioners understand the role of online social networks in mental well-being. By emphasizing the significance of online structural social capital, our study not only advances theoretical frameworks but also carries important practical implications for developing targeted interventions aimed at enhancing mental health through online community engagement.

As a result, planners and policymakers need to understand that any ineffective planning that erodes community trust will directly influence social capital, resilience, and the mental well-being of university students. Considering their demographics and awareness, planners are expected to utilize the vast potential of students to strengthen social capital and resilience. Studies show that by recognizing shared objectives and developing skills and understanding of the circumstances, community members can experience less psychological and social harm in response to the pandemic.

Universities should establish and promote dedicated online social networks by actively providing resources and training to support students in creating a sense of community and engagement that will lead to better social capital and improved mental well-being. This could be achieved through providing moderated online forums, organizing online events, or creating student support networks.

Future research should explore the long-term impacts of online social capital on mental health across diverse populations and life stages. Furthermore, cross-cultural comparative studies should be conducted to determine whether these findings hold across different sociocultural contexts. Lastly, developing crisis response frameworks that utilize online social capital strategies will enable the quick mobilization of support during heightened mental health concerns, ensuring that students have the resources they need in times of crisis.

Limitations

This study has several limitations that should be taken into consideration when interpreting the findings. First, the distinction between bonding and bridging social capital could have enhanced the analysis of social capital's effect on mental health. In this research, only social capital as a whole was explored. This limitation has affected the findings, as the different types of social capital can have varying impacts. Furthermore, this study employed a cross-sectional design, which means that the causal relationship between structural social capital and cognitive social capital cannot be tested in the current research. Although a theoretical discussion is provided for the mediation model, more longitudinal studies should be conducted in this promising area to further examine the interplay between cognitive social capital, structural social capital, and mental health, as well as their trajectory patterns.

Moreover, it is certainly vital to focus on developing interventions to sustain or improve the mental health of university students during the COVID-19 pandemic. Future research should differentiate between bonding and bridging social capital to understand their specific effects on mental health. By analyzing these types separately, researchers can gain deeper insights into how each contributes to the overall relationship between social capital and mental well-being.

To establish causal relationships, a longitudinal design would allow researchers to observe changes over time and better understand the dynamics between structural social capital, cognitive social capital, and mental health. Incorporating qualitative methods, such as interviews or focus groups, could provide richer contextual insights into how social capital influences mental health and re-

veal nuances that quantitative data might miss. Expanding the sample size and diversity can enhance the generalizability of the findings. Investigating other factors that may mediate or moderate the relationship between social capital and mental health could provide a more comprehensive understanding of this complex interplay. The current study is one of the first attempts to examine the role of social capital in influencing mental health among Iranian university students in the context of the COVID-19 pandemic. The findings propose that social capital can play a vital role in both intervention and prevention programs concerning mental health in a university setting. Finally, as the scope of this study was to assess social capital at an individual level, there is a call for future studies to examine social capital from a collective level in the context of COVID-19. Researchers should remain mindful of the multidimensional and multilevel nature of social capital and recognizing that its various dimensions can have differing effects across populations and contexts.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran (Code: IR.SUMF.REC.1399.1090). Also, verbal informed consent was sought from all participants before data collection.

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Authors' contributions

Conceptualization, study design, methodology, validation, data analysis, data management, supervision: Roghayeh Khosravi; Methodology, validation, data analysis: Serajeddin Mahmoudiani and Jonathan Parker; Data collection, review & editing: Shuresh Lotfi; Writing the original draft and final approval: All authors.

Conflict of interest

The authors declared no conflicts of interest.

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