

## Research Paper



# The Effect of Social Capital on the Mental Health of the University Students During the COVID-19 Pandemic With the Mediation of the Resilience Variable

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## ABSTRACT

**Background:** This research was conducted to evaluate the effect of social capital on the student's mental health with the mediation of resilience during the COVID-19 pandemic.

**Materials and Methods:** The research is based on the objective criterion in the applied research group and the data collection method criterion in the survey research group. The statistical population includes the students of the state universities of Tehran and Islamic Azad University Science and Research Branch. The sample size was estimated to be 427 people using SPSS SamplePower software. The share of each university was determined by proportional stratified sampling, and then the samples from each stratum were selected by a simple random method. SPSS and AMOS software was used to analyze the data.

**Results:** To investigate the hypotheses, we used the 1-sample t-test, the Pearson correlation, multiple regression analysis, and the structural equation model. According to research, social capital has a significant effect on the resilience and mental health of students, considering that the indirect effect of social capital (through resilience) on mental health has also become significant; therefore resilience variable has a mediating role between social capital and mental health variables. The age variable has a positive and significant relationship with all three variables of social capital, resilience, and mental health, so the variables above increase with age.

**Conclusion:** Considering the importance of social capital, society members can improve their resilience by developing communication networks and being aware of critical conditions to suffer the least psychological and social damage in this pandemic.

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## 1. Introduction

**A**

about 20 years ago, social capital in the health field became popular as one of the tools for creating supportive environments and facilitating health promotion networks for individuals, groups, and communities.

This term refers to the processes that lead to creating networks, norms, and social trust between people. Therefore, people's social connections are vital in influencing health outcomes at the individual and social levels [1]. 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 [2]. Studies show that social capital is a critical factor in the life satisfaction and happiness of young people [3]. It is also the main factor in solving health and treatment problems [4], improving self-esteem [5] and performance [6], and reducing the symptoms of depression [7, 8]. Evidence of the COVID-19 outbreak first emerged in China in December 2019, and within weeks of the initial outbreak, the total number of deaths surpassed that of severe acute respiratory syndrome (SARS) [9]. Surveys showed that social restriction is the best solution to prevent rapid transmission, and for this purpose, many countries took serious measures to observe social distance [10]. Reducing social interactions as a prohibiting factor in controlling COVID-19 led to limitations in relationships and, as a result, isolation. This situation causes mental problems such as stress, anxiety, depression symptoms, insomnia, denial, anger, and fear in people [11], which has encouraged experts in the social and psychological fields to reflect more on social dimensions and social capital. To express the invaluable position of social capital, it is necessary to point out that it has a crucial contribution to crisis studies; these studies show that people with more social capital are more resistant to disasters [12-15].

A study was conducted in seven European countries on the role of social capital in reducing the incidence of COVID-19. The results show that in the early stages of the pandemic, due to the lack of awareness about the coronavirus, the incidence of the disease increased greatly. The results reveal that social capital can control health crises which requires collective action and responsible social behavior. This study suggests that planners pay attention to the importance of social capital. The researchers noted that policymakers should not merely consider areas with low capital and ignore areas with high social capital [16]. The results of another study in Shanghai, China, which was conducted with the participation of 472 elderly people aged 60 and over, showed that social capital plays a crucial role in maintaining and improving mental health during the COVID-19 pandemic [17].

Social capital is a source of community resilience against natural disasters and is vital in activating collective disaster response. It is also a determining factor in realizing the post-crisis community-based recovery process. Therefore, social capital is the basis for society's resilience against disasters by providing readiness to encourage collective response [18].

Social resilience has been identified and promoted as a perspective and a strategy for disaster management. The concept of resilience, which is also considered in engineering and physical sciences, refers to the ability of a material to return to its original state and balance. Therefore, resilience refers to adaptation following disruption and the capacity to recover, integrate and adapt [19]. The results of many studies have pointed to the role of resilience in reducing the adverse effects of crises [20-22]. Researchers acknowledge the importance of the mediating role of resilience in the effectiveness of health interventions in society. The findings of a study in Korea on 2000 teenagers, which was conducted to investigate the mediating role of resilience between social capital and adolescent health, showed that resilience plays a mediating role in the relationship between social capital and health. Based on the results of this study, strengthening social capital and promoting resilience is recommended as a vital factor for improving the health of adolescents. Among the other factors that health researchers in crises have considered is the evaluation of the mental health of the community. Mental health means the mental ability to work harmoniously, pleasantly, and effectively, to be flexible in difficult situations, and to have the ability to recover balance [23]. Wherever natural disasters threaten the world, attention to mental health becomes important. So, social capital plays a crucial role in promoting mental health [24-27]. It is essential to pay attention to students as one of the key groups in realizing the development of society. Students' abilities to inform other social groups in crises and special conditions will be an important factor in reducing problems. Studies have shown that during the COVID-19 crisis, students experienced more unfavorable conditions than the other social groups [9, 28, 29].

Since most studies have focused on the prevention and treatment aspects of COVID-19, few studies have dealt with the social perspective of COVID-19 and its social and psychological effects. Considering the importance of the role of students and the wide impact that the global pandemic of COVID-19 crisis has had on various personal and social aspects of their lives, this study was conducted to investigate the effect of social capital on

the mental health of students with the mediation of resilience variable in the COVID-19 pandemic.

## 2. Materials and Methods

### Participants

This study is applied objectively and is a survey type. The data were collected from the statistical population of students of the State Universities of Tehran and Azad University of Science and Research Branch at all undergraduate, master's, and doctoral levels. Using SamplePower software, the sample size was estimated to be 427 people, then the share of each class was determined using proportional stratified sampling, and in the next step, samples from each class were selected by a simple random method.

The questionnaire was designed via one of the appropriate questionnaire-made systems. On the first page of the questionnaire, the purpose of the study and how to conduct it were briefly explained, and the participants were assured that their information would remain confidential to the researchers. The questionnaire was designed so that the participants, if they wish to complete the questionnaire, enter the questions page by selecting the agreement consent option. The link to the questionnaire was distributed online on popular virtual social networks from February 1 to March 5, 2019 (Telegram, WhatsApp, and Instagram). The inclusion criteria included being a student and willing to participate, and the exclusion criteria included sending incomplete answers. If the participants had any questions about the questionnaire, they would ask their questions and receive the required answer by sending a message to the personal account of the questioners.

In this study, the principle of confidentiality of the participants' information was observed according to the ethical standards in the research. Informed consent was obtained from the participants before answering the questions and in the form of a paragraph at the beginning of the questionnaire, and finally, the research data were analyzed in SPSS v. 25 and AMOS 23 software. To compare the acquired average of the sample with the average of the population, the 1-sample t-test was used. Further, the significance test of the correlation coefficient was used to examine the relationship between the components of the research variables, and finally, regression analysis and structural equation models were used to test the research hypotheses.

To collect information, the following demographic information list and three validated questionnaires were used.

### Connor-Davidson resilience scale (CD-RISC)

Connor-Davidson resilience scale (CD-RISC) includes 25 items, each rated on a 5-point Likert scale (0-4), and higher scores indicate great flexibility. The psychometric properties of this scale have been investigated in 6 groups, the general population, primary care patients, psychiatric outpatients, patients with generalized anxiety disorder, and two groups of post-traumatic stress disorder patients. The validity and reliability of this questionnaire have been reported as optimal [30]. In the study of Ahangarzadeh and Rasouli [31], the internal consistency of the whole scale was calculated as 0.82. It was also calculated for each of the subscales, including competence and individual competence as 0.75, tolerance of negative effects as 0.72, positive acceptance of change as 0.74, self-control as 0.73, and spiritual effects as 0.75. This scale measures different dimensions of resilience but has a total score.

### Onyx and Bullen social capital questionnaire

The Onyx and Bullen Social Capital questionnaire has 36 items and 8 fields. The fields are the value of life, field of participation in local communities, the field of pioneering in social activities, field of trust and security; the field of communication with neighbors, the field of communication with friends and family, the field of tolerance of differences, and the field of work relations. The questions are scored on a 4-point Likert scale from 1=disagreement to score 4=agreement with the option. The validity and reliability of this questionnaire have been confirmed in Eftekharian et al.'s research [32].

### Goldberg's general health questionnaire (GHQ-12)

Goldberg compiled the general health screening questionnaire in 1972 to identify mental disorders in different centers and environments. The questions of the questionnaire examine the mental state of people in the last month. In this research, a 12-item questionnaire was used. In Yaqoubi et al.'s study [33], the Cronbach alpha coefficient of the questionnaire was 0.92, and the reliability coefficient and Spearman-Brown was 0.91. The construct validity and reliability coefficients obtained show that this questionnaire is suitable for screening psychopathology in students (Figure 1).

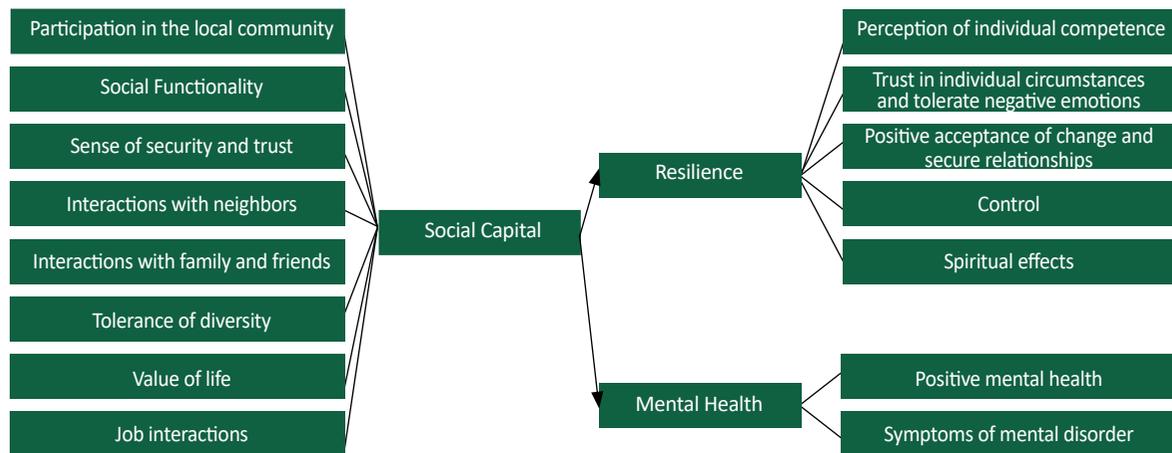


Figure 1. Conceptual model of research

### 3. Results

Gender distribution among the respondents in this research indicates that 40.04% of the respondents are male and 59.9% are female. Regarding the type of university, 68.6% of respondents were students of state universities, and 31.4% were students of Azad universities. The highest level of education is related to a bachelor's level, with 56.7%, and the lowest is related to an associate's level of education, with 2.8%. Regarding marital status, 79.9% of the respondents were single, and 20.1% were married; 20.4% had been infected with COVID-19, and 24.6% had lost one of their relatives due to COVID-19. The mean age of the respondents is 31 years, the minimum age is 18, and the maximum is 50 years.

According to the acquired mean values of social capital, resilience, and mental health variables, all of these values are reported to be higher than the average values of the society (18, 50, and 85, respectively). According to the above test, because the value of significance levels obtained in the t-test table is equal to 0.0001, which is smaller than the critical level and the standard error of 0.05 with a confidence of 0.95, it can be concluded that the social capital, resilience and mental health in the statistical population is optimal.

Based on the results, both variables of resilience and mental health have a positive and significant relationship with all components of social capital ( $P < 0.05$ ), so the lowest and highest correlations are related to the component tolerance of diversity and value of life, respectively.

According to Table 3, the main research variables have a positive and significant relationship with each other ( $P < 0.05$ ). In addition, the age variable has a positive and

significant relationship with all three variables of social capital, resilience, and mental health, so the variables above increase with age.

According to the results of Table 4, the variables of social capital and resilience have the power to predict the variable of mental health ( $P < 0.05$ ), so one unit increase in social capital, 0.14 standard deviation, and for one unit increase in resilience, 0.53 standard deviation were added to mental health (Figure 2).

In the fitting model, the direct effect between the main variables, i.e., social capital on resilience, social capital on mental health, and resilience on mental health, are statistically significant. Also, the effect of social capital on mental health and resilience and resilience on mental health are significant.

To check the significance, a partial index P value and a significant number were used. The condition of significance is that the P value is less than 0.05; as can be seen in Table 5, this condition is fulfilled.

Considering the significant effect of the three variables of social capital on resilience, social capital on mental health, and resilience on mental health, the indirect effect of resilience on mental health and social capital, can be calculated.

Considering that the mediating variable indirectly influences the relationship between the independent and dependent variables, and according to the results of Table 6, the indirect effect of social capital (through resilience) on mental health is significant; therefore, the resilience variable between the variables of social capital and mental health has a mediating role.

**Table 1.** Sample size based on the classes of the University

University	Statistical Population	Sample Size
State	53.488	233
Azad	44.445	194

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**Table 2.** Descriptive table of a sample t-test

Variables	Total	Mean±SD	SEM
Social Capital	427	97.99±14.84	0.71
Resilience	427	91.64±15.49	0.74
Mental Health	427	32.77±4.05	0.19

Inferential table of a sample t-test

Variables	t-test	Mean Differences	Significance
Social capital	18.09	12.99 (from 85)	0.0001
Resilience	55.54	41.64 (from 50)	0.0001
Mental health	75.36	14.77 (from 18)	0.0001

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**Table 3.** Correlation between the main research variables

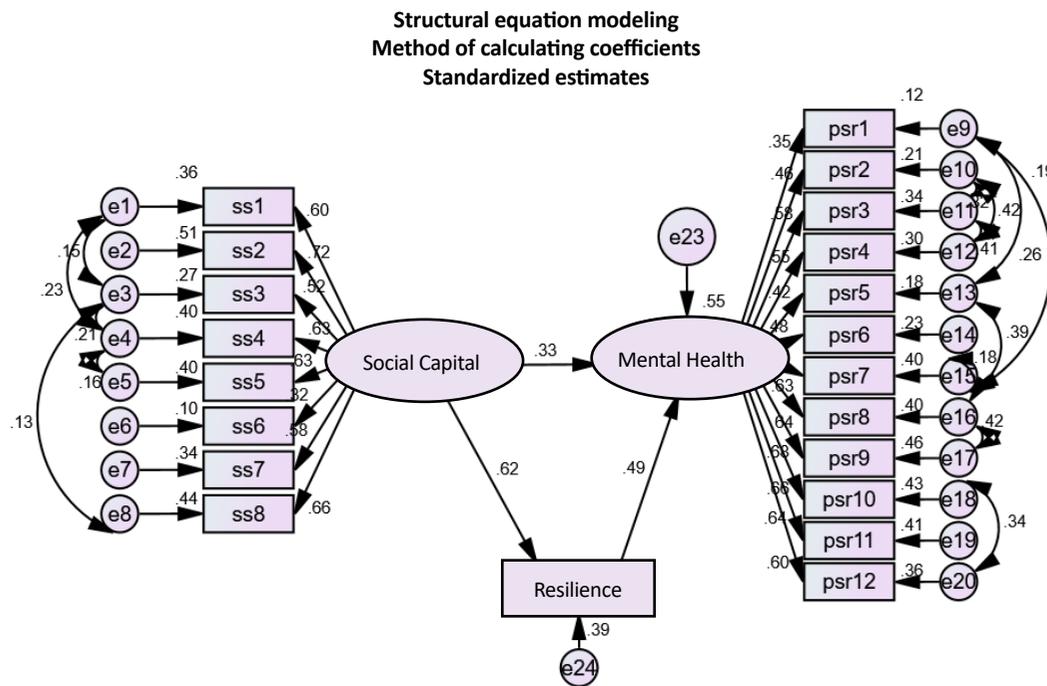
Variables	Index	Social Capital	Resilience	Mental Health
Social capital	r	1		
	P			
Resilience	r	0.52	1	
	P	<0.001		
Mental health	r	0.43	0.61	1
	P	<0.001	<0.001	

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**Table 4.** The results of the multiple regression analysis tests simultaneously to predict mental health

Predictive Variables	β	t	P	VIF	Durbin-Watson Statistic	Adjusted R <sup>2</sup>	F	P
Constant value		-5.09	<0.001					
Social capital	0.14	3.19	0.002	1.40	2.01	0.39	92.81	<0.001
Resilience	0.53	12.02	<0.001	1.39				
Age	0.04	1.04	0.30	1.05				

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**Figure 2.** The final model relationship between main variables

$\chi^2=527.959$ ,  $DF=173$ ,  $P=0.000$ ,  $RMSEA=0.068$ ,  $\chi^2/DF=3.052$ ,  $CFI=0.899$

In addition, the fit indices confirmed the suitability of the structural equation model and showed that the collected data supported the theoretical model of the research (Table 7).

#### 4. Discussion

In disaster situations, many people naturally cooperate as members of society and share information to help themselves and others and minimize the damage caused by the crisis. Therefore, social networks and social capi-

tal increase, which in turn increases the resilience and mental health of community members. The results of this study, which was conducted to evaluate the impact of social capital on resilience and mental health among the educated class of students, indicate that social capital is effective in promoting resilience in crises, including the COVID-19 crisis. The results of this study are consistent with the results of Goa et al. [34], Nakamura and Kanmaso [35], Choudhury [36], Partlow [18], Lucini [37], Aldrich [38], Pfefferbaum [19], and Hahn [39]. The study by Kokobon et al. [40] aimed at maximizing

**Table 5.** The number of direct effects of the main research variables with the bootstrap method in the structural equation model

Variables	Estimated Value	Standard Error	P
Social capital → Mental health	0.33	0.08	0.001
Social capital → Resilience	0.62	0.04	0.001
Resilience → Mental health	0.49	0.07	0.001

**Table 6.** The number of indirect effects of the main research variables with the bootstrap method in the structural equation model

Variable	Estimated Value	Standard Error	P
Social capital → Mental health	0.30	0.05	0.001

Table 7. General indices of structural equation model fit

Fitting Indices		Calculated Value
Absolute	Chi-square	527.96
	Degrees of freedom	173
	P	<0.001
	Relative Chi-square	3.05
Comparative	Incremental fit index (IFI)	0.90
	Tucker-lewis fit index (TLI)	0.88
	Comparative fit index (CFI)	0.90
	Bentler-Bonnet normalized fit index (NFI)	0.86
	Relative fit index (RFI)	0.83
Parsimonious	Parsimonious normalized fit index (PNFI)	0.71
	Parsimonious comparative fit index (PCFI)	0.74
Error	Root mean square residual index (RMSEA)	0.068

employee cooperation in times of crisis and especially during the COVID-19 pandemic, was conducted on 2973 employees of a Japanese company based in China. It showed that employees with higher social capital and resilience in dealing with the global epidemic of COVID-19 were more cooperative. To explain this, social bonds among the members of society, combined with a sense of social responsibility, will be effective in dealing with crises. The high level of trust and social partnerships greatly impacts the survival of society during the crisis and the speed of recovery after the crisis. Studies show that increased social trust leads to effective preventive measures in the successful containment of the COVID-19 pandemic and crisis management [41, 42].

Based on another hypothesis of this study, social capital affects mental health. The results of this research are consistent with the study of Dominguez [43], Sato [44], Zhu [45], Alvarado [46], and Kelton [47]. With the increase in protective measures against the epidemic of COVID-19, isolation and loneliness replaced daily communication, and this threatened the mental health of people in the community; as the results of this study and other studies show, connecting to communication, as well as social and support networks plays a crucial role. It is effective in facing crises and maintaining mental health and social connections, and having social capital help people to be more hopeful about the future; promoting social capital is a very effective strategy in dealing with a crisis; as a result, timely interventions can help maintain mental and social health during the pandemic.

The results of this study show that resilience has a significant effect on mental health, and increasing resilience in the studied society increases mental health. Also, the results are consistent with Boron's research

[48], which show that parents and children during COVID-19 can reduce the amount of mental and psychological damage during the crisis and cope with crises by promoting resilience.

The age variable has a positive and significant relationship with all three variables of social capital, resilience, and mental health. Therefore, the mentioned variables increase with age. The results of this study are inconsistent with the results of Pan's study [49], which show that social capital decreases with increasing age and are consistent with the study of Bhandari and Yasunobu [50].

Also, mental health increases with age; the results of this research are inconsistent with the study of Sun and Lu [17], which showed that people who are older during the COVID-19 pandemic are at higher risk of mental health, according to the correlation coefficient and the significance level of age and resilience variables and a positive relationship, it can be inferred that a significant relationship is observed between these two variables so that as age increases, resilience will also increase. The results are consistent with Lundman's research [51] which shows that resilience plays a mediating role between the two variables of social capital and mental health, which are consistent with Yildirim et al. research [52], and shows that increasing resilience is one of the critical factors of prevention and interventions based on the meaning that affects mental health and can play a mediating role between mental health and the meaning of life. Values and goals are the significant components of life that can reduce mental disorders or increase mental health by increasing resilience. Also, the results of the study by Vironis et al. [53] show that resilience and well-being play a mediating role between the occurrence of stress and psychological problems during COVID-19. In

this study, social capital and resilience were reported as optimal. According to the warnings of the treatment system to follow the health guidelines to reduce the infection, people in society in critical situations and especially during the COVID-19 pandemic found that they can deal with these conditions by self-restraint and following the medical orders, and their resilience increased. Due to the limitation of social communication, they chose other ways to communicate and increase social capital. Studies confirm this claim, as Buzzi's study [54] shows that teenagers can manage unsafe conditions and deal with adverse conditions by adapting to the new routine by understanding the importance of this pandemic and willingly adapting to all the necessary precautions. They choose to find alternative and innovative ways to meet their social and psychological needs and increase their resilience to deal with critical situations. Shung (2020), in his study of protective factors against symptoms of mental disorders, takes preventive measures that reduce the risk of infection, such as frequent hand washing, wearing a mask, and less contact with people, which are said to reduce the proportion of psychological distress during this pandemic and increase resilience. The high proportion of women participating in this study is similar to the results of other online research [55-57]. Assuming that students have more access to the Internet and communication in virtual groups, as well as examining the history of studies conducted in the field of COVID-19 and the results of these studies regarding the psychosocial vulnerability of students compared to other groups in this pandemic [58, 59] study statistics from this group were selected. These factors are one of the limitations of our study, which requires more research in more general groups in the future.

## 5. Conclusion

According to the results, social capital as an effective factor in facing disasters can help people in society to suffer less damage. Since this pandemic has led to many changes in social relations, therefore, the members of the society provide the conditions to better deal with this situation by strengthening social capital and resilience. The results of this study, which was conducted among students after one year of the COVID-19 pandemic, show that social capital and resilience as two important variables in certain conditions, face many fluctuations and are affected by various social, economic, and political factors and increase or decrease and subsequently affect mental health. Therefore, planners and policymakers should pay attention to the fact that any wrong planning that changes the trust of the community members will di-

rectly affect the social capital and resilience, and mental health of the community members. Meanwhile, it is essential to pay attention to the educated class of students. Considering the level of awareness of this influential group, planners are expected to exploit the huge potential of students to promote social capital and resilience. According to the studies, by recognizing the common goals and developing skills and awareness of the conditions, the members of society can suffer the least psychological and social damage in the face of this pandemic.

## Ethical Considerations

### Compliance with ethical guidelines

In this study, the principle of confidentiality of the participants' information was observed according to the ethical standards in the research. To complete the questionnaires, informed consent was obtained from the participants before answering the questions in the form of a paragraph at the beginning of the questionnaire.

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### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

The authors declared no conflict of interest.

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