





Investigating Social Capital Among COVID-19 Patients: Insights from a Cross-Sectional Study

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Abstract

Background: The global COVID-19 outbreak has posed significant challenges to public health. Social capital has emerged as a crucial social factor in mitigating the effects of COVID-19.

Objectives: This study aimed to assess the social capital levels of patients diagnosed with COVID-19 and compare these levels between inpatient and outpatient cases.

Methods: In 2021, a cross-sectional study was conducted at Ganjavaian Hospital in Dezful city, Iran, involving 428 COVID-19 patients. The participants were selected through a stratified random sampling method and divided into two groups: Inpatients and outpatients. Data were collected using a standardized social capital instrument, along with demographic information on variables such as age, gender, education level, marital status, and the severity of COVID-19 symptoms.

Results: Among the COVID-19 patients, the social capital components of individual trust, cohesion/social support, and social trust/associative relations were measured at 3.24 ± 0.25 , 3.15 ± 0.28 , and 2.49 ± 0.41 , respectively. Logistic regression analysis showed significant associations between patient status and age (OR = 1.47, CI 95%: 1.21 - 1.80), education level (OR = 2.64, CI 95%: 1.50 - 4.71), individual trust (OR = 3.40, CI 95%: 1.55 - 7.47), and cohesion/social support (OR = 3.03, CI 95%: 1.49 - 6.28).

Conclusions: Outpatients demonstrated higher levels of social capital compared to inpatients, highlighting the critical role social capital plays in coping with illness. This disparity suggests that outpatients benefit from stronger social networks and support systems. Enhancing social capital for hospitalized patients could significantly improve their health outcomes.

Keywords: Social Capital, COVID-19, Trust, Social Support

1. Background

Social capital, a key subset of the social determinants of health (SDH), includes behaviors, norms, networks, and social connections that facilitate collective action. It intersects with various primary subjective and public health factors, serving as a protective variable that promotes health status while reducing socioeconomic disparities (1, 2). The influence of social capital on health is profound, affecting the prevalence and incidence of both communicable and non-communicable diseases (2, 3). Previous research suggests that community connectedness and social support are correlated with better health outcomes (2, 4). A public health approach

grounded in social capital acknowledges the importance of social networks in achieving positive health outcomes. By fostering bonding, bridging, and linking capital, health systems can bolster their resilience to challenges like COVID-19 and ensure equitable access to healthcare services. Building solidarity and trust among stakeholders from diverse backgrounds is essential to meet urgent public health goals (5, 6).

Recent studies on social capital have revealed that community attachment and social trust were linked to higher numbers of COVID-19 cases, while strong family bonds and a sense of security were associated with fewer

cases. Additionally, higher COVID-19 mortality rates were connected to factors such as population density, an aging population, fewer hospital beds, and lower government effectiveness. These findings emphasize the significant role of SDH in the dynamics of the COVID-19 pandemic (7, 8). While ecological studies have offered valuable insights into the relationship between social capital and COVID-19, patient-based studies are essential for a more detailed understanding. To fully grasp social capital's impact on the spread of COVID-19, it is important to conduct both ecological and individual studies. However, few studies have explored the link between social capital and COVID-19 at the individual and patient levels (5, 8).

Strong social connections are crucial for reinforcing adherence to protective measures (2, 5). During the COVID-19 crisis, response and recovery efforts heavily relied on social capital. Building relationships with diverse communities was vital for fostering a unified and collective response to the pandemic (6, 7).

2. Objectives

This study aimed to examine social capital among patients diagnosed with COVID-19 and compare it between hospitalized patients and those receiving outpatient treatment. The findings of this research hold promise for shedding light on the influence of social capital on the dynamics of COVID-19.

3. Methods

The cross-sectional study was conducted in 2021 on 428 COVID-19 patients at Ganjavian Public Hospital in Dezful, Iran. According to Wang et al., approximately 50% of COVID-19 patients referred to hospitals are subsequently hospitalized. A sample size of 428 was calculated, considering a 5% alpha value, a 5% margin of error, and a 10% withdrawal rate (9). Patients were selected using a stratified random sampling method, dividing them into two groups: Inpatients and outpatients. Within each stratum, simple random sampling was used to select participants from both groups. The study included patients aged 15 - 85 years who tested positive for COVID-19 via a PCR test and had undergone a formal screening interview. These individuals were then asked to complete a standardized social capital questionnaire. Data were collected on variables such as age, gender, education, occupation, and COVID-19 severity. The severity of COVID-19 was determined based on whether the patients were outpatients or inpatients, as well as by assessing clinical

symptoms like loss of taste and smell, cough, and shortness of breath.

The social capital questionnaire consisted of six main questions and 64 items across three dimensions: Individual trust, cohesion/social support, and social trust/associative relations. These questions assessed various relationship levels, including those with close family, friends, colleagues, neighbors, and diverse groups based on ethnicity, religion, and community involvement. The first four questions measured voluntary participation, collective activity, trust, and social cohesion using a 5-point Likert Scale. The fifth question focused on aspects of truthfulness, including honesty, fairness, reliability, and the courage to speak the truth. The remaining four questions assessed social support and engagement in associative activities, such as collaboration with parents and teachers, participation in religious and athletic groups, charities, professional organizations, political parties, ethnic communities, and scientific associations. Each dimension was scored from 1 to 5, with higher scores indicating greater levels of social capital for the individual (10).

Data were analyzed using Stata SE-13 software, with descriptive statistics, *t*-tests, one-way ANOVA, and chi-square tests employed. For multivariate analysis, logistic regression was used, and odds ratios (OR) with 95% confidence intervals (CI 95%) were calculated for comparisons, with significance set at $P < 0.05$.

4. Results

The mean age of the patients was 41.90 ± 15.10 years, with approximately 52.80% being female ($n = 226$). More than half of the 428 patients diagnosed with COVID-19 were outpatients (227, 53.04%). The social capital components among the patients individual trust, cohesion/social support, and social trust/associative relations had mean scores of 3.24 ± 0.25 , 3.15 ± 0.28 , and 2.49 ± 0.41 , respectively, on a scale ranging from 1 to 5. Detailed demographic characteristics of the patients and their association with components of social capital are presented in Table 1.

Table 1 reveals a statistically significant association between the hospitalization status of COVID-19 patients and the social capital components, with the exception of the social trust/associative relations component, which did not show a significant association with patient hospitalization status. Additionally, Table 2 presents the quartile distribution of social capital components among the COVID-19 inpatient and outpatient groups, further illustrating the differences in social capital between the two groups.

Table 1. Demographic Characteristics of Study Participants and Their Association with Social Capital

Variables and Groups	No. (%)	Individual Trust		Cohesion/Social Support		Social Trust/Associative Relations	
		Mean (SE)	P-Value	Mean (SE)	P-Value	Mean (SE)	P-Value
Age			0.02		0.01		0.74
> 30	119 (27.80)	3.87 (0.14)		3.69 (0.14)		2.48 (0.06)	
30 - 45	156 (36.45)	3.34 (0.12)		3.27 (0.08)		2.43 (0.05)	
45 - 60	86 (20.09)	2.91 (0.19)		2.63 (0.11)		2.64 (0.06)	
> 60	67 (15.65)	2.76 (0.12)		2.89 (0.12)		2.32 (0.08)	
Gender			0.01		0.16		0.19
Male	202 (47.20)	3.46 (0.08)		3.12 (0.12)		2.47 (0.16)	
Female	226 (52.80)	3.02 (0.11)		3.19 (0.14)		2.51 (0.11)	
Education level			0.01		0.03		0.01
Illiterate/primary school	102 (23.83)	2.71 (0.14)		2.85 (0.22)		2.21 (0.08)	
Middle, high school, and diploma	208 (48.60)	3.49 (0.10)		3.05 (0.19)		2.46 (0.22)	
Academic	118 (27.57)	3.55 (0.17)		3.53 (0.11)		2.85 (0.11)	
Marital status			0.01		0.02		0.23
Married	271 (27.57)	3.76 (0.20)		3.27 (0.04)		2.61 (0.24)	
Unmarried	118 (27.57)	2.79 (0.11)		3.06 (0.09)		2.39 (0.18)	
Status of COVID-19			0.01		0.03		0.18
Inpatient	201 (46.96)	2.84 (0.07)		3.04 (0.16)		2.39 (0.32)	
Outpatient	227 (53.04)	3.62 (0.10)		3.38 (0.14)		2.54 (0.25)	
Severity of COVID-19			0.01		0.01		0.54
Mild	262 (61.21)	3.36 (0.11)		3.55 (0.20)		2.43 (0.24)	
Moderate	93 (21.73)	3.42 (0.13)		3.17 (0.15)		2.51 (0.31)	
Severe	73 (17.06)	2.92 (0.17)		2.71 (0.13)		2.62 (0.26)	

Table 2. The Status of Social Capitals Based on the Quartiles in Inpatient and Outpatient Groups^a

Component of Social Capitals and Categories ^b	Total Patients	Inpatient	Outpatient	P-Value
Individual trust				0.01
Poor	81 (18.93)	51 (25.37)	30 (13.22)	
Fair	146 (34.11)	81 (40.30)	65 (28.63)	
Good	127 (29.67)	40 (19.90)	87 (38.33)	
Very good	74 (17.29)	29 (14.43)	45 (19.83)	
Cohesion/social support				0.01
Poor	94 (21.96)	53 (26.37)	39 (17.18)	
Fair	156 (36.45)	79 (39.30)	77 (33.92)	
Good	109 (25.47)	51 (25.37)	60 (26.43)	
Very good	69 (16.12)	18 (8.96)	51 (22.47)	
Social trust/associative relations				0.93
Poor	121 (28.27)	59 (29.35)	62 (27.31)	
Fair	171 (39.95)	81 (40.30)	90 (39.65)	
Good	94 (21.96)	42 (20.90)	52 (22.91)	
Very good	42 (9.81)	19 (9.45)	23 (10.13)	

^a Values are expressed as No. (%).

^b The category is based on the quartile of each component.

Logistic regression analysis was employed in the multivariate analysis to explore the association between

COVID-19 patient status (inpatient and outpatient groups) and various social capital components, along

Table 3. The Association Between the Status of COVID-19 Patients with Social Capital and Demographic Variables

Variables and Categories	Unstandardized Coefficient (B)	SE	OR Adjusted	CI 95%
Age	0.38	0.10	1.47	1.21 - 1.80
Gender				0.56 - 2.40
Male	0.15	0.37	1.17	
Female ^a	-	-	-	-
Education level				
Illiterate/primary school	0.97	0.29	2.64	1.50 - 4.71
Middle, high school, and diploma	0.19	0.22	1.21	0.79 - 1.85
Academic	-	-	-	-
Marital status				0.94 - 0.98
Married	-0.4	0.01	0.96	
Unmarried	-	-	-	-
Individual trust	1.22	0.41	3.40	1.55 - 7.47
Cohesion/social support	1.13	0.36	3.03	1.49 - 6.28
Social trust/associative relations	0.61	0.62	1.82	0.54 - 6.12

^a For each categorical variable, the second category is the reference variable.

with demographic variables. The results of this analysis are summarized in [Table 3](#).

5. Discussion

Our findings revealed that a considerable percentage of COVID-19 patients exhibited low to moderate levels of social capital, including individual trust, cohesion/social support, and social trust/associative relations. Notably, the lowest levels were observed in the social trust/associative relations component. Research examining the association between social capital (and its components) and COVID-19 has produced significant yet inconsistent results (8, 11). A study conducted by Tatrkó et al. in 2022 indicated that individuals who contracted COVID-19 had a stronger correlation with institutional trust rather than social trust. Additionally, the study found that during the pandemic, "strong" relationships those with family members, colleagues, and friends either remained steady or declined, while "weak" relationships such as those with neighbors, fellow residents, and citizens showed a weaker correlation with exposure to COVID-19 (8).

Derose investigated the relationship between different components of social capital and the likelihood of hospitalization. The study found that longer average commuting times with friends and acquaintances, indicating lower levels of bonding social capital, were linked to higher hospitalization rates in adults. Conversely, greater ethnic diversity, which reflects increased bridging social capital, was associated with lower hospitalization rates in non-elderly adults.

Interestingly, the study also found that a higher presence of faith-based organizations, representing linking social capital, was correlated with higher hospitalization rates among non-elderly adults consistent with the findings of the present study (12).

Early research on the COVID-19 pandemic suggested that communities with strong social capital experienced significantly lower hospitalization and fatality rates compared to those with weaker connections. These communities displayed a stronger commitment to public health measures, such as mask-wearing, hand hygiene, vaccination, and social distancing, resulting in reduced hospitalizations and deaths among individuals with COVID-19 (13, 14).

Social capital is typically characterized by two dimensions: Structural and cognitive. The structural dimension focuses on the connections and organization among group members, while the cognitive dimension pertains to shared values and beliefs within the group. Current research suggests that the structural dimension is more strongly associated with health outcomes than the cognitive dimension (9, 10). In the present study, it was found that the structural dimensions of social capital were more relevant to COVID-19 patients than the cognitive dimensions. Specifically, age, education level, individual trust, and cohesion/social support were associated with the hospitalization status of COVID-19 patients. These factors were assessed in both inpatient and outpatient groups. However, no statistically significant relationship was found between social trust/associative relations and patient hospitalization status. These findings align with the results of studies by

Ko et al. (14) and Karaca-Mandic et al. (15), although social capital factors were not directly measured in their studies on COVID-19 patients.

5.1. Conclusions

Most COVID-19 patients reported low levels of social capital components, with outpatients demonstrating higher levels of social capital than inpatients. Additionally, factors such as age, education level, individual trust, and cohesion/social support were linked to hospitalization status. To address these findings, health policymakers should prioritize enhancing social capital within communities. Initiatives aimed at fostering individual trust and social support can help build resilience among patients, potentially reducing the severity of COVID-19 cases. Educational programs designed to improve health literacy can empower patients to make informed decisions about their health. Moreover, integrating social capital strategies into public health planning can lead to more effective responses during health crises. Ultimately, these efforts could contribute to lowering hospitalization rates and improving overall community health outcomes.

Footnotes

Authors' Contribution: All authors were involved in conceptualizing and designing the study. A. K., M. B., and A. K. were responsible for material preparation and data collection, while A. K. conducted the analysis. All authors reviewed and approved the final manuscript.

Conflict of Interests Statement: The authors have verified that they have no conflicts of interest.

Data Availability: The study data can be acquired by reaching out to the corresponding author either during submission or following publication. Because the data contains confidential participant information, it is not available to the public.

Ethical Approval: The Ethics Committee of Dezfoul University of Medical Sciences (IR.DUMS.REC.1401.013) approved the study protocol.

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