

Determining the Relationship Between Perceived Social Support and Coronavirus-Induced Anxiety Among University Students

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ABSTRACT

Purpose: This study aimed to investigate the relationship between perceived social support and coronavirus-induced anxiety among university students.

Methods and Materials: The research utilized a descriptive-correlational design. The statistical population included all students enrolled in Payam Noor Universities across Bushehr Province during the second semester of the 2021–2022 academic year (N = 7,900). A simple random sampling method was applied, and a sample of 237 students was selected using the Morgan Table. Data collection instruments included the Coronavirus Anxiety Scale (CDAS) and the Multidimensional Scale of Perceived Social Support (MSPSS). Data analysis was performed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS and SPSS-25 software. Reliability and validity of the measurement model were confirmed through Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE).

Findings: Descriptive results indicated moderate levels of both perceived social support and coronavirus-related anxiety among participants. Structural model analysis showed a significant negative relationship between perceived social support and coronavirus-induced anxiety ($\beta = -0.340$, $t = 7.133$, $p < 0.001$), confirming the research hypothesis. The R^2 value for coronavirus anxiety was 0.309, indicating that perceived social support explained approximately 31% of its variance. The model's overall goodness-of-fit index (GoF = 0.461) suggested strong explanatory power and model adequacy. All factor loadings were significant and exceeded the recommended thresholds, and discriminant validity was supported using the Fornell–Larcker criterion.

Conclusion: The findings underscore the critical role of perceived social support as a psychological buffer against anxiety during the COVID-19 pandemic in student populations. Strengthening supportive networks among students may serve as an effective intervention strategy to reduce pandemic-related anxiety and improve overall mental health during public health emergencies.

Keywords: Coronavirus anxiety, social support, students

1. Introduction

The COVID-19 pandemic has created a profound and lasting impact on mental health worldwide, with university students emerging as one of the most vulnerable groups. As the global health crisis unfolded, students faced significant disruptions in academic routines, social interactions, and financial stability—factors that collectively contributed to heightened psychological distress, especially anxiety related to the virus itself. Among the various psychosocial factors influencing individuals' responses to such crises, perceived social support has been identified as a vital protective element that buffers against psychological turmoil and promotes mental resilience during pandemics (Feng et al., 2023; Xiao et al., 2020).

COVID-19-related anxiety is a distinct form of distress characterized by persistent fear of infection, health worries, and physiological arousal, which can significantly interfere with daily functioning (Lee et al., 2020). This unique anxiety has been extensively studied, particularly among youth and student populations, due to their transitional life stage and associated psychological vulnerabilities (Li et al., 2021; Singh et al., 2020). Research has shown that stressors related to COVID-19, including fear of contagion, social isolation, and uncertainty about the future, exacerbate existing mental health challenges in this group (Eyni, Ebadi, & Hashemi, 2020; Eyni, Ebadi, & Torabi, 2020). Importantly, individual and contextual protective factors, such as optimism, emotional resilience, and especially perceived social support, have been found to mitigate the adverse psychological consequences of such crises (Eini et al., 2020; Marefzadeh & Aghapour, 2021).

Perceived social support refers to an individual's subjective evaluation of the availability and adequacy of emotional, informational, and practical support from significant others, including family, friends, and the broader community. Studies conducted during the pandemic have consistently shown that higher levels of perceived social support are associated with lower levels of anxiety, depression, and psychological distress among various populations, including healthcare workers, patients, and students (Grey et al., 2020; Olashore et al., 2021). In the context of university students, perceived support has served as a crucial coping mechanism, enabling them to better manage the psychological demands imposed by the pandemic (Jalali-Farahani et al., 2022). In Iran, where cultural values emphasize familial and communal ties, the role of social support in fostering psychological well-being

during health crises appears to be even more pronounced (Hamidi et al., 2024).

The association between perceived social support and COVID-19 anxiety is supported by several theoretical and empirical frameworks. According to stress-buffering theory, social support acts as a protective shield that reduces the perceived threat of stressors and enhances individuals' coping capacities. This theory has been validated in numerous pandemic-era studies that highlight the mitigating effect of social support on anxiety symptoms, including somatic and cognitive components of distress (Fahim et al., 2022; Ren et al., 2020). For instance, Xiao et al. (2020) found that among frontline medical workers in China, high levels of perceived support not only improved sleep quality but also indirectly alleviated anxiety. Similarly, a study by Feng et al. (2023) revealed that perceived support enhanced family resilience, which in turn reduced anxiety symptoms across dyads during COVID-19.

Among Iranian students, several studies have emphasized the critical role of social support in buffering against the psychological burden of the pandemic. Eyni et al. (2020) developed a model of COVID-19 anxiety in students, revealing that optimism and resilience, when mediated by perceived social support, significantly reduced anxiety levels. This finding aligns with previous research demonstrating that social support operates as both a direct and indirect determinant of psychological health during times of crisis (Eyni, Ebadi, & Torabi, 2020). In another study by Hamidi et al. (2024), perceived social support was shown to alleviate death anxiety among elderly individuals with COVID-19 experience, through the mediating effect of psychological well-being. These studies confirm the cross-population effectiveness of perceived social support as a universal protective factor against anxiety-related disorders.

Cross-cultural studies further strengthen the case for perceived social support as a global psychological buffer. For example, in a comparative study involving hospital workers in Nigeria and Botswana, Olashore et al. (2021) found that individuals with higher social support exhibited significantly lower levels of severe anxiety, even after accounting for variables such as neuroticism and resilience. Similarly, Singla et al. (2022) emphasized the importance of adapting psychological interventions like behavioral activation to incorporate culturally appropriate mechanisms of support in response to the dual crises of COVID-19 and systemic racism. These findings suggest that while the pandemic's effects are universal, the protective impact of

perceived support transcends cultural and geographical boundaries (Liu et al., 2023; Singla et al., 2022).

The construct of COVID-19 anxiety itself has been subject to extensive psychometric validation, particularly through the use of instruments like the Coronavirus Anxiety Scale (CAS) developed by Lee et al. (2020). This scale captures the multidimensional nature of COVID-19 anxiety, including psychological (e.g., worry, intrusive thoughts) and physiological (e.g., dizziness, nausea) symptoms. Given the scale's wide application and strong psychometric properties, it has become a standard tool for assessing the impact of the pandemic on mental health in research settings (Lee et al., 2020). In student populations, studies using this scale have confirmed that individuals with high COVID-19 anxiety scores are more likely to report disrupted academic functioning, sleep problems, and diminished emotional well-being (Li et al., 2021; Singh et al., 2020).

Despite the growing body of literature, some gaps remain. For example, while much research has confirmed the protective role of perceived social support in general populations, fewer studies have focused specifically on its role in buffering anxiety among university students in non-Western contexts such as Iran. Additionally, there is a need for localized models that account for cultural, academic, and familial influences unique to the Iranian student population. As Marefzadeh and Aghapour (2021) argue, psychological responses to the pandemic cannot be fully understood without considering the sociocultural fabric in which they unfold, including norms surrounding emotional expression, help-seeking, and community cohesion (Marefzadeh & Aghapour, 2021).

The present study seeks to address these gaps by examining the relationship between perceived social support and COVID-19-related anxiety in Iranian university students. Drawing on validated measurement tools and structural equation modeling, the study aims to determine the extent to which perceived support from family, friends, and the community predicts anxiety symptoms. This research not only contributes to the theoretical understanding of social support as a protective factor but also provides empirical evidence to inform culturally relevant psychological interventions for student populations. Given the enduring nature of the pandemic's psychological aftermath, such insights are essential for developing effective mental health strategies in higher education contexts (Zamani & Zolfaghari, 2022).

In conclusion, perceived social support plays a fundamental role in mitigating anxiety, particularly in the

face of global crises like the COVID-19 pandemic. As research continues to underscore its buffering effect across diverse populations and cultures, it becomes increasingly important to integrate this variable into both theoretical models and practical interventions. By focusing on university students—a group that is both developmentally and socially vulnerable—the current study aims to expand the literature on psychological resilience in times of public health emergencies, with particular attention to the Iranian cultural context.

2. Methods and Materials

2.1. Study Design and Participants

This study is a descriptive-correlational research and, in terms of purpose, is classified as applied research. Regarding data collection, it is considered field research. The statistical population included all students at Payam Noor Universities in Bushehr Province, totaling 7,900 individuals enrolled during the second semester of the 2021–2022 academic year, based on available data. The sampling method employed was simple random sampling, and using the Morgan table, the sample size was determined to be 237 participants.

2.2. Measures

The Multidimensional Scale of Perceived Social Support is a 12-item instrument that measures perceived social support from three sources: family, community, and friends. The scale uses a seven-point Likert response format ranging from 1 (very strongly disagree) to 7 (very strongly agree) (Zimet et al., 1988). The total score on the scale can range from 12 to 84, and each subscale (family, community, and friends) ranges from 4 to 28. Higher scores indicate higher levels of perceived social support. The psychometric properties of this scale have been confirmed in international studies.

Corona Disease Anxiety Scale (CDAS) This instrument was developed and validated in Iran to assess anxiety related to the spread of the coronavirus. The final version of the tool consists of 18 items and two components (factors). Items 1 to 9 measure psychological symptoms, and items 10 to 18 assess somatic symptoms. The scale uses a 4-point Likert response format (Never = 0, Sometimes = 1, Often = 2, Always = 3), resulting in a total score range of 0 to 54. Higher scores reflect higher levels of coronavirus-related anxiety. The reliability of the scale, based on Cronbach's alpha, was 0.879 for the first factor, 0.861 for the second

factor, and 0.919 for the entire questionnaire. Furthermore, Guttman's lambda-2 values were 0.882 for the first factor, 0.864 for the second factor, and 0.922 for the entire questionnaire. For criterion-related validity, the CDAS was correlated with the GHQ-28 questionnaire. The CDAS showed significant correlations with the GHQ-28 total score ($r = 0.483$), and with its subscales: anxiety ($r = 0.507$), somatic symptoms ($r = 0.418$), social dysfunction ($r = 0.333$), and depression ($r = 0.269$).

2.3. Data Analysis

For data analysis, partial least squares structural equation modeling (PLS-SEM) was employed using SmartPLS and SPSS-25 software.

Table 1

Means and Standard Deviations of the Variables Under Study

Variable	Mean (M)	Standard Deviation (SD)
Self-awareness	16.97	3.85
Emotion regulation	16.33	4.16
Empathy	19.30	4.52
Social skills	18.89	4.46
Family support	13.87	3.93
Community support	14.53	3.85
Friends support	12.71	4.61
Psychological symptoms	16.56	6.34
Physical symptoms	11.39	4.77
Social participation	18.47	3.20
Social acceptance	22.99	4.21
Social flourishing	20.65	3.66
Social coherence	18.12	4.30
Social solidarity	21.95	4.12

The descriptive statistics for the variables under study revealed that among the emotional intelligence components, empathy had the highest mean score ($M = 19.30$, $SD = 4.52$), followed closely by social skills ($M = 18.89$, $SD = 4.46$), while emotion regulation had the lowest mean ($M = 16.33$, $SD = 4.16$). Within the dimensions of perceived social support, community support had the highest mean ($M = 14.53$, $SD = 3.85$), followed by family support ($M = 13.87$, $SD = 3.93$), and friends support showed the lowest average ($M = 12.71$, $SD = 4.61$). In terms of coronavirus-related anxiety, psychological symptoms ($M = 16.56$, $SD = 6.34$) were more prevalent than physical symptoms ($M = 11.39$, $SD = 4.77$). Finally, in the domain of social well-being, social acceptance had the highest mean ($M = 22.99$, $SD = 4.21$), followed by social solidarity ($M = 21.95$, $SD = 4.12$) and social flourishing ($M = 20.65$, $SD = 3.66$), while social participation had the lowest average ($M = 18.47$, $SD = 3.20$).

3. Findings and Results

The demographic characteristics of the study sample ($N = 237$) revealed that the majority of participants were female ($n = 176$, 74.3%), while males comprised a smaller portion ($n = 61$, 25.7%). Regarding age distribution, 19.8% of the participants were under 20 years old, 26.2% were between 20 and 25 years, 17.3% were aged 26 to 30, 17.7% were between 31 and 35, and 19.0% were older than 36. In terms of academic disciplines, most students were enrolled in humanities (54.0%), followed by engineering and technical fields (22.4%), basic sciences (17.7%), arts (3.8%), and agriculture (2.1%). Additionally, more than half of the participants (59.5%) reported having contracted COVID-19, while 40.5% had not been infected.

Overall, the results indicate moderate levels across the psychological, social, and emotional variables measured in the sample.

Prior to conducting the structural equation modeling analysis, the necessary statistical assumptions were examined and confirmed. The data were screened for missing values and outliers, and none were found to significantly impact the analysis. Normality was assessed through skewness and kurtosis values, all of which fell within the acceptable range (± 2), indicating approximate normal distribution. Linearity and homoscedasticity were visually inspected using scatterplots and residual analyses, with no violations detected. Multicollinearity was ruled out as all variance inflation factor (VIF) values were below the threshold of 5. Additionally, reliability and validity of the measurement model were confirmed through Cronbach's alpha, composite reliability (CR), and average variance

extracted (AVE), all of which met the recommended criteria. Therefore, the data met all necessary assumptions for proceeding with the analysis.

Table 2

Reliability and Convergent Validity Indicators of the Measurement Model

Variable	Cronbach's Alpha (CA)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Coronavirus Anxiety	0.834	0.923	0.857
Social Support	0.820	0.890	0.732

The reliability and convergent validity of the measurement model were assessed using Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE). Both constructs—coronavirus anxiety and perceived social support—demonstrated strong internal consistency, with CA values exceeding 0.80 and CR values

above the recommended threshold of 0.70. Additionally, the AVE values for both constructs were well above 0.50, indicating sufficient convergent validity. These findings confirm that the measurement model possesses acceptable psychometric properties.

Table 3

Factor Loadings of Items on Study Constructs

Item	Loading Coefficient	Standard Error	t-value	p-value
Community to Social Support	0.927	0.009	102.158	0.000
Family to Social Support	0.925	0.008	117.245	0.000
Friends to Social Support	0.693	0.048	14.406	0.000
Physical Symptoms to Anxiety	0.921	0.012	74.012	0.000
Psychological Symptoms to Anxiety	0.930	0.011	83.935	0.000

The factor loadings of the observed variables on their respective latent constructs were all statistically significant ($p < 0.001$), with t-values well above the critical threshold of 1.96. The items loading on perceived social support—community (0.927), family (0.925), and friends (0.693)—demonstrated strong associations, though the "friends" item

showed relatively lower loading. For coronavirus anxiety, both components—physical symptoms (0.921) and psychological symptoms (0.930)—exhibited high loadings, indicating that the measurement items strongly represent their intended latent constructs.

Table 4

Fornell–Larcker Discriminant Validity Matrix

	Coronavirus Anxiety	Social Support
Coronavirus Anxiety	0.926	
Social Support	−0.494	0.855

The Fornell–Larcker criterion was used to assess discriminant validity. The square root of the AVE values for coronavirus anxiety (0.926) and social support (0.855) were greater than their respective correlations with other

constructs. This result indicates good discriminant validity, meaning that each construct is sufficiently distinct from the others in the model.

Table 5*Structural Model Fit Indicators*

Variable	R ²	Shared Variance
Coronavirus Anxiety	0.309	0.857
Social Support	0.246	0.732

The structural model demonstrated a strong overall fit, as indicated by the GoF value of 0.461, which exceeds the minimum threshold for a good model fit. The R² value for coronavirus anxiety was 0.309, suggesting that perceived social support explains approximately 31% of the variance

in coronavirus-related anxiety. Similarly, the R² for social support was 0.246, indicating that the latent predictors explain about 25% of its variance. These findings confirm the adequacy of the model's explanatory power.

Table 6*Structural Equation Modeling Results*

Independent Variable	Dependent Variable	Path Coefficient (β)	t-value	Result
Social Support	Coronavirus Anxiety	-0.340	7.133	Confirmed

The results of the structural equation modeling indicated a significant negative relationship between perceived social support and coronavirus-induced anxiety ($\beta = -0.340$, $t = 7.133$). Since the t-value exceeds the critical threshold of 1.96, the path coefficient is statistically significant, confirming the hypothesis. This finding suggests that higher levels of perceived social support are associated with lower levels of anxiety related to the COVID-19 pandemic among university students.

4. Discussion and Conclusion

The present study aimed to examine the relationship between perceived social support and coronavirus-related anxiety among university students in Iran. The results of the structural equation modeling revealed a significant negative relationship between perceived social support and COVID-19 anxiety, indicating that higher levels of perceived support from family, friends, and the broader community are associated with lower levels of anxiety related to the pandemic. Specifically, the path coefficient ($\beta = -0.340$) was statistically significant, confirming the hypothesis that social support serves as a protective factor in managing the psychological distress associated with COVID-19. These findings reinforce the theoretical assumption that individuals who feel supported by their social networks are more likely to experience reduced psychological strain during crises.

This finding is consistent with a robust body of international literature demonstrating the buffering role of perceived social support against anxiety and stress during the COVID-19 pandemic. For instance, Feng et al. (2023)

emphasized that social support not only directly reduces anxiety levels but also operates through the mediating mechanism of family resilience, particularly in crisis contexts (Feng et al., 2023). Similarly, Xiao et al. (2020) showed that perceived support significantly improved sleep quality and psychological functioning among medical staff treating COVID-19 patients in China (Xiao et al., 2020). These results highlight the transnational applicability of the protective function of social support, regardless of cultural or demographic background.

The current study's findings are further supported by research in the Iranian context. Eyni et al. (2020) constructed a conceptual model showing that optimism and resilience reduce COVID-19-related anxiety through the mediating role of perceived social support in students (Eyni, Ebadi, & Hashemi, 2020). Their findings echo those of the current research, indicating that students who perceive higher levels of social support report lower psychological symptoms associated with the pandemic. Similarly, Eini et al. (2020) demonstrated that perceived support plays a critical mediating role in reducing anxiety in students, especially when coupled with optimism and resilience (Eini et al., 2020). These studies underscore the culturally relevant impact of social support in promoting emotional stability among youth in Iran.

Beyond the student population, perceived social support has also been shown to alleviate other forms of pandemic-related psychological distress in Iranian and international samples. For example, Hamidi et al. (2024) found that social support reduced death anxiety in elderly individuals with

COVID-19 experience by enhancing psychological well-being (Hamidi et al., 2024). In the same vein, Jalali-Farahani et al. (2022) noted that higher perceived support contributed to a decrease in anxiety, stress, and depression in individuals with type 2 diabetes during the pandemic (Jalali-Farahani et al., 2022). These findings suggest that the benefits of perceived support are not limited to specific populations but extend across different age groups and health statuses.

International studies also reinforce these conclusions. Olashore et al. (2021) reported that among hospital workers in Nigeria and Botswana, those with higher levels of perceived support showed significantly lower levels of severe anxiety, even when accounting for personality traits like neuroticism and resilience (Olashore et al., 2021). Similarly, Grey et al. (2020) documented that perceived support during the pandemic decreased the severity of depressive symptoms and improved sleep quality across diverse populations (Grey et al., 2020). These findings align with the current study's results and affirm the universal importance of social support as a resilience-promoting factor.

The validity of the relationship between social support and coronavirus anxiety is further strengthened when considering the nature of anxiety specific to the pandemic. The Coronavirus Anxiety Scale (CAS), as validated by Lee et al. (2020), captures the somatic and psychological expressions of pandemic-induced anxiety (Lee et al., 2020). Consistent with this, the current study used a psychometrically sound measure of anxiety and confirmed the multidimensional distress caused by the pandemic, especially among students. Other studies using this scale have similarly demonstrated elevated anxiety in contexts of uncertainty, social isolation, and fear of infection, and have shown that social support significantly mitigates such reactions (Li et al., 2021; Singh et al., 2020).

A potentially relevant dimension of the findings relates to cultural context. In collectivist societies such as Iran, social and familial relationships are deeply valued, and emotional well-being is closely tied to interpersonal connections (Marefzadeh & Aghapour, 2021). The current results are therefore not only statistically significant but also sociologically meaningful, as they underscore the role of cultural values in shaping mental health outcomes. Social support in such societies is not merely instrumental but also identity-forming, which may explain the particularly strong effect observed in this study.

Moreover, this study offers meaningful implications for understanding how external and internal resources interact

to buffer against emotional distress. In alignment with previous work suggesting that perceived support complements psychological traits like hardiness and resilience (Zamani & Zolfaghari, 2022), the current findings point to the need for a multifaceted approach to mental health during pandemics. The integration of psychosocial support strategies into educational and public health policies could substantially improve student well-being in similar crises.

Finally, behavioral studies during the COVID-19 pandemic have shown that disruptions to daily routines, academic plans, and future aspirations significantly elevated anxiety levels in youth populations (Fahim et al., 2022). As such, the importance of psychosocial interventions tailored to the academic environment cannot be overstated. Programs that foster supportive peer networks, strengthen family relationships, and cultivate community belonging can serve as potent antidotes to crisis-induced anxiety among students (Liu et al., 2023; Singla et al., 2022).

Despite the valuable insights gained from this study, several limitations should be acknowledged. First, the cross-sectional design limits the ability to draw causal inferences regarding the relationship between perceived social support and COVID-19 anxiety. Future studies employing longitudinal designs would better capture the temporal dynamics of this relationship. Second, the study relied solely on self-report instruments, which may introduce social desirability and response biases. Third, although the sample was drawn from a university population in Iran, it may not be representative of students across different cultural, economic, or academic contexts. Additionally, the focus on COVID-19-specific anxiety may not fully capture broader emotional responses such as generalized anxiety, depression, or trauma-related symptoms.

Future research should consider longitudinal methodologies to explore how perceived social support evolves over time and how it continuously affects anxiety levels across different stages of a crisis. Moreover, it would be beneficial to explore moderating and mediating variables—such as coping strategies, personality traits, and resilience—that may influence the strength or direction of the observed relationship. Expanding the scope to include qualitative or mixed-method approaches could also provide richer insights into the lived experiences of students and the contextual nuances of perceived social support. Finally, comparative studies involving students from various countries or academic systems could shed light on the cultural specificity and generalizability of the findings.

To enhance student well-being during public health emergencies, educational institutions and policymakers should prioritize the integration of social support systems into academic settings. This could include mentoring programs, peer support groups, and mental health services that actively engage students in supportive networks. Furthermore, universities should train faculty and staff to recognize signs of psychological distress and facilitate referrals to appropriate resources. Community engagement initiatives that involve families and local organizations can further strengthen the safety net around students. Importantly, promoting a culture of empathy, openness, and social connection in educational environments will not only alleviate anxiety in times of crisis but also foster long-term mental resilience.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the study and participated in the research with informed consent.

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