

Protective Factors of Depression and Anxiety in Covid-19 Hospitalized Patients: Coping, Spiritual Well-Being & Resilience

Amir Sam Kianimoghadam¹, Nahid Bahadoriyan Iotfabadi², Maryam Khesali³, Mahsa Abdollahpur⁴, Samira Farahani Alavi⁵, Elahe Bakhtiyari⁶, Maryam Bakhtiari⁷

1. Assistant Professor of Clinical Psychology, Department of Clinical psychology, Religion and Health Research Center, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Email: kianimoghadam@sbmu.ac.ir, ORCID: [0000-0001-8686-523X](https://orcid.org/0000-0001-8686-523X)

2. MSc in Health Psychology, Department of health psychology, School of behavioral sciences and mental health (Tehran Institute of Psychiatry), Iran University of medical science, Tehran, Iran, Email: bahadoriyn.n@iums.ac.ir ORCID: [0000-0001-7680-4011](https://orcid.org/0000-0001-7680-4011)

3. Medical Doctor Student, School of Medicine, Religion and Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: mariamkhesali@gmail.com. ORCID: [0000-0002-6085-1056](https://orcid.org/0000-0002-6085-1056)

4. Master of Science, Department of Clinical Psychology, School of Medicine, Shahid Beheshti University of Medical Science, Tehran, Iran. Email: M.abdollahpur1373@gmail.com ORCID: [0000-0001-6335-2423](https://orcid.org/0000-0001-6335-2423)

5. M.A Clinical Psychology, Garmsar University, Semnan, Iran. Email: <mailto:samira.farahani6692@yahoo.com> ORCID: [0000-0002-9163-6439](https://orcid.org/0000-0002-9163-6439)

6. B.A. in Anesthesiology, Department of Anesthesiology, Shahid Beheshti University of Medical Sciences, Tehran, Iran. E-mail: elahebakhtiyari15@gmail.com ORCID: [0000-0002-2423-2549](https://orcid.org/0000-0002-2423-2549)

7. Associate Professor of Clinical psychology, Department of Clinical psychology, Religion and Health Research Center, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran, (Corresponding author) ORCID: [0000-0002-5106-9775](https://orcid.org/0000-0002-5106-9775)

Abstract

With the COVID-19 outbreak, hospitalized patients with coronavirus may experience psychological symptoms. This study aimed to investigate the protective factors of anxiety and depression including coping, spiritual well-being, and psychological resilience. This was a descriptive and cross-sectional study and convenience sampling methods. The participants were 100 hospitalized patients from Tehran who were diagnosed with coronavirus by PCR test. There is a significant correlation between resilience and anxiety ($r = -0.205$, p -value < 0.05), spiritual health and anxiety ($r = -0.291$, p -value < 0.05), Coping and anxiety ($r = 0.241$, p -value < 0.05), depression and anxiety ($r = 0.997$, p -value < 0.001), resilience and depression ($r = -0.207$, p -value < 0.05), spiritual health and depression ($r = -0.291$, p -value < 0.05) and coping and depression ($r = 0.233$, p -value < 0.001). 94% of hospitalized patients with Covid-19 have moderate to severe depression and anxiety. Predictor variables could predict 0.169 of the anxiety score and 0.166 of the depression score by controlling demographic factors. The model is significant for both variables of anxiety $F(3) = 7.688$, $P < 0.001$ and depression $F(3) = 7.585$, $P < 0.001$. Linear regression analysis showed spiritual well-being ($B = -0.092$, standardized $\beta = -0.298$, $P < 0.05$), coping ($B = 0.051$, standardized $\beta = -0.298$, $P < 0.05$) were associated with anxiety scores. However, resilience ($B = -0.071$, standardized $\beta = -0.178$, $P = 0.060$), was not associated with depression scores. The results showed, a negative and significant relationship between resilience and spiritual well-being with depression and anxiety. Coping had a significant positive relationship with them.

Keywords: COVID-19; Depression and Anxiety; Coping; Resilience; Spiritual Well-Being

1. Introduction

The current outbreak of COVID 19 disease, which is centered in China's Hubei Province, has spread to many countries (Velavan & Meyer, 2020). This disease, which is a kind of global epidemic, can affect the physical and mental health of people (Ran et al., 2020). Mental health observations of patients with SARS in 2003 showed that the disease had a significant effect on the psychological state of individuals, which was the most common psychological problem of anxiety and depression (Zhang et al., 2020). Anxiety is a significant pandemic effect, with high levels of death risk, both among people directly affected by a coronavirus and in the general population, which can be associated with depression and other psychological problems (Zandifar et al., 2020). According to treatment guidelines in China, these patients need to be treated in a separate hospital; As a result, these patients may experience feelings such as loneliness, anger, anxiety, depression, insomnia, and post-traumatic stress disorder

(PTSD) for a variety of reasons, including social isolation, perceived risk, insecurity, physical discomfort, side effects of the drug, concerns about transmitting the virus to other people, and negative news on social media (Bo et al., 2020). Coping strategies have a protective role against external pressures that may be harmful (Sun et al., 2020). Evidence has shown that coping styles can influence the quality of life and negative coping styles can lead to mental disorders such as post-traumatic stress disorder, anxiety, and depression (Wang et al., 2020). Positive coping is related to better mental health outcomes (Yan et al., 2021). In stressful situations, patients with depression often utilize from avoidance and denial and they are unable to find positive aspects of a stressful event (Orzechowska et al., 2013). Spiritual well-being means feeling connected to others and having a relationship with a superior power (Jafari et al., 2010). Spirituality is how people find meaning, purpose, and connection in life (Milner et al., 2019). There is ample evidence that there is a link between spirituality

and religious participation with positive psychological consequences (Lavretsky, 2010). Findings indicate that people who scored high on the spirituality scale, significantly fewer depressive disorders or depressive symptoms were observed (Koenig, 2010). According to the American Psychological Association, resilience means adapting to problems, injuries, or even significant sources of threat in an appropriate way (Southwick & Charney, 2012). Resilience concerning trauma means the ability to overcome stressful events while maintaining psychological well-being means no psychological pathology (Robinson et al., 2014). The results of studies show that resilience has a positive and protective effect on efficient coping and promotes adaptation to stressful conditions, while poor resilience is associated with vulnerability and psychological disorders (Haddadi & Besharat, 2010). Psychological resilience seems to be associated with depression and studies have shown that depression is negatively associated with psychological resilience (Karaşar & Canli, 2020). Also, a study by Jie Zhang RN et al showed that high levels of resilience are associated with low levels of anxiety and depression in patients with mild covid-19 (Fullana et al., 2020). Miquel A. Fullana et al concluded that simple coping behaviors could protect against anxiety and depression during the covid-19 epidemic (Lucchetti et al., 2020). A study by Giancarlo Lucchetti et al. Shows that spirituality plays an pivotal role in reducing suffering, effecting health outcomes, and reducing the consequences of social isolation (Häuser et al., 2012). with the outbreak of coronavirus 2019 and the hospitalization of patients with the virus and the conditions of quarantine and separation from others, these patients may experience many psychological symptoms, including anxiety and depression. Based on the above, the purpose of this study is to investigate the protective factors against anxiety and depression such as coping, spiritual well-being, and psychological resilience.

2. Methods

2.1. Subjects

This study was approved by the School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. (Approval no: IR.SBMU.RETECH.REC.1399.413). All methods were carry out according to relevant guidelines and regulations. An official letter was written to the relevant health institutions by the Faculty of Medicine and Health Sciences . All participants were informed about the objectives , importance of this study and the confidentiality of the information they provide. Informed written consent was also obtained from each of them . Respondents had full rights to avoid or terminate participation at any stage of the present interview . All the procedures followed the institutional guidelines.

Initially, the purpose and significance of the study were described to patients, and if they were agreeing, a written consent form was taken before psychological assessments. The participants of this study were 100 people (52% female and 42% male) from Tehran, who were diagnosed with coronavirus by PCR test and were hospitalized for 3 to 7 days in Masih Daneshvari, Taleghani, Shahid Mofatteh, Panzdah-e Khordad, Imam Hussein, Shahid Modarres, Loghman, Labbafinejad and Shohada-e Tajrish hospitals from June 14 to September 21. Patients, before being diagnosed with emotional (depression and anxiety), medical staff, Employees working in Covid-19, Patients who have recently received a diagnosis of Covid-19 (Less than three days), Patients with suspected coronary disease, close contacts with COVID-19 patients, and family members affected by Covid-19 disease were all excluded from this analysis. For those under the age of 18, Parents or legal guardians expressed their consent to participate in the study.

2.2. Data collection

The present study is a descriptive and cross-sectional study and convenience sampling methods. Available sampling was used to select patients. Researchers, with the permission of the head of the hospital ward of Covid-19 patients, came to the patients' beds daily and if the patient consented, the research questions were asked one by one and the patient's answers were recorded. Took. If the patient became tired or unwilling to continue responding, the researcher would stop. The evaluation consisted of three parts, demographic information, screening, and tools evaluation. Demographic details covered age, weight, height, education, and marital status.

Screening; first, the patient completed the Patient Health Questionnaire. If the patient's score in the first 2 questions was equal to 3 or more, he would be anxious (Total score of ≥ 3 for the first 2 questions suggests anxiety) and if the patient's score in the final 2 questions was equal to 3 or more he would have depression (Total score of ≥ 3 for the last 2 questions suggests depression). Finally, the patient completed the Coping Scale, Spiritual Well-Being, and Brief Resilience Scale tools.

2.3. Measurement

Patient Health Questionnaire (PHQ-4): Patient Health Questionnaire-4 (PHQ-4) is a brief self-report questionnaire that consists of a 2-item include depression scale and a 2-item include anxiety scale. A score of 3 or more on the Depression subscale represents a logical cut point to identify possible major depression cases or other depressive disorders. A score of 3 or higher on the Anxiety subscale represents a logical cut-off point for social anxiety, and Post-traumatic stress disorder, panic, generalized anxiety (Häuser et al., 2012).

Coping Scale: Coping was assessed by using Hamby, Grych, and Banyard's 13-item Coping Scale, each response category was assigned a value of 4 to 1. The total score is calculated from the sum or average of all items . Internal consistencies

(coefficient alphas) for the 2500 samples were 0.88 and 0.91, respectively. Validity was generated in the original sample with strong correlations with other instrument outcomes, such as Endurance ($r = .63$) and Anger Management ($r = .57$), and with measures of well-being, such as Subjective Well-being ($r = .53$) and Posttraumatic Growth ($r = .65$) (Hamby et al., 2015). Spiritual Well-Being: Spiritual Well-Being was assessed by using Hamby, Grych, and Banyard's 5-item Spiritual Well-Being Scale, each answer group is assigned a value of 4 to 1. The total score can be a sum or average of all items. Internal consistencies (coefficient alphas) for the 2500 samples were 0.85, respectively. Validity was established in the main sample with strong association with other outcome measures, such as Subjective Well-Being ($r = .59$), Religious Meaning Making ($r = .71$), as well as Posttraumatic Growth ($r = .58$) (Hamby et al., 2013).

Brief Resilience Scale (BRS): Resilience was assessed by using Smith's 6-item Brief Resilience Scale, which uses a 5-level summation grading response (1 = strongly disagree and 5 = strongly agree) and 3 items with reverse code; The average item for this scale is usually 3.5 out of 5 possible or the average of the scale is 21. Measures a single structure and is negatively related to anxiety, depression, negative affect, and physical symptoms with a Cronbach α ranging from 0.80 to 0.91 in different samples (Kemper et al., 2015).

2.4. Statistical analysis

all data were analyzed using SPSS software version 24. Measurement data were presented as the mean \pm standard deviation (SD). One-way analysis of variance was used for Table 1 Characteristics the patients with COVID-19

Characteristic	Overall (N = 100)	
	Male	Female
Number (%)	48 (48)	52 (52)
Average age (years)(range) (SD)	38.98 (14-88) (12.830)	34.02 (18-61) (10.691)
Average Weight (range) (SD)	76.06 (40-120) (14.558)	68.90 (47-90) (9.780)
Average Height (range) (SD)	172.06 (150-192) (8.584)	162 (90-180) (12.542)
Education (%)		
Under Diploma	27.1	26.9
Diploma	29.2	17.3
Bachelor	39.6	44.2
Masters	2.1	9.6
PhD	-	1.9
Marital status (%)		
Unmarried/Single	29.2	34.6
Married	70.8	57.7
Divorced	-	7.7

3.2. Correlation

Table 2 showed there is a significant correlation between resilience and anxiety ($r = -0.205$, p -value <0.05), spiritual health and anxiety ($r = -0.291$, p -value <0.05), Coping and

multiple group comparisons. Pearson's correlation was used to examine the correlation between coping, spiritual well-being, resilience, age, marital status, and education. Linear regressions also were used to analyze the relationship between depression, anxiety, coping, spiritual well-being, and resilience. Depression and anxiety scores were used as dependent variables while coping, spiritual well-being and resilience were used as independent variables. Variables were screened using the enter method. Significance levels were set at 0.05 and all tests were two-sided.

2.5. Ethical Approval

This research was conducted in accordance with the ethical standards of the Shahid Beheshti University of Medical Sciences (the code of ethics IR.SBMU.RETECH.REC.1399.413.)

3. Results

3.1. Subject characteristics

In the present study, 109 people participated, but the data of 9 people were excluded from the final analysis due to missing. The female and male participants had mean age and standard deviation of 34.02 ± 10.691 and 38.98 ± 12.830 , mean weight of 68.90 ± 9.780 and 76.06 ± 14.558 , the height of 162 ± 12.542 and 172.06 ± 8.584 respectively. Participants' education was female and male under diplomas 26.9, 27.1, diploma 17.3, 29.2, bachelor's degree 44.2, 39.6, master's degree 9.6, 2.1, Ph.D. 0.1, 1.9, respectively, marital status was female and male single 34.6, 29.2, married 57.7, 70.8 and divorced 7.7, 0 respectively (Table 1).

anxiety ($r = 0.241$, p -value <0.05), depression and anxiety ($r = 0.997$, p -value <0.001), resilience and depression ($r = -0.207$, p -value <0.05), spiritual health and depression ($r = -0.291$, p -

value <0.05) and coping and depression (r = 0.233, p-value <0.001).

Table. 2 The correlation between variables of the study

	Depression	Anxiety	Resilience	Spiritual Well-Being	Coping
Depression	1				
Anxiety	0.997 ^a	1			
Resilience	-0.207 ^b	-0.207 ^b	1		
Spiritual Well-Being	-0.291 ^a	-0.286 ^a	0.195	1	
Coping	0.233 ^b	0.241 ^b	0.100	0.141	1

^a. Correlation is significant at the 0.01 level (2-tailed).
^b. Correlation is significant at the 0.05 level (2-tailed).

^b. Correlation is significant at the 0.05 level (2-tailed).

3.3. Depression and Anxiety

Table 3 showed that participants reported anxiety and depression as normal = 1%, mild = 5%, moderate = 52% and severe = 42%. Therefore, the results showed that 94% of

hospitalized patients with Covid-19 have moderate to severe depression and anxiety.

Table 3 Depression and Anxiety among the patients with COVID-19

Symptoms	Normal (0-2)	mild (3-5)	moderate (6-8)	severe (9-12)
Depression/ Anxiety	1 (1%)	5 (5%)	52 (52%)	42 (42%)

3.4. Prediction of depression and anxiety

Table 4 shows the predictor variables (Coping, Resilience, Spiritual Well-Being) were able to predict 0.169 of the anxiety score and 0.166 of the depression score by controlling gender, age, weight, height, education level, and marital status. Table 4 Model Summary

5 of variance analysis shows that the model is significant for both variables of anxiety F (3) = 7.688, P <0.001, and depression F (3) = 7.585, P <0.001. This shows the significance of the whole model.

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Anxiety	0.440 ^a	0.194	0.169	1.22582
Depression	0.438 ^a	0.192	0.166	1.24760

a. Predictors: (Constant), Coping, Resilience, Spiritual Well-Being

Table 5 ANOVA^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
Anxiety	Regression (A)	34.658	3	11.553	7.688	0.000 ^b
	Residual (A)	144.252	96	1.503		
	Total (A)	178.910	99			
Depression	Regression (D)	35.417	3	11.806	7.585	0.000 ^b
	Residual (D)	149.423	96	1.556		
	Total (D)	184.840	99			

a. Dependent Variable: Anxiety, Depression

b. Predictors: (Constant), Coping, Resilience, Spiritual Well-Being

3.5. Relationship between resilience, spiritual well-being, coping, anxiety, depression

Linear regression analysis (table 6) showed resilience (B = -0.070, standardized β = -0.180, P < 0.001), coping (B = 0.051, standardized β = 0.301, P < 0.05) were associated with anxiety scores. However, spiritual well-being (B = -0.089, standardized β = -0.294, P = 0.058), was not associated with anxiety scores, while controlling for gender, age, weight, height, education level, and marital status.

Table 6 Predicting the Anxiety and Depression

	Variables	B	Beta	t	P-value
Anxiety	Resilience	-0.070	-0.180	-1.917	0.001
	Spiritual Well-Being	-0.089	-0.294	-3.118	0.058
	Coping	0.051	0.301	3.240	0.002
Depression	Resilience	-0.071	-0.178	-1.901	0.060
	Spiritual Well-Being	-0.092	-0.298	-3.156	0.002
	Coping	0.051	0.293	3.149	0.002

Discussion

The present study was conducted to investigate the protective factors of depression and Anxiety including Coping, Spiritual Well Being & Resilience in patients who were hospitalized due to coronavirus disease. It was performed in several hospitals affiliated with Shahid Beheshti Medical University. Both women and men took part in this study. Participants' ages ranged from 20 to 50 years. There were all levels of education from under-diploma to Ph.D. among the participants. The mean body mass index in females and males was 26.25 and 25.69 respectively. Marital status was different among them. By controlling demographic factors, the predictor variables (Coping, Resilience, Spiritual Well-Being) were able to predict 0.169 of the anxiety score and 0.166 of the depression score. According to the variance analysis, the proposed model significantly predicts the two variables of depression and anxiety.

The prevalence of depression and anxiety is estimated globally in 2017 which shows a rate of 3.44% (ranging between 2 and 6%) for depression and 3.8% (ranging between 2.5 and 7%) for anxiety (Ritchie & Roser, 2018). As coronavirus disease develops, people's lives are affected and can lead to different levels of psychological disorders, such as depression and anxiety (Ran et al., 2020). A meta-analysis study found that the pooled prevalence of depression was 25% in the general population during the COVID-19 pandemic. This is about 7 times higher than the rate of depression in the general population before the COVID-19 pandemic (Bueno-Notivol et al., 2021). According to our study, most of the patients (94%) admitted to the hospital due to coronavirus disease had moderate to severe depression and anxiety.

Also Linear regression analysis showed spiritual well-being (B = -0.092, standardized β = -0.298, P < 0.05), coping (B = 0.051, standardized β = -0.298, P < 0.05) were associated with anxiety scores. However, resilience (B = -0.071, standardized β = -0.178, P = 0.060), was not associated with depression scores, while controlling for gender, age, weight, height, education level, and marital status. (Table 5).

The knowledge and evaluation of psychological outcomes during a crisis in public health will help to determine the course of necessary psychological services (Ran et al., 2020). Depression and anxiety can hinder psychological and medical interventions during pandemics (Bueno-Notivol et al., 2021). Therefore, it is important to manage these problems to control the pandemic (Ran et al., 2020). In this study, we investigated whether coping, spiritual well-being, and resilience could perform a protective role in depression and anxiety related to COVID-19 in hospitalized patients.

Coping strategies reduce stress and mediate the reduction of psychological symptoms (Maiorano et al., 2020). Reports before and during the COVID-19 pandemic have shown that positive coping skills (e.g., social support and praying) are useful for stress management and preventing psychological disorders (e.g., loneliness, anxiety, depression, and stress) (Labrague, 2020).

Previous studies have shown that psychological resilience plays a mediating role between stress and mental health status and can reduce the adverse effects of stress. Researchers who have specifically studied the effect of resilience on mental health during a crisis are few (Ran et al., 2020).

Spirituality can help people during a crisis (Fardin, 2020). people with high levels of spiritual well-being can control their feelings of anxiety associated with death more than other people (Rababa et al., 2021). a limited number of researches have been made on the role of spirituality in mental well-being during the pandemic (Del Castillo, 2020).

In this study, we examined whether there was a relationship between protective factors (including coping, spiritual well-being, and resilience) and psychological disorders (including depression and anxiety). The study suggested a significant relationship between them. Results showed that psychological

resilience was significantly and negatively associated with depression and anxiety. Therefore, it can be said that Individuals with high resilience are less likely to develop depression and anxiety. The relationship between the two psychological disorders and spiritual health was similar to their relationship with resilience, they were inversely related. So It can be said that with increasing spiritual health, the probability of depression and anxiety decreases. Coping had a different relationship with depression and anxiety than the other two protective factors. Indeed, coping is positively associated with depression and anxiety.

Although the correlation between protective factors and the two psychological disorders was relatively weak, there was a significant relationship between them. The incidence of depression and anxiety could be predicted to some extent based on these protective factors after controlling for demographic factors.

Conclusions

Our study found that there was a high prevalence of depression and anxiety among the patients who were hospitalized due to coronavirus disease. Resilience and spiritual well-being were significantly and negatively associated with depression and anxiety. Coping was significantly and positively associated with them. Therefore, due to this significant relationship, we can predict these disorders and consider appropriate interventions for them. Some interventions should be implemented to increase the activation of protective factors that can mitigate and prevent the development of depression and anxiety. Future research is required to examine the exact mechanism of psychological protective factors in these associations.

Declarations

Abbreviations: Not applicable

Availability of data and materials: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions:

Maryam Bakhtiari contributes to data collection, analysis, manuscript writing, and design

Amir Sam Kianimoghadam contributes to data collection, analysis, manuscript writing, and design

Nahid Bahadoriyan lotfabadi contributes to data collection, analysis, manuscript writing, and design

Maryam Khesali contributes to the statistical analysis of collected data

Samira Farahani Alavi contribute in revision and final approval Elahe Bakhtiari completed all the statistical analyses.

Rogayah Bahri contributes to revision and final approval

Ethics approval and consent to participate: This study was approved by the School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. (Approval no:

IR.SBMU.RETECH.REC.1399.413). An official letter was written by the College of Medicine and Health Sciences to the respective health institutions. All the study participants were informed about the objectives and importance of the study. Also, the study participants were informed about the confidentiality of the information they provide. Written informed consent was taken from every study participant. The respondents had full right to refuse participation or terminate their involvement at any point during the interview.

Consent for publication: Not applicable

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Authors' information (optional): Not applicable

Conflict of Interest

The authors have no conflicts of interest to declare for this study. The data availability statement under the heading declaration in subsection Availability of data and materials.

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