ISSN: 2345-2897; Health Education and Health Promotion. 2022;10(2):333-340.

Relationship between Mental health, Perception of Illness, and Perceived Social Support in Hospitalized Patients with COVID-19

ARTICLE INFO

Article Type
Descriptive Study

Authors
Sadeghian E.[1] *PhD,*
Bashirian S.[2] *PhD,*
Soltanian A.[3] *PhD,*
Taheri M.[4] *MSc,*
Madineshat M.*[4] *MSc*

How to cite this article
Sadeghian E, Bashirian S, Soltanian A, Taheri M, Madineshat M. Relationship between Mental health, Perception of Illness, and Perceived Social Support in Hospitalized Patients with COVID-19. Health Education and Health Promotion. 2022 ;(10)(2):333-340.

[1]Department of Nursing, School of Nursing and Midwifery" and "Chronic Diseases (Home Care) Research Center", Hamadan University of Medical Sciences, Hamadan, Iran
[2]"Department of Public Health, School of Health" and "Social Determinants of Health Research Center", Hamadan University of Medical Sciences, Hamadan, Iran
[3]"Department of Biostatistics, School of Health" and "Modeling of Noncommunicable Diseases Research Center, Health Sciences & Technology Research Institute", Hamadan University of Medical Sciences, Hamadan, Iran
[4]School of Nursing and Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran

Correspondence
Address: School of Nursing and Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran.
Phone: -
Fax: -
neshat.maryam1357@gmail.com

Article History
Received: September 21, 2021
Accepted: March 11, 2022
ePublished: June 15, 2022

ABSTRACT

Aims Patients after diagnosis of COVID-19 may have psychological problems. Illness perceptions and social support can play an important role in individuals' health and the effects of stress. This study aimed to determine the relationship between mental health, perception of illness, and perceived social support in Hospitalized Patients with COVID-19.

Instrument & Methods The present study is a cross-sectional study that was conducted in 2020. 143 patients with coronavirus who met the inclusion criteria participated in this study. Inclusion criteria are age over 18 years, full consciousness, lack of physical and mental disabilities, diagnosis of coronavirus with the approval of an infectious disease specialist, no history of mental disorders, and the ability to communicate with the researcher. Data collection tools were the 21-item depression, anxiety, and stress scale, Zimet's multidimensional scale of perceived social support, and the brief illness perception questionnaire. Data were analyzed in SPSS 26 using independent t-test, ANOVA, Spearman correlation coefficient, and multivariate regression.

Findings The mean score of depression, anxiety, and stress for all participants with coronavirus was 8.12±7.12, 11.74±6.02, and 13.92±6.80, respectively. In total, 30.1% of the participants had high illness perception and 59.4% had high social support levels. The multiple linear regression model showed illness perception and social support were associated with depression, anxiety, and stress. Drug history was associated with depression and anxiety. Oxygen saturation was associated with anxiety and stress ($p<0.05$).

Conclusion In general depression, anxiety, and stress in patients with Covid 19 are associated with the perception of illness and social support, which is more strongly associated with social support.

Keywords Stress; Anxiety; Depression; Illness Behavior; Social Support

CITATION LINKS

[1] Association between social support ... [2] Assessment of Iranian nurses' knowledge ... [3] Coronavirus disease (COVID-19) ... [4] COVID-19 and anxiety: A review ... [5] Effects of progressive muscle ... [6] Progression of Mental Health ... [7] The psychiatric impact of ... [8] COVID-19 exacerbates violence ... [9] Attacks against health-care ... [10] COVID-19 battle during the toughest ... [11] Middle East respiratory syndrome-corona ... [12] Perceived stress due to ... [13] Development and psychometric ... [14] Explaining therelationship between ... [15] Evaluation of the relationship between perceived ... [16] The brief illness perception ... [17] Relation beween perception of ... [18] Factors associated with psychological ... [19] The relation of illness perceptions to ... [20] Illness perceptions and perceived ... [21] Manual for the depression anxiety ... [22] Effects of touch therapy on pain and ... [23] Effect of video information on anxiety level and ... [24] The multidimensional scale of perceived ... [25] Relationship between perceived social support and ... [26] The effectiveness of cognitive- behavioral ... [27] Prevalence and predictors of ... [28] Adherence to COVID-19 Precautionary Measures Prevalence and factors associated ... [29] Prevalence and factors associated ... [30] General medical with depression ... [31] Depressogenic effects of medications ... [32] The relationship between social ... [33] The influence of the social support ... [34] The impacts of state and trait anxiety ... [35] Stress and depression: a test ... [36] Social support moderates stress ... [37] Perceived social support and ... [38] The survey of percived social support ... [39] Cross-cultural validation of the ... [40] What's the role of perceived social support ... [41] Cross-cultural validation of the Epidemic risk perception, perceived ... [42] Prevalence and severity of depression ...

Introduction

Coronavirus disease 2019 (COVID-19) appeared in Wuhan, Hubei province in late December 2019 and then spread rapidly to other parts of countries via different ways such as airline traveling now, COVID-19 is the world's pandemic problem [1, 2] As May 07, 2021, there have been 156,782,571 confirmed cases of COVID-19, including 3,272,076 deaths, reported to WHO [3]. Infectious disease epidemics not only damage the physical health of patients and consequently their deaths but also imposes irreversible psychological impacts on the general public [4]. The physical damage can be recovered in a short time, but the psychological consequences may persist for a much longer time [1].

Patients diagnosed with COVID-19 must be treated in isolation. Through clinical observation, many patients developed anxiety after isolation treatment. Anxiety, as a kind of psychological stress, will provoke a series of physiological circumstances and cause a decrease in immunity [5]. Fear of disease, anxiety, and more importantly, depression following losing friends and family are some of the issues people should deal with [4].

It has been reported that the COVID-19 pandemic causes negative effects on mental health in the general population, in groups such as healthcare workers where there is a high risk of transmission and violence, and especially in patients with the diagnosis/suspicion of COVID-19 [6-9]. Studies have been conducted in different populations to investigate mental health problems following the COVID-19 pandemic. For example, Wang *et al.* In a cross-sectional study assessed the levels of psychological impact, anxiety, depression, and stress during the initial stage of the COVID-19 outbreak [10] in this study 1210 participants from 194 cities in China respond to an online questionnaire. Results showed that in total, 16.5% reported moderate to severe depressive symptoms; 28.8% reported moderate to severe anxiety symptoms, and 8.1% reported moderate to severe stress levels. Al-Rabiaah *et al.* [11] surveyed 200 students from the College of Medicine. They found all students had stress but female students had a significantly higher mean stress level than males ($p<0.001$). In a study conducted in Iran on the general population perceived stress among the participants was significantly higher [12].

Social support plays an important role in maintaining individuals' health and reducing the negative effects of stresses caused by the environment and society. As social support increases, the mortality rate of patients and the incidence of physical and mental illnesses in people decrease. Support is provided by family members, relatives, friends, co-workers, neighbors, or health care providers [13]. Social support is a social network that provides people with psychological and tangible resources to cope with stressful life situations and daily problems. The moderating role of social support in stress has been emphasized [14]. Social support includes subjective and objective support and its utilization. Yue *et al.*, the study showed that a high level of social support plays a protective role in anxiety among pregnant women during the coronavirus disease 2019 [11].

Uncertainty and excessive fear are the main mediating factors that may affect the emotional response of an individual during the COVID-19 outbreak. In addition, fear may lead to both impaired risk perception [15]. Illness perceptions are based on past experiences, symptom severity, and information from others, including the medical team [16]. A person's perception of danger shapes their mental manifestations of the disease and affects their disease behavior. Perceptions of disease are cognitively organized representations that patients have of their disease, its effects, and the way they deal with their complaints [17]. The adoption of any action to deal with danger depends on the individual's beliefs and perceptions of the five variables. These variables are:

1) identity: how a participant describes their illness and the symptoms they experience;
2) consequences: anticipated outcomes of the disease;
3) cause: personal reasons for the cause of their disease;
4) timeline: duration of their illness;
5) cure or control: belief that treatments will improve their illness [16].

A previous study has demonstrated a correlation between negative illness perceptions and increased ratings of perceived stress [18-19]. Researchers must understand illness perceptions and their relationship to stress because of their impact on mental health. By identifying which illness perceptions are associated with stress, medical professionals can implement targeted interventions to promote mental health [20].

The epidemic has increased general fear and stress. Mental health is becoming an issue that cannot be ignored. Most studies have been performed in populations other than hospitalized patients, and the mental health status of patients hospitalized with COVID-19 remains unknown. Given that patients after diagnosis of COVID-19 may have psychological problems such as fear of disease progression, disability, or premature death, and due to being newfound of COVID-19 and the unknown nature of most of its aspects, including the mental health of hospitalized patients, while it is still spreading, recognizing the mental health status, we can help the treatment team to provide more appropriate services for hospitalized patients. Accordingly, this study aimed to determine the relationship between stress, anxiety, and depression

with perceived social support and perception of the disease.

Instrument and Methods

The present study is a cross-sectional study that was conducted in 2020 for 10 months. The study population consisted of all patients with COVID-19 referred to Farshchian Sina, Hospital in Hamadan, Iran. Farshchian Sina Hospital in Hamadan is the only hospital for patients with coronavirus.

In this study, the correlation between depression and social support was considered to be around -0.3. Therefore, considering the error type I of 5% and the test power of 90%, the sample size of 143 people was calculated. Based on the available sampling, 143 patients with coronavirus who met the inclusion criteria participated in this study. Inclusion criteria are age over 18 years, full consciousness, lack of physical and mental disabilities, diagnosis of coronavirus with the approval of an infectious disease specialist, no history of mental disorders, and the ability to communicate with the researcher. Participants who did not complete the questionnaires were excluded from the study. In the present study, the researcher (MT: person third in this study) who has a history of nursing referred to the research environment and after selecting the participants according to the inclusion criteria, provided necessary explanations about the research. The data collection tool consisted of 4 questionnaires: 1- The personal and clinical characteristics questionnaire (age, sex, job, marital status, place of residence, oxygen saturation rate, diseases history, drug history, smoking, abuse, vital signs), 2- 21-item depression, anxiety and stress scale (DASS21); 3- Zimet's multidimensional scale of perceived social support; 4- The brief illness perception questionnaire (BIPQ).

- The stress, anxiety and depression scale (DASS-21) was first presented by Lovibond in 1995, which includes 21 questions on a Likert scale, of which 7 questions are related to stress (1-6-8-11-12-14-18), 7 questions are related to anxiety (2-4-7-9-15-19-20) and 7 questions related to depression (3-5-10-13-16-17-21). Each of the DASS-21 subscales contains 7 questions and the final score of each is obtained through the sum of the scores of the related questions. Each question is scored from zero (does not apply to me at all) to 3 (applies to me completely). Since this questionnaire is a shortened form of the main scale (42 questions), the final score of each subscale should be doubled [21]. The questionnaire interpretation of the severity of each subscale is as follows: depression (normal=0-9, mild=10-13, moderate=14-20, severe=21-27, very severe=+28); anxiety (normal=0-7, mild=8-9, moderate=10-14, severe=15-19, very severe=+20); stress (normal=0-14, mild=15-18, moderate=19-25, severe=26-33, very severe=+34). The validity and reliability of this tool have been confirmed by Aghebati *et al.* [22] and Khezerloo *et al.* [23] in Iran.

- The Multidimensional Scale of Perceived Social Support was designed in 1988 by Zimet, Dahlem, Zimet, and Farley. The Multidimensional Perceived Social Support Scale is a 12-item tool designed to assess perceived social support from three subscales of friends, family, and significant others. The purpose of designing a multidimensional scale of perceived social support is to measure the rate of receiving perceived social support from three subscales of friends, family, and significant others in the participants [24]. The scale of the multidimensional scale of perceived social support of Zimet *et al.* is considered as a 7-point Likert scale from strongly disagree (with a score of 1) to strongly agree (score of 7). Therefore, the subject scores from 1 to 7 on each question on this scale. In other words, the total score for each subscale ranges from 4 to 28 and for the whole scale from 12 to 84. Interpretation in terms of the average of obtained scores is as follows: average score of 1 to 2.9, low perceived social support; Average score of 3 to 5, moderate perceived social support; Average score of 5.1 to 7, high perceived social support. In Zimet *et al.*'s research, the reliability of the multidimensional scale of perceived social support has been reported for the whole scale as 0.88 by Cronbach's alpha coefficient and for the subscales of significant others, family and friends as 0.91, 0.87, and 0.85, respectively. Also, the reliability of this scale has been reported by the retest method for the whole scale as 0.85 and for the subscales of significant others, family and friends, respectively 0.72, 0.85 and 0.75 [24]. In the research of Alipour *et al.* [25], and Aliakbari Dehkurdi *et al.* [26], the reliability of this scale has been reported 0.94 by calculating Cronbach's alpha coefficient for the whole scale was 0.89, 0.90, and 0.90 for subscales of friends, family, and significant others, respectively.

- The illness perception questionnaire was designed and validated by Brodbent *et al.* [16]. The questionnaire consists of 9 items. The questions measure outcomes, duration, personal control, treatment control, nature, concern, illness cognition, emotional response, and cause of the illness, respectively. The range of scores of the first 8 questions is from 0 to 10. Question 9 is open-ended and questions the three main causes of the illness, respectively. In order to interpret the scores, we collect obtained scores. Zero indicates the low limit of the questionnaire score, 40 the average limit, and 80 the upper limit of the questionnaire score. If the questionnaire score is between 0 and 20, the variable rate is weak in this population; if it is

between 20 and 60, the variable rate is moderate and if the scores are above 60, the variable rate is very high. Cronbach's alpha for this questionnaire is 0.80 and the reliability coefficient of retest within 6 weeks for different questions has been reported from 0.42 to 0.75. In the research of Aliakbari Dehkurdi [26], the reliability of the questionnaire was reported to be 0.87 based on Cronbach's alpha coefficient.

After obtaining informed consent, the participant is asked to answer the questionnaire questions carefully. The time of completing the questionnaire is selected in such a way that it doesn't interfere with the patient's rest and daily care. During the completion of the questionnaires, the researcher was present in the research environment and answered the participants' questions.

The collected data were analyzed in SPSS 26, using descriptive and inferential statistics (independent t-test, ANOVA, Spearman correlation coefficient, and multivariate regression).

Findings

A total of 143 patients with COVID-19 were included in the study. The mean±SD age was 53.6±13.67 years with a range of 28 to 88 years. In this study, more than half of the participants were over 40 years old, married, and illiterate, and half of the subjects were unemployed (Table 1).

The mean±SD of Systolic BP Diastolic BP, heart rate, temperature, and respiration of the patients were 111.6434±14.55, 76.90±10.23, 84.96±9.42, 39.46±27.43, and 19.65±2.96, respectively.

The average score of depression, anxiety and stress for all participants with COVID-19 was 8.12±7.12, 11.74±6.02 and 13.92±6.80, respectively.

The results of this study showed that most of the patients had moderate symptoms of anxiety, no symptoms of stress, and no symptoms of depression (Table 2).

The social support level for the patients was 35.7% and 59.4% of patients had moderate and high social support levels, respectively (Table 3).

Figure 1 shows factors that the participant believed caused his illness. Participants said that the most common cause of their illness was the failure to follow hygienic instructions and not wearing a mask (Figure 1).

The multiple linear regression model in Table 4 showed that Drug History, perception, and social support) were associated with depression for the COVID-19 patients. The same analysis showed that Drug History, perception, social support (and oxygen saturation were associated with anxiety among the patients with COVID-19. Moreover, the multiple linear regression analysis showed that two factors perception, social support, and oxygen saturation were associated with stress for the COVID-19 patients (Table 4).

Table 1) Demographic and clinical characteristics (n=143)

Characteristic	N (%)
Age (Year)	
≤40	34 (23.8)
41-59	57 (39.9)
≥60	52 (36.4)
Sex	
Female	70 (49.0)
Male	73 (51.0)
Marital status	
Single	9 (6.3)
Married	116 (81.1)
Widowed	14 (9.8)
Education level	
Illiterate	45 (31.5)
Primary/secondary	37 (25.9)
diploma	35 (24.5)
University	26 (18.2)
Job	
Un-employee	82 (57.3)
Employee	61 (42.7)
Residence	
City	130 (90.9)
Village	13 (9.1)
Abuse	
Yes	2 (1.4)
No	141 (98.6)
Diseases History	
Yes	65 (45.5)
No	78 (54.5)
Drug History	
Yes	55 (38.5)
No	88 (38.5)
Smoking	
Yes	26 (18.2)
No	117 (81.8)
Hypertension	
Yes	117 (81.8)
No	26 (18.2)
Oxygen saturation at rest	
≤ **93**%	112 (78.3)
> **93**%	31 (21.7)

Table 2) Descriptive Statistics for Major Study Variables (n=143)

Variables	N (%)
Depression	
Normal	86 (60.1)
Mild	31 (21.7)
Moderate	23 (16.1)
Severe	2 (1.4)
Very severe	1 (0.7)
Anxiety	
Normal	31 (21.7)
Mild	18 (12.6)
Moderate	49 (34.3)
Severe	29 (20.3)
Very severe	16 (11.2)
Stress	
Normal	99 (69.2)
Mild	25 (12.6)
Moderate	19 (13.3)
Severe	0 (0)
Very severe	0 (0)
Social support	
Low	7 (4.9)
Moderate	51 (35.7)
High	85 (59.4)
Illness Perception	
Low	1 (0.7)
Moderate	99 (69.2)
High	43 (30.1)

Table 3) Comparison of Mean±SD of depression, anxiety, and stress scores on patient's characteristics

Variables	Depression		Anxiety		Stress	
	Mean±SD	p	Mean±SD	p	Mean±SD	p
Age (year)						
≤40	7.36±5.34	0.011	22.24±11.24	0.127	14.58±6.52	0. 308
41-59	12.88±9.64		10.88±6.10		12.84±6.88	
≥60	20.84±18.8		13.08±6.02		14.64±6.84	
Sex						
Female	9.02±8.14	0.135	12.24±5.56	0.320	14.50±6.22	0.360
Male	7.22±5.92		11.24±6.44		13.46±7.26	
Marital status						
Single	10.80±6.82	0. 333	15.4±7.18	0.073	18.8±8.02	0.109
Married	7.56±7.16		11.1±5.80		13.54±6.48	
Widowed	10.58±6.54		14.42±5.56		13.58±7.74	
Education level						
Illustrate	10.48±9.7	0.010	12.00±6.32	0.742	13.34±7.02	0.722
Primary/secondary	7.44±5.64		11.94±6.12		4.18±7.22	
University	5.84±3.92		10.7±5.18		14.14±5.18	
Job						
Un-employee	9.072±7.94	0.049	12.18±5.92	0.291	14.218±6.72	0.540
Employee	6.818±5.64		11.114±6.092		13.5±6.92	
Residence						
City	8.08±7.16	0.917	11.64±5.94	0.621	13.68±6.68	0.291
Village	8.30±6.92		12.614±6.64		16.14±7.80	
Abuse						
Yes	10.26±4.24	0.825	7.0±1.42	0.263	10.00±2.82	0.414
No	8.12±7.16		11.8±6.02		13.96±6.82	
Diseases History						
Yes	10.26±8.28	0.001	13.1±6.06	0.013	14.7±6.16	0.199
No	6.30±5.40		10.58±5.72		13.24±7.16	
Drug History						
Yes	10.82±8.66	0.001	13.66±6.02	0.002	14.9±6.50	0.162
No	6.40±5.26		10.52±5.70		13.28±6.94	
Smoking						
Yes	10.68±6.88	0.042	14.30±6.84	0.03	17.76±7.32	0.005
No	7.52±7.06		11.16±5.66		13.04±6.38	

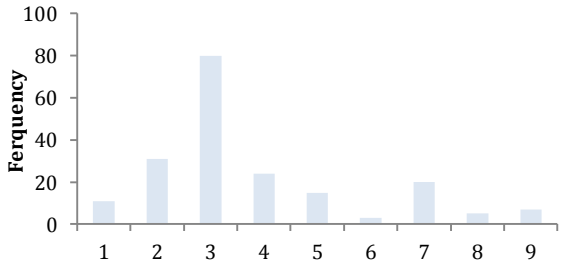

Figure1) Factors that the participant believed caused his illness
1. Spouse; 2. Going to a party; 3. Failure to follow hygienic instructions and not wearing a mask; 4. Workplace; 5. Family members; 6. Go to the mall; 7. Go for a walk and have fun; 8. Use of public transportation

Table 4) Multiple linear regression analysis of factors associated with depression, anxiety, and stress

Variables	β	SE	Standard β	t	p
Depression [a]					
Drug History [b]	-1.904	0.529	-0.258	-3.600	<0.001
Perception	0.066	0.021	0.232	3.193	0.002
Social support	-1.157	0.229	-0.369	-5.045	<0.001
Anxiety [a]					
Drug History	-1.318	0.451	-0.213	-2.922	0.004
Perception	0.046	0.018	0.194	2.619	0.010
Social support	-1.020	0.196	-.388	-5.212	<0.001
O_2	-0.052	0.025	-0.148	-2.040	0.043
Stress [a]					
Perception	0.094	0.019	0.349	4.873	<0.001
Social support	-1.176	0.214	-0.392	-5.486	<0.001
O_2	-0.062	0.028	-0.155	-2.208	0.029

[a] The FORWARD method was used in multiple linear regression models.
[b] cod 0: have drug history, cod 1: do not have a drug history

Discussion

This study aimed to determine the relationship between stress, anxiety, and depression with perceived social support and perception of the disease in patients with COVID-19. The results of this study show that 37% of patients had mild to moderate depression and only three patients experienced severe and very severe depression. One-third of patients had moderate anxiety and one-third had severe to very severe anxiety. About one-third also experienced mild to moderate stress.

Chen *et al.* found in their study that 21% of COVID-19 hospitalized patients had depression and 16.4% of them had experienced anxiety [27]. Findings from the Assefa study in COVID-19 patients reported a rate of 36.5% depression and 21.2% anxiety [28]. The study by Kandeger *et al.* Showed that the prevalence of anxiety and depression symptoms was 19% and 34.5%, respectively [15]. In the study by Kong *et al.,* age, sex, and oxygen saturation were associated with anxiety, and age and family involvement with SARS-CoV-2 were associated with depression [29]. In this regard, the US Food and Drug Administration explains that the use of some general medications may be associated with the induction of depression [30, 31].

Other results show that more than half of the patients have a moderate understanding of the

disease and enjoy high social support. Consistent with the present study, the study by Kandeger *et al.* indicates that hospitalized COVID-19 patients had perceived high social support [15].

Linear regression analysis showed that perception of illness and social support and history of medicine use were significantly associated with depression, perception of illness and social support and history of medicine use and oxygen saturation were significantly associated with anxiety and perception of illness and social support and oxygen saturation were significantly associated with stress. Thus, more perception of illness leads to increased stress, anxiety, and depression, and less social support leads to increased stress, anxiety, and depression. It is noteworthy that among the variables included in the regression model, social support showed a stronger relationship with stress, anxiety and depression than the other variables.

Consistent with the present study, Kandeger *et al.* study indicated that high perceived social support had a significant relationship with depression symptoms [15]. A review of studies shows that the relationship between social support and depression is more important than the relationship between social support and anxiety and stress in studies. However, the results for both of them are consistent with the findings of many studies in different communities [32-34]. Consistent with the results of this study, the findings of a study by Yue *et al.* in Chinese pregnant women with COVID-19 show that social support can directly regulate anxiety, while it is negatively or indirectly related to perceptions of disease risk. Perception of disease risk is positively related to anxiety and negatively or indirectly related to social support. In the study by Yue *et al.,* only the relationship between anxiety and social support and perception of disease risk is reported [1]. A study by Kong *et al.* in China also shows that the less social support for patients with COVID-19, the more anxiety and depression they report. In this way, social support can improve assessment and coping skills in individuals, reduce the severity of the perceived risk of stressful events, and thus play an indirect protective role in mental health [29]. Another explanation for the findings of this study may be that there is a close relationship between anxiety, stress, depression and social support. According to the stress buffer model, perceived social support by decreasing the perception of situations as a threat and increasing the belief in available resources can play a protective role for psychological problems such as stress, anxiety and depression [35, 36]. As the results of this study show, patients with COVID-19 have moderate to high social support. The study by Paykani *et al.* [37], and Jalaei *et al.* [38] shows that perceived social support can be both a facilitator and a barrier for people with the disease. This study explains that it depends on the people from whom patients receive social support. Social support from family has a greater effect on relieving the negative effects of the disease on the psychological dimension, while social support that patients receive from friends causes more maladaptive behaviors and increases the negative effects of the disease on the psychological dimension. Of course, studies show that how to use social support is different in different cultures. In collectivist cultures, such as East Asia, people are dependent on their families and give priority to the family. The family is a very important resource in the issue of social support and has a protective role against anxiety and depression. Of course, in East Asian cultures, the support that people with the disease receives from their family members can reduce the negative effects of stressful life events. The family is the first and most important source of social support. In addition, good family social support can also provide a good individual emotional experience for coping with stressful situations [39, 40]. Consistent with the present study, the results of the study by Miceli *et al.* showed that there is a positive and significant relationship between perceived stress and perceived risk [20]. The study by Li & Lyu showed that risk perception was positively associated with perceived stress, anxiety and depression [41]. Hospitalized patients who had lower levels of perceived social support were at a higher risk of depression and anxiety [27]. The study by Zandifar *et al.* showed that perceived stress was significantly associated with anxiety and depression [42].

This study has some limitations that can be a guide for future studies, including the fact that this study was performed on a small sample of patients with COVID-19 and only in one hospital. It may be necessary to do a larger sampling to generalize the results. The use of self-report tools may cause more or fewer reports of anxiety, stress, depression, and social support which is recommended in addition to quantitative tools, qualitative tools be used in future studies. It is important to follow up in future studies that what kind of perceived social support and from which source is most effective in reducing stress, anxiety, and depression in patients with COVID-19, Although this study has limitations, it can provide new insights to moderate the effects of COVID-19 on the mental health of these individuals using a perceived social support environment source and reduce the risk of perception of illness.

Conclusion

In general, the results of the present study indicated that COVID-19 patients hospitalized in the hospital experienced anxiety, stress, and depression. Most patients with COVID-19 have high social support and moderate perception of illness. Depression, anxiety, and stress in patients with COVID-19 are associated with the perception of illness and social support, which is more strongly associated with social

support. Therefore, strengthening social support in patients with COVID-19 as well as improving patients' perception of illness by providing the necessary training and counseling by health professionals may be able to alleviate their anxiety, stress and depression.

Acknowledgments: The authors would like to thank the Honorable Vice Chancellor for Research of Hamadan University of Medical Sciences, and Farshchian Hospital (Sina) and patients with COVID-19.

Ethical Permissions: This study was approved by the Ethics Committee of the Hamadan University of Medical Sciences, with approval no.: IR.UMSHA.REC.1399.230 This study was conducted under the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. The subjects were assured of the following: their participation was optional; they could withdraw at any time without facing any negative consequences. All participants provided their written informed consent.

Conflicts of Interests: This article is the result of a research project at Hamadan University of Medical Sciences, approved by project number 9904242496.

Authors' Contributions: Sadeghian E (First Author), Introduction Writer/Main Researcher/Discussion Writer (20%); Bashirian S (Second Author), Methodologist (20%); Soltanian A (Third Author), Assistant Researcher (20%); Taheri M (Forth author), Assistant Researcher (20%); Madineshat M Assistant Researcher/Statistical Analyst (20%)

Funding/Support: This research project was supported by vice-chancellor of research and technology of Hamadan University of Medical Sciences.

References

1- Yue C, Liu C, Wang J, Zhang M, Wu H, Li C, et al. Association between social support and anxiety among pregnant women in the third trimester during the coronavirus disease 2019 (COVID-19) epidemic in Qingdao, China: The mediating effect of risk perception. Int J Soc Psychiatry. 2020;67(2):120-7.

2- Nemati M, Ebrahimi B, Nemati F. Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran. Arch Clin Infect Dis. 2020;15:e102848.

3- World Heath Organization. Coronavirus disease (COVID-19) Situation dashboard [Internet]. Geneva: World Heath Organization. 2020 [Cited 2021 Mar 1]. Available from: https://covid19.who.int/region/euro/country/ru.

4- Fardin MA. COVID-19 and anxiety: A review of psychological impacts of infectious disease outbreaks. Arch Clin Infect Dis. 2020;15:e102779.

5- Liu K, Chen Y, Wu D, Lin R, Wang Z, Pan L. Effects of progressive muscle relaxation on anxiety and sleep quality in patients with COVID-19. Complement Ther Clin Pract. 2020;39:101132.

6- Li W, Yang Y, Liu ZH, Zhao YJ, Zhang Q, Zhang L, et al. Progression of Mental Health Services during the COVID-19 Outbreak in China. Int J Biol Sci. 2020;16(10):1732-8.

7- Carvalho PMM, Moreira MM, de Oliveira MNA, Landim JMM, Neto MLR. The psychiatric impact of the novel coronavirus outbreak. Psychiatry Res. 2020;286:112902.

8- Devi S. COVID-19 exacerbates violence against health workers. Lancet 2020;396(10252):658.

9- McKay D, Heisler M, Mishori R, Catton H, Kloibe O. Attacks against health-care personnel must stop, especially as the world fights COVID-19. Lancet 2020;395(10239):1743-5.

10- Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) Epidemic among the general population in China. Int J Environ Res Public Health. 2020;17(5):1729.

11- Al-Rabiaah A, Temsah MH, Al-Eyadhy AA, Hasan GM, Al-Zamil F, Al-Subaie S, et al. Middle East respiratory syndrome-corona virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. J Infect Public Health. 2020;13(5):687-61.

12- Shokri A, Moradi G, Piroozi B, Darvishi S, Amirihosseini S, Veysi A, et al. Perceived stress due to COVID-19 in Iran: Emphasizing the role of social networks. Med J Islam Repub Iran. 2020;34:55.

13- Cheraghi MA, DavariDolatabadi E. Development and psychometric evaluation of the heart failure patients'perceived social support inventory. J Rafsanjan Univ Med Sci. 2016;15(3):195-208. [Persian]

14- Nasiri F, Abdolmaleki S. Explaining therelationship between perceived social support and quality of life, perceived stress mediator role in female-headed households in Sanandaj. J Appl Sociol. 2016;64(4):99-116. [Persian]

15- Kandeger A, Aydın M, Altınbas K, Cansız A, Tan O, Tomar Bozkurt H, et al. Evaluation of the relationship between perceived social support, coping strategies, anxiety, and depression symptoms among hospitalized COVID-19 patients. Int J Psychiatry Med. 2020;56(4):240-54.

16- Brodbent E, Petrie KJ, Main J, WeinmanJ. The brief illness perception questionnaire. J Psychosom Res. 2006;60(6):631-7.

17- Soleimani M, Azeemian S, Younesi SJ. Relation beween perception of illness and copying styles with stress among mothers of children with type1 diabetes. Iran j Diabetes Metab. 2015;14(3):209-17. [Persian]

18- Alcorso J, Sherman KA. Factors associated with psychological distress in women with breast cancer-related lymphoedema. Psychooncology. 2016;25(7):865-72.

19- Westbrook TD, Maddocks K, Andersen BL. The relation of illness perceptions to stress, depression, and fatigue in participants with chronic lymphocytic leukaemia. Psychol Health. 2016;31(7):891-902.

20- Miceli J, Geller D, Tsung A, Lynn Hecht C, Wang Y, et al. Illness perceptions and perceived stress in patients with advanced gastrointestinal cancer. Psychooncology. 2019;28(7):1513-9.

21- Lovibond SH, Lovibond PF. Manual for the depression anxiety stress scales. Sydney: Psychology Foundation of Australia; 1996.

22- Aghebati N. Effects of touch therapy on pain and psychiatric symptoms (Depression, anxiety and stress) of cancers patients. Tehran: Tarbiat Modares University; 2005. [Persian]

23- Khezerloo S, Habibzadeh H, Rasouli D, rahmani A, Ahangarzadeh Rezai S. Effect of video information on anxiety level and hemodynamic parameters of patients undergoing coronary angiography. Nurs Midwifery J. 2018;16(4):295-302. [Persian]

24- Zimet GD, Dahlem NW, Zimet SG, Farley GK. The

multidimensional scale of perceived social support (MSPSS). J Person Assess. 1988;52(1):30-41.
25- Alipour A, Aliakbari Dehkordi M, Amini F, Hashemi Jashni A. Relationship between perceived social support and adherence of treatment in Diabetes mellitus type 2: mediating role of resillency and hope. Q J Psychol Health Res. 2016;2(2):53-67. [Persian]
26- Aliakbari Dehkurdi M, Alipour A, Zareh H, Shahidi G, Barghi Irani Z. The effectiveness of cognitive- behavioral therapy with old people (CBTO) on general health parameters in patients who suffered from parkinson disease. J Manag Syst. 2013;8(30):97-122. [Persian]
27- Chen Y, Huang X, Zhang C, An Y, Liang Y, Yang Y, et al. Prevalence and predictors of posttraumatic stress disorder, depression and anxiety among hospitalized patients with coronavirus disease 2019 in China. BMC Psychiatry. 2021;21(1):80.
28- Assefa B. Prevalence and factors associated with depression and anxiety of hospitalized patients with COVID-19 in St.peter specialized hospital treatment centers. J Psychiatry. 2020;23(14).
29- Kong X, Zheng K, Tang M, Kong F, Zhou J, Diao L, et al. Prevalence and factors associated with depression and anxiety of hospitalized patients with COVID-19. BMJ Yale. 2020.
30- Rogers D, Pies R. General medical with depression drugs associated. Psychiatry (Edgmont). 2008;5(12):28-41.
31- Celano CM, Freudenreich O, Fernandez-Robles C, Stern TA, Caro MA, Huffman JC. Depressogenic effects of medications: a review. Dialogues Clin Neurosci. 2011;13(1):109-25.
32- Pinar G, Okdem S, Buyukgonenc L, Ayhan A. The relationship between social support and the level of anxiety, depression, and quality of life of Turkish women with gynecologic cancer. Cancer nurs. 2012;35(3):229-35.
33- Han B, Yan B, Zhang J, Zhao N, Sun J, Li C, et al. The influence of the social support on symptoms of anxiety and depression among patients with silicosis. Sci World J. 2014;2014:724804.
34- Akintayo RO, Odunlami GJ, Bamidele OF, Fabiyi EP, Akintayo FC, Bamidele OV, et al. The impacts of state and trait anxiety as moderated by perceived social support among Nigerian patients with rheumatoid arthritis. Reumatologia. 2018;56(3):155-63.
35- Aneshensel CS, Stone JD. Stress and depression: a test of the buffering model of social support. Arch Gen Psychiatry. 1982;39(12):1392-6.
36- Wang X, Cai L, Qian J, Peng J. Social support moderates stress effects on depression. Int J Ment Health Syst. 2014;8(1):41.
37- Paykani T, Zimet GD, Esmaeili R, Khajedaluee AR, Khajedaluee M. Perceived social support and compliance with stay-at-home orders during the COVID-19 outbreak: evidence from Iran. BMC Public Health. 2020;20(1):1650.
38- Jalaei T, Astanegi S, Rahmati M, Salari N. The survey of percived social support status and its relation to fear and anxiety of CABG csndidate patient's in Imam Ali's Hospital of Kermanshah. J Urmia Nurs Midwifery Fac. 2018;16(5):354-63. [Persian]
39- Shokri O, Kormi Nouri R, Naghi Farahani M, Moradi A. Cross-cultural validation of the Multidimensional Scale of Perceived Social Support among Iranian and Swedish university students. Iran J Cultl Res. 2016;9(2):75-100. [Persian]
40- Roohafza HR, Afshar H, Keshteli AH, Mohammadi N, Feizi A, Taslimi M, et al. What's the role of perceived social support and coping styles in depression and anxiety?. J Res Med Sci. 2014;19(10):944-9.
41- Li X, Lyu H. Epidemic risk perception, perceived stress, and mental health during covid-19 pandemic: a moderated mediating model. Front Psychol. 2021;11:563741.
42- Zandifar A, Badrfam R, Yazdani S, Arzaghi SM, Rahimi F, Ghasem S, et al. Prevalence and severity of depression, anxiety, stress and perceived stress in hospitalized patients with COVID-19. J Diabetes Metab Disord. 2020;19(2):1431-8.