Original Article

The Relationship between Social Support and Health Literacy with Health Anxiety of Medical Staff During the Covid-19 Epidemic

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Abstract

Introduction: Medical personnel who are at the forefront of the fight against Covid-19 are at greater risk of health problems, such as stress and anxiety. The aim of this study was to investigate the relationship between social support and health literacy with the health anxiety of medical staff during the Covid-19 virus epidemic.

Materials and Methods: This study was a descriptive epidemiological study in which 200 medical staff took part according to inclusion criteria. Data collection tools were standard questionnaires of Iranian Health Anxiety, the Iranian Health Literacy Questionnaire and the Perceived Social Support Questionnaire (MSPSS). The collected data were analyzed by SPSS software version 22 using ANOVA, Chi-square and Pearson correlation tests.

Result: The results showed that there is a weak and non-significant negative relationship between the health literacy score and the health anxiety score (r = -0.131; P = 0.064) and also between the social support score and the health anxiety score (r = -0.034; P = 0.633). Most staff of any academic field had average health literacy, high health anxiety, and had moderate social support. there were no significant difference in different levels of health anxiety (P=0.487), health literacy (P=0.623) and social support (P=0.327).

Conclusion: One of the vital actions in any epidemic is to provide supportive care to maintain the health of the medical staff. Increasing health literacy, trying to reduce health anxiety and stress, and improving social support can be part of these interventions.

Keywords: Covid-19, Health Anxiety, Health Literacy,Medical Staff, Social Support.

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INTRODUCTION

The Covid-19 outbreak spread rapidly in late January 2020 (1). Millions of people around the world have been infected with the virus while thousands have lost their lives (2). Such epidemics of infectious diseases not only affect the physical health but also the mental health of non-infected people. Health care workers who are at the forefront of the fight against coronavirus are at greater risk of health than others. Direct and long-term exposure of sufferers, work stress and lack of rest, lack of personal protective equipment, lack of awareness of the type of disease and lack of sufficient time for general training of staff increases the risk for health care workers (3). Identifying ways to deal with such stresses and psychological anxieties and dealing with work problems, to some extent, makes the psychological conditions in the workplace more favorable (4).

The World Health Organization has identified health literacy as one of the greatest determinants of health (5). It is stated in the goals of a healthy person that health literacy increasingly helps people to evaluate their health information. This case can be of double importance for health care providers because it is effective in improving both their health and that of their clients (6). Rahimi et al. (2017) showed that nurses who manage their duties based on reliable health information have been able to make better decisions and provide higher quality care (7). On the other hand, one of these important measures in order to promote the mental health of medical staff is to provide social support. Social support is defined as social relationships and reciprocal relationships that help people adapt to and deal with stressful situations in life (8). Liu et al. showed that psychological and social support from the community can reduce the stress and strain of nurses taking part in Ebola treatment (9). Collins & Chadwick (2015) also concluded that as social support increases, perceived mental health of individuals increases (10). However, few studies have examined the level of health literacy in Iranian society, especially nurses (11). But although social support and health literacy can be important in reducing the health

anxiety of health care workers in crises, unfortunately, this issue has been less studied among the Iranian medical staff. Therefore, the researchers decided to study the relationship between social support and health literacy and health anxiety in the treatment staff during the Covid-19 virus epidemic.

METHOD AND MATERIALS

This study was a descriptive epidemiological study in which 200 treatment staff were selected by convenience sampling. The design of this study was approved by the ethics committee of Ahwaz Jundishapur University of Medical Sciences (reference number: IR.AJUMS.REC.1399.475). The study began on April 21, 2021, and was completed on September 21, 2021. Written informed consent was obtained from each participant. People working in the hospital at the time of the Covid-19 virus epidemic and had a degree at any level and in any field in nursing, midwifery, operating room, anesthesia, radiology and laboratory were eligible for this study. Individuals who did not wish to continue participating in the study were excluded from the study and questionnaires that were not fully completed were excluded from the study. Due to the conditions caused by the corona epidemic and the impossibility of face-to-face sampling on the one hand and the familiarity of medical staff with the Internet and related technology, so sampling was done in this web-based study. After visiting each hospital and identifying the admin of the treatment groups, the link of the questionnaire was given to the admin of the treatment groups by cyberspace disciplines such as WhatsApp, ETA, and they were asked to place the research team by Links in your group to help complete the questionnaire. The medical staff who wanted to enter the link and fill out the questionnaire based on the previously specified number, formed our sample.

Sample size

The sample size was calculated using the following formula:

$$\alpha = 0.05$$

$$Z_{1-\frac{\alpha}{2}} = 1.96$$

$$\beta = 0.1 \quad n = \frac{(Z^2_{1-\frac{\alpha}{2}} * Z_{1-\beta})2}{(1/2ln\frac{1+r}{lr})2} + 3 = 145$$

$$Z_{1-\beta} = 1.645$$

$$r = 0.265$$

The formula ($n_i = (\frac{Ni}{N}) \times n$) was used to separate the sample size of different fields of the medical staff. A total of 200 treatment staff were selected.

Objectives

The objectives of this study included determining the health anxiety score, health literacy and social support of the medical staff, as well as determining the relationship between health literacy and health anxiety and the relationship between social support and health anxiety in the medical staff in hospitals affiliated to the Ahvaz University of Medical Sciences at the same time as the covid-19 epidemic.

Measurements

A questionnaire comprising 4 parts was used to collect data. (The first part is questions related to demographic information, the second part includes health anxiety questionnaire, the third part is health literacy questionnaire and the fourth part is social support questionnaire). Background and demographic information of the samples with 9 questions about age, sex, level of education, marital status, employment status, employment status, number of children, place of work, work experience.

The standard health anxiety questionnaire (HAI-18) comprises 18 questions (12). This questionnaire has three factors called "disease" (questions 12, 11, 9, 8, 6, 5), "disease consequences" (questions 18, 17, 16, 15, 13) and "general health concern" (Questions 14, 10, 7, 4, 3, 2, 1). Each item of this questionnaire has four options. A total score greater than 27 is defined as low health anxiety, a score of 27-34 is defined as moderate health anxiety, and a score above 35 is defined as high health anxiety. The validity and reliability of the Persian version of the Health Anxiety Questionnaire had been evaluated and approved in Iran (12).

In the third part, the 'Iranian Health Literacy Questionnaire' was used (13). The questionnaire has five components, which are: "access" component (items 1 to 6), "reading skills" component (items 7 to 10), "comprehension" component (items 11 to 17), "evaluation" component. (Items 18 to 20), component "Decision making and application of information" (items 21 to 33). It generally consists of 33 items based on the Likert scale, which includes (1: always, 2: most of the time, 3: sometimes, 4: rarely, 5: not at all). The raw scores of the five areas of health literacy were calculated and reported as standard scores between zero and one hundred, with scores ranging from 0 to 50 as inadequate health literacy, and scores from 50 to 66 as inadequate health literacy, 66 Up to 84 was considered as adequate health literacy and 84 to 100 was considered as excellent health literacy. The validity and reliability of the Persian version of the Health Anxiety Questionnaire had previously been evaluated and approved in Iran (13).

In the fourth section, the Standard Perceived Social Support Questionnaire (MSPSS) of Ziment et al. (1988) was used (14). The questionnaire consists of 12 questions based on a 5-point Likert scale with the options completely disagree, disagree, have no opinion, agree and strongly agree, which are scored from 1 to 5, respectively. This questionnaire measures perceptions of social support adequacy in three sources: family, friends and others. Questions 3-4-8-11 measure family source, questions 6-7-9-12 measure friend

source, and questions 1-2-5-10 measure source of support from others. At the end, the scores of each questionnaire were added together. The low score of the questionnaire was 12, the average score was 30 and the high score was 60. Scores between 12 and 20 showed low levels of perceived social support, scores between 20 and 40 showed moderate levels of perceived social support, and scores above 40 indicated high levels of perceived social support. Salimi et al. confirmed the validity of the scale by factor analysis. They also reported the reliability of the scale for the three dimensions of social support received from family, friends and important people in life, respectively 0.86, 0.86 and 0.82 (15).

Finally, the link of the questionnaire designed for eligible people was sent through social media (WhatsApp or ETA). The first page of the questionnaires was informed consent and participants were asked to approve this form first. All data were entered into SPSS version 22. The normal distribution of continuous data was investigated using the Shapiro-Wilk test. Data analysis was performed using multivariate linear regression analysis and Pearson correlation coefficient and P <0.05 was considered statistically significant and P <0.01 was considered significant for correlation coefficient.

RESULTS

Based on the inclusion and exclusion criteria, 200 people who were eligible and satisfied to participate in the study and completed the questionnaires were analyzed. The mean age of the participants was 33.26 ± 7.55 years (table 1).

Table 1: Demographic characteristics of participants and its relationship with health anxiety

		N	Health anxiety	F	P
Gender *	Male	82(41%)	38.4±6.18	8.41	.004
	female	118(59%)	36.72±4.93		
Education* level	Associate or Bachelor degree	156(78%)	37.71±5.7	2.52	.114
	≥ Master degree	44(22%)	36.35±4.74		
Marital status*	Married	109(54.5%)	38.43±5.91	4.24	.016
	Single	67(33.5%)	36.29±4.8		
	Divorced	24(12%)	35.91±4.75		
Child*	No	110(55%)	36±4.86	11.7	<.001
	1	149(24.5%)	37.93±5.03		
	>1	41(20.5%)	40.58±6.38		
Type of employment*	Temporary	47(23.5%)	37.72±5.08	.196	.899
	Permanent	85(42.5%)	37.47±5.69		
	Contractual	47(23.5%)	37.36±5.86		
	Contract work	21(10.5%)	36.61±5.32		
Field of study*	Nursing	100(50%)	38.84±6.19	3.132	.01
	Radiology	20(10%)	35.75±3.82		
	Midwifery	25(12.5%)	36.44±3.47		
	Laboratory	20(10%)	36.95±3.94		
	Anesthesia	20(10%)	34.95±4.86		
	Operation room	15(7.5%)	35.66±5.99		
Wards *	ICU	15(7.5%)	38.06±7.62	2.135	.024
	Gynecology	22(11%)	35.8±2.98		
	Internal	12(6%)	40.83±7.2		
	Surgery	13(6.5%)	39.53±7.95		
	Laboratory	20(10%)	36.95±3.94		
	Operation room	20(10%)	35±5.42		
	Emergency	24(12%)	39.4±4.47		
	Infectious	17(8.5%)	38.7±6.91		
	Children	17(8.5%)	36.4±5.2		
	CCU	17(8.5%)	37.82±4.15		
	Radiology	23(11.5%)	35.43±3.84		

Health anxiety score is based on the average ± standard deviation

*statistical test is ANOVA.

Relationship between health anxiety and demographic characteristics

According to ANOVA statistical test, among the different disciplines of the staff, the highest level of health anxiety were in the nurses, and then laboratory science, midwifery, radiology, operating room, respectively. Anesthesiologists had the lowest level of health anxiety. Therefore, according to the obtained data, there was a statistically significant difference in terms of the level of health anxiety among graduates of different paramedical disciplines of the front line of the fight against coronavirus (P = 0.01). In terms of the paramedic's activities to fight against Corona, the internal medicine staff had the highest level of health anxiety and the operating room ward had the lowest score. In addition, according to the health anxiety scores of personnel working in wards, a statistically significant difference was observed (P = 0.024). Table 1 shows that according to ANOVA test, the level of health anxiety of people without children compared to people with more than one child or One child is significantly lower (P <0.001). Also, the level of health anxiety of married people was significantly higher than single and divorced people (P = 0.016). Based on t-test, in terms of Education level, people with associate degree and bachelor's degree compared to higher levels (P =0.114) and also in terms of type of employment (P = 0.899) there was no significant difference in the level of health anxiety. The level of health anxiety in men was significantly higher than women (P = 0.004).

According to the Chi-square test, the majority of staff in each field of study had high health anxiety but there was no significant difference between their levels of health anxiety (P = 0.487) (table 4).

Health literacy

Table 2 shows that the mean and standard deviation of health literacy according to ANOVA statistical test, in midwives and nurses had the highest score and radiologists had the lowest score in health literacy. But no statistically significant difference was observed between different disciplines (p = 0.768). Based on this test, among the care departments, the personnel working in the ICU had the highest score and the personnel working in the radiology department had the lowest level of health literacy. But analysis showed that the statistical difference between employees in different departments was not significant (P = 0.327). Also, there was no statistically significant difference between individuals in terms of marital status (P = 0.106), number of children (P = 0.54), and type of employment with health literacy (P = 0.525). Also, there was no statistically significant difference between individuals in terms of gender (P = 0.097) and education with health literacy (P = 0.142).

Table 2: The relationship between participants' demographic characteristics and health literacy

		Health literacy Mean ±SD	F	P
Gender*	Male	64.5±7.92	2.78	.097
	female	63.5±6.32		
Education Level*	Associate or Bachelor degree	64±7.3	2.17	.142
	≥ Master degree	63.68±5.98		
marital status*	Married	64.77±7.17	2.26	.106
	Single	63.37±6.34		
	Divorced	61.66±7.72		
Child*	No	63.47±7.03	.619	.54
	1	64.79±7.53		
	>1	64.12±6.4		
Type of employment*	Temporary	64±7.42	.747	.525
	Permanent	63.27±7.15		
	Contractual	65.17±6.57		
	Contract work	63.66±6.6		
Field of Study*	Nursing	64.25±7.95	.511	.768
	Radiology	62.1±7.24		
	Midwifer	64.96±7.6		
	Laboratory	62.95±5.15		
	Anesthesia	64.2±5.44		
	Operation room	63.46±7.02		
Wards*	Icu	68.86±10.35	1.15	.327
	Genycology	64.86±8.1		
	Internal	62±8.99		
	Surgery	64.92±5.37		
	Laboratory	62.95±5.15		
	Operation room	63.9±5.6		
	Emergency	63.79±5.09		
	Infectious ward	63.94±7.18		
	Children	64.05±6.67		
	Ccu	62.52±6.8		
	radiology	62.21±7.23		

*Stastical test is ANOVA.

Also, health literacy of most staff in different fields was moderate, but there was no statistically significant difference between different levels of health literacy (P = 0.623) (Table 4).

Social support

According to ANOVA statistical test, operating room staff expressed the highest level of social support and other disciplines had almost the same social support, but no

significant difference was observed in the amount of social support (P = 0.951). In terms of perceived social support, personnel working in CCU ward had the highest score compared to other wards staff, but the difference was not significant (P = 0.993). Also, there was a statistically significant difference between individuals in terms of marital status (P = 0.813), number of children (P = 0.274), type of employment (P = 0.886) with social support. According to the t-test, there was a statistically significant difference between individuals in terms of gender with the level of social support (P = 0.041) but there was no significant difference in terms of education (P = 0.142) (Table 3).

Table 3: The relationship between participants' demographic characteristics and social support

Demographic characteristics		Social support Mean ±SD	F	P
Gender*	Male	23.65±4.2	4.23	.041
	female	23.34±4.94		
Education Level*	Associate or Bachelor degree	23.46±4.6	.2	.65
	≥ Master degree	23.5±4.82		
marital status*	Married	23.62±4.85	.208	813
	Single	23.41±4.48		
	Divorced	22.95±4.23		
Child*	No	23.11±4.24	1.3	.274
	1	23.42±5.07		
	>1	23.48±5.09		
Type of employment*	Temporary	23.59±4.45	.215	.886
	Permanent	23.61±4.39		
	Contractual	23±4.39		
	Contract work	23.7±6.52		
Field of Study*	Nursing	23.32±4.17	.226	.951
	Radiology	23.25±5.06		
	Midwifery	23.48±4.8		
	Laboratory	23.5±5.22		
	Anesthesia	23.55±5.33		
	Operation room	24.66±5.61		
Wards*	ICU	23.73±3.97	.227	.993
	Gynecology	23.72±5.04		
	Internal	22.9±2.5		
	Surgery	23.69±4.17		
	Laboratory	23.5±5.22		
	Operation room	23.9±5.26		
	Emergency	22.79±4.03		
	Infectious ward	23.05±4.37		
	Children	23.17±5.58		
	CCU	24.64±5.01		
	Radiology	23.2±5.16		

*Stastical test is ANOVA.

In addition, most staff in each field had a moderate level of social support but did not have a statistically significant difference between staff (P = 0.327) (Table 4).

Table 4: Comparison of the level of variables between different treatment lines

		Nursing	Radiology	Midwifery	Laboratory	Anesthesia	Operation Room	p
Health anxiety*	Moderate	11(11)	3(15)	4(16)	3(15)	5(25)	4(26.7)	.487
	High	89(89)	17(85)	21(84)	17(85)	15(75)	11(73.3)	
Health literacy*	Insufficient	2(2)	2(10)	1 (4)	1(5)	0	0	.623
	Moderate	50(50)	10(50)	11(44)	14(70)	11(55)	11(73.3)	
	sufficient	37(37)	6(30)	11(44)	5(25)	7(35)	4(26.7)	
	perfect	11(11)	2(10)	2(8)	0	2(10)	0	
social support*	Low	23(23)	9(45)	6(24)	7(35)	7(35)	3(20)	.327
	Moderate	77(77)	11(55)	19(76)	13(65)	13(65)	12(80)	

**Stastical test is Chi-square.

Relationship between health anxiety with health literacy and social support

Using the Pearson correlation coefficient, a weak and non-significant negative relationship between the health literacy score and the health anxiety score (r = -0.131; P =.064) and also between the social support score and the health anxiety score (r = -0.034; P =.0.633) (table 5).

Table 5: Relationship between health anxiety, health literacy, and social support

Correlation	Health literacy	Social support	Health anxiety
Health literacy	1	r =.048 P =.496	r = -0.131 P=.064
Social support	r =.048 P =.496	1	r=-0.034 p=0.633
Health anxiety	r = -0.131 P=.064	R=-0.034 P=0.633	1

Stastical test is Pearson correlation coefficient.

The significance level is less than 0.01

DISCUSSION

The aim of this study was to investigate health literacy and health anxiety in medical staff and its relationship with social support during the Covid-19 virus epidemic in hospitals affiliated to Ahvaz Jundishapur University. The results showed that the majority of staff in different fields of study of the medical staff had high health anxiety during the coronavirus epidemic. other studies in Iran have reported consistent results with this study, previously (16, 17). The results of the present study also showed that nurses had the highest level of health anxiety among the treatment staff. Babaei et al., who studied the dimensions of health anxiety

in nurses working in medical centers in Tehran, showed that nurses experience more negative emotions than other people. But to experience positive emotions, they were not significantly different from others (18). According to the results of the present study, internal medicine staff experienced the highest level of health anxiety compared to other staff in hospital wards. These results are probably due to the fact that nurses, especially inpatients, have been at the forefront of the fight against coronavirus for a longer time and have had a closer relationship with patients. The study of Shayganfar et al. In Arak also showed that health anxiety was higher in people working on the front lines of the fight against coronavirus (17). The results also showed that anesthesia personnel had the lowest level of health anxiety and the results showed a statistically significant difference in this regard between this staff and other staffs of different paramedical fields. This may be because anesthesia staffs have more experience in personal protection because they typically work in the operating room with surgical gowns, gloves, eye protection, surgical caps, masks and even gowns. They are superior to other nurses in terms of acceptance and compatibility with personal protective equipment (19). The results of the present study also showed that the level of health anxiety in people without children, single and divorced compared to people with over one child and married people was significantly lower. The level of health anxiety in men was also significantly higher than women. But in the results of a similar study in this field in Poland, marital status was not associated with health anxiety and on the other hand, women were more anxious than men (20). Kamali et al. and Mirzabeigi et al. in Iran have reported similar results to our study (21, 22). These results may be due to the fact that the fear of being infected with this disease and the fear of transmitting the infection to family members were higher in people who have more family responsibilities according to the cultural context. As in a study in China, anxiety about the risk of transmission to family members has led to mental health problems in its treatment staff (23).

Social support is very important to reduce the burden of mental health and maintain the well-being of medical staff in the face of epidemics. Various studies have linked higher social support to the psychological well-being of medical staff (24, 25). The results of the present study showed that most staff in each field had a moderate level of social support, which was like the results of Fang et al. In China (26), but the results did not show a significant difference in the level of social support in different disciplines. The results of a study in Nepal during the coronavirus epidemic also showed that nearly half of the medical staff perceived poor social support and that medical staff staying at home had a better chance of receiving social support (27). Maybe because of the contact of the medical staff with Covid-19 patients and their high concern about being infected with the disease, the social support of family and friends during this period is being reduced. In a similar study in Jordan, which aimed to examine the perceived social support of medical staff during the epidemic, the results showed a high to moderate level of social support and family and friends had the most support for medical staff (28).

In addition, statistical analysis showed that the health literacy of most staff in different fields of medical staff was moderate. However, there was no statistically significant difference between the health literacy of employees with different fields of medical staff and their different departments. The results of the study by Seng et al. (2020) also reported that the health literacy of medical staff during the Covid-19 epidemic was less than optimal (29). The study of Javadzadeh et al. (2015) in Iran also reported a low level of health literacy of nurses and showed that medical staff who were better aware of health literacy, in practice more than others, used health literacy strategies in educating patients (30).

The results of present study showed that there is a weak and non-significant negative relationship between the health literacy score and the health anxiety score. A similar study also showed a negative relationship between health literacy and health anxiety in adults living in Iranian society (31). The results of a similar study on the association of health literacy with health anxiety in Poland, adult user responses showed that higher health literacy was associated with lower levels of future health anxiety (20), and an Australian study (2020) showed insufficient levels of health literacy was associated with increased anxiety and less serious perceived threat (32). Accordingly, it seems that having high health literacy in the medical staff can not only affect their own health and the health of their families, but also the health of the community. Considering the important role that health literacy plays in preventing the spread of disease and reducing the effects of these epidemics, there is a fundamental need to design interventions to increase disease-related health literacy at the time of epidemics (29). The COVID-19 epidemic highlights the need to improve health literacy and prepare everyone for future emergency and non-emergency situations, and confirms that health literacy can be considered a social vaccine (33). Also, in the results, there was a weak and non-significant negative relationship between the social support score and the health anxiety score. A similar study in Iran also showed a negative relationship between social support and health anxiety (31). Another study also showed that higher social support is associated with a decrease in anxiety and psychological distress (22) and if the social support of the treatment staff decreases, they choose negative coping styles such as withdrawal and self-attack. As a result, it affects their mental health. Therefore, more attention should be paid to the improvement of the mental coping ability of the treatment staff in crisis situations (26).

CONCLUSION

In this study, there was a weak relationship between the

overall score of health anxiety and the overall score of health literacy as well as the overall score of health anxiety and social support. In addition, most medical staff experienced high levels of anxiety during the Covid-19 epidemic, but there was no significant difference between their levels of health anxiety in different departments. Also, the health literacy of most medical staff in various fields was average and most people in each field of study had a moderate level of social support.

According to the results, it seems that more studies on the specific causes of anxiety in medical staff and the identification of support mechanisms during epidemics are needed. Increasing health literacy, trying to reduce health anxiety and stress, and improving social support can be part of these interventions.

LIMITATIONS

In this study, samples were selected non-random, which may limit the generalizability of the study. Also, we may not have reached a representative sample, because we only selected people who had Internet access to social networks.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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