Original Article

Resilience and coronavirus anxiety in Iran: Online survey among healthcare workers and non-healthcare workers

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Abstract

Introduction: Healthcare workers are at the forefront of the fight against disease and undoubtedly have the most significant responsibility and burden of stress. They are under severe physical and psychological pressure. This study compared the anxiety caused by corona and resilience in healthcare and non-healthcare workers.

Materials and Methods: This cross-sectional study used an online self-administered questionnaire in Iran. The sample comprised 102 healthcare workers and 123 non-healthcare workers who completed the social network questionnaire from March 1 to 9, 2021. The participants were assessed using the Connor-Davidson Resilience Scale (CD-RISC) and the Corona Disease Anxiety Scale (CDAS). The data were analyzed through descriptive statistics, Chi-square, t-test, Mann-Whitney test, ANCOVA, and SPSS v.16.

Results: COVID-19 has led to significantly higher anxiety in healthcare workers regarding physical symptoms than in non-healthcare workers ($P= 0.037$). Also, the healthcare worker had raised a total CDAS score ($P= 0.029$). The total score of CD-RISC was also 90.6±13.9 among the non-healthcare workers and 84.1±19.8 among healthcare workers ($P= 0.036$). After adjustment for the probable confounding effect of education level, again, the total scores of the two scales were significantly different between the two groups ($P< 0.05$).

Conclusion: According to the results, COVID-19 has led to significantly higher anxiety and lower resilience in healthcare workers than non-healthcare workers.

Keywords: Anxiety, COVID-19, Healthcare workers, Resilience

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Introduction

On December 29, 2019, hospital physicians in Wuhan, China, noticed unusual patients with pneumonia COVID-19 (1). The virus has spread rapidly in many countries, including Iran, after increasing global incidence (2). Between February 19 and February 23-2020, Iran reported its first 43 cases, with eight deaths (3). It is essential that controlling the disease requires proper and comprehensive management and attention to mental health care. Adhering to all the rules mentioned, cohesion, and relying on social capital is the only possible way to overcome the existing situation (4). In addition to causing physical harm, it severely impacts human mental health. Such a crisis has significant psychological consequences such as anxiety, depression, somatization, and increased self-harm behaviors such as alcohol and substance use (5,6). On the other hand, healthcare workers, especially those in referral hospitals, are at high risk for infection and mental health problems (7). Healthcare workers are under severe physical and psychological pressure (8). Healthcare workers are also involved in quarantine, social isolation, and family separation, worrying about themselves and their family members getting infected with the virus (9,10). Anxiety may harm their performance and decision-making ability and may have long-term effects on their well-being (11). However, minor studies have been done about the probable strategies frontline healthcare workers could deploy during this pandemic (12). Of particular importance are the individual and psychological capacities that can help a person withstand such difficult situations and even grow in personality (13,14). One of the personality traits that positively reduces psychological stress is resilience (15). Resilience is the ability to adapt successfully to threatening conditions, effectively relieve stress, and perform well (13). Connor and Davidson, who have studied resilience in the social sphere, argue that resilience is resistance to threatening conditions and the active and constructive participation of the individual in the environment (16).

Some studies consider resilience as a response to a special occasion or circumstance, and others regard it as a method of sustainable confrontation. The younger nurses with less experience have higher levels of anxiety and depression and have lower resilience (17).

Brown also found a positive and significant relationship between resilience and job satisfaction in a sample of 535 nurses in Australia (18).

Presently, on the one hand, due to the effects of the particular and high-risk condition on all sections of society, and on the other hand, due to the relevant research restrictions and different cultures in Iran, there were a few studies with this specific questionnaire (CDAS), in this study, we intend to examine the level of anxiety caused by this disease and the rate of resilience in both groups of Healthcare workers with non- Healthcare workers and then examine the necessary interventions. This study compared the anxiety caused by coronavirus and Resilience in Healthcare and non-healthcare workers.

Materials and Methods

It was a cross-sectional study carried out using an online self-administered questionnaire. The sample consisted of 102 healthcare workers and 123 non-healthcare workers who worked in different hospitals in Iran, and Participants were surveyed from March 1 to 9, 2021. The sample size of the present study was calculated based on the result of Doo et al. In the mentioned study, the mean of resilience in nurses who work in the COVID-19 patient unit and non-COVID-19 unit was 1.82 ± 0.78 and 2.28 ± 0.65 respectively (19). Assuming the first and second type errors of 0.01 and 0.05 and the following formula, the minimum sample size per group was 86 patients. Considering the attrition rate of 15%, the final sample size in each group was set to 100.

The inclusion criteria included aged 18 and above, completed questionnaires, no history of severe mental illness, and care of patients with COVID for the healthcare worker group. The exclusion criteria included incomplete questionnaires. This study has been approved by the ethical committee of Golestan University of Medical Sciences (IR.GOUMS.REC. 1399.201).

The online questionnaire was in Google Document format (https://forms.gle/QWmXd BEFKs2FXEy27) and distributed on social networks. A brief statement about the research purpose was included in this format, and the principal investigator introduced the survey. Participants' essential personal background (such as age, sex, educational status, and marital status) was collected.

Research instruments

A) Corona Disease Anxiety Scale (CDAS): This instrument has been developed and has good validity and reliability to measure anxiety caused by the coronavirus outbreak in Iran. The final version included 18 items and two components (items). Items 1 to 9 measure psychological symptoms, and items 10 to 18 assess physical symptoms. The items are scored on a 4-point Likert degree (never= 0, sometimes= 1, most of the time= 2, and always= 3), so the highest and lowest scores for this questionnaire are between 0 and 54. High scores indicate higher levels of anxiety in people. Its reliability was calculated for the first factor (α= 0.87), the second factor (α= 0.86), and the whole questionnaire (α= 0.91) (20).

B) Connor-Davidson Resilience Scale (CD-RISC): Measured by Connor and Davidson. The tool consists of 25 items on a five-choice Likert scale (completely incorrect 0, rarely true= 1, sometimes true= 2, often true= 3, and always true= 4), and its overall score ranges from 0-100. The results of factor analysis revealed that this test has five factors. Interpretations of these dimensions are as follows: Factor 1 (11 items) denotes tenacity; Factor 2 (3 items) corresponds

to goal establishment and attainment; Factor 3 (4 items) relates to essential trust; Factor 4 (6 items) relates to ac-acceptance and faith (16). The Cronbach's alpha coefficient was 0.93 for its Iranian version (21). Data were analyzed by the descriptive statistics, Chi-square or t-test, Mann-Whitney test, Analysis of Covariance (ANCOVA), and SPSS v.16.0.

Results

The healthcare workers consisted of 33 males (32.4%) and 69 females (67.6%) with a mean age of 32.4±6.5 years. The frequency of males and females in the non-healthcare worker group was also 27.1% and 72.9%, respectively, with the mean age of 31.1±8.2 years. Furthermore, 57.8% of healthcare workers and 45.8% of non-healthcare workers were married. Two groups were homogenous in sex, marital status, and age ($P> 0.05$). However, the education level was significantly higher in the healthcare worker group ($P< 0.001$) (Table 1).

Table 2 presents the comparative results related to corona disease anxiety and resilience in healthcare workers and non-healthcare workers.

Table 1. Comparison of demographic variables in healthcare workers and non-healthcare workers

Variable	Healthcare worker (n= 102)	Non-healthcare worker (n= 118)	P*
Sex			
Male	33(32.4%)	32(27.1%)	0.396
Female	69(67.6%)	86(72.9%)	
Age (Year)	32.4±6.5	31.1±8.2	0.192
Marital status			
Single	43(42.2%)	64(54.2%)	0.074
Married	59(57.8%)	54(45.8%)	
Education level			
Secondary school	43(42.2%)	112(94.9)	<0.001
Undergraduate or postgraduate	32(31.4%)	2(1.7%)	
Ph.D.	27(26.5%)	4(3.4%)	

*Based on Chi-square or t-test

Table 2. Comparison of corona disease anxiety and resilience between healthcare workers and non-healthcare workers

Variable	Healthcare worker (n=102)	Non-Healthcare worker (n=118)	P*	Adjusted P**
Psychological symptoms	10.6±6.1	9.0±5.5	0.078	0.140
Physical symptom	4.4±5.2	2.5±3.4	0.037	0.019
CDAS	15.0±10.8	11.5±8.4	0.029	0.050
Personal competence	27.2±7.1	29.2±5.4	0.048	0.068
Trust in one's instincts	22.2±5.2	23.8±4.2	0.038	0.110
Positive acceptance of change	17.9±4.2	19.1±2.8	0.147	0.010
Control	10.3±2.8 11(4-15)	10.7±2.4	0.406	0.438
Spiritual influences	6.4±2.4	7.8±2.0	<0.001	0.002

Variable	Healthcare worker (n=102)	Non-Healthcare worker (n=118)	P*	Adjusted P**
CD-RISC	84.1±19.8	90.6±13.9	0.036	0.030

*Based on Mann Mann-Whitney test, **Adjusted based on education level, CDAS= Corona Disease Anxiety Scale, CD-RISC= Connor-Davidson Resilience Scale

As Table 2 indicates, COVID-19 has led to significantly higher anxiety in healthcare workers regarding physical symptoms than in non-healthcare workers ($P= 0.037$). The mean difference in anxiety related to psychological and physical symptoms was 1.6 and 1.9 scores, respectively. Also, the healthcare worker had higher total CDAS score ($P= 0.029$).

Based on CDAS standardized t-scores in the Iranian population, 18.6% of both studied groups had moderate corona disease-related anxiety. In comparison, the frequency of severe anxiety was significantly higher in healthcare workers than in non-healthcare workers (13.7% vs. 4.2%) (Figure 1).
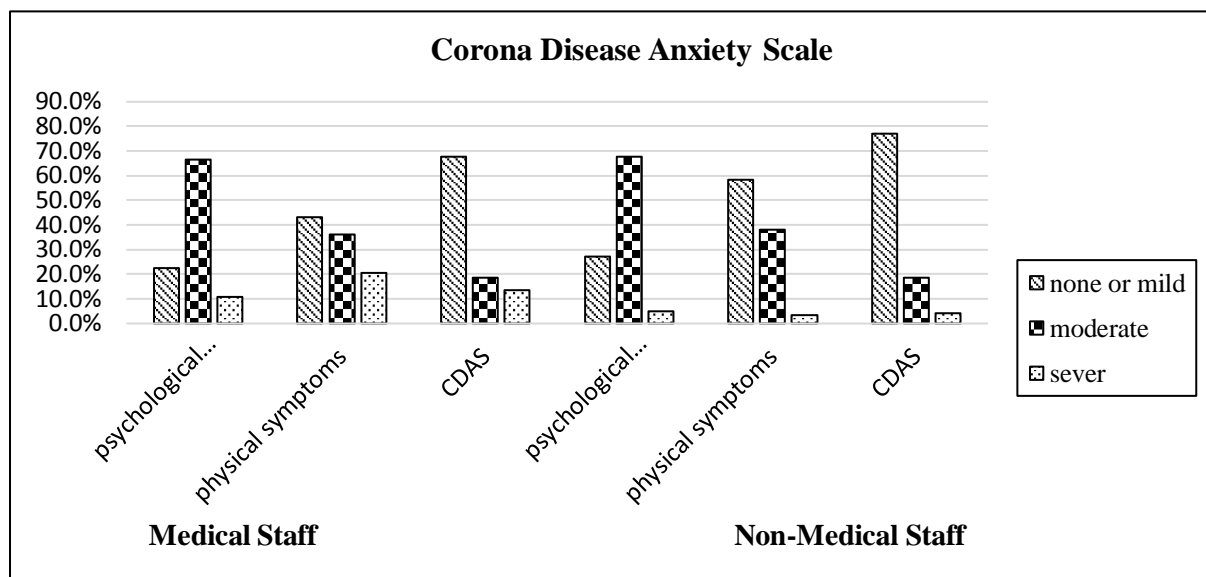

Figure 1. Comparison of corona disease anxiety between healthcare workers and non-healthcare workers

Comparison of Connor-Davidson Resilience subscales' scores, including personal competence, trust in one's instincts tolerance, and spiritual influences among healthcare workers and non-healthcare workers, yielded significantly higher scores in those tackling the coronavirus crisis ($P< 0.001$). The total score of CD-RISC was also 90.6±13.9 in the non-healthcare worker group, 6.5 scores higher than Healthcare workers. ($P= 0.036$) (Table 2).

However, this result could be biased due to no homogeneity of education level between the two groups. Therefore, we ran a complementary analysis to control the effects of probable confounders.

Based on the result of ANCOVA after adjustment for the education level, the differences between the scores of physical symptom (0.019) and total score of CDAS (0.050) were statistically significant between the two groups.

Among the subscales of CD-RISC, the score of positive acceptance of the change (0.010), spiritual influences ($P= 0.011$), and total score of CD-RISC were significantly different between the two groups. In contrast, other subscales turned into insignificant (Table 2).

Discussion

Physicians and other healthcare workers play a major role in major public health crises, while people struggle with high anxiety levels, such as the current COVID-19 pandemic (22). In our findings, compared to non-healthcare workers, the Healthcare worker group is experiencing significant anxiety regarding physical symptoms caused by COVID-19. In this study, the mean difference in anxiety related to psychological and physical symptoms in the Healthcare worker was 1.6 and 1.9, respectively. According to the CDAS standard scores in the Iranian population, 18.6% of both study groups had anxiety related to COVID-19, while the Prevalence of severe anxiety was

significantly higher in Healthcare workers than in non-healthcare workers.

The results of this study approved Ghazanfarpour et al. research showing noticeable anxiety and depression in healthcare workers (23). Also, the results of the studies by Zhou et al. (9), Huang and Zhao (5), and Xiang et al. (7) showed that medical personnel on the front line are prone to stress, depression, and anxiety during the COVID-19 epidemic. These findings suggest that confronting the widespread COVID-19 disease, healthcare workers are concerned about the risks posed by infection and protective measures and, consequently, psychological distress (7).

On the other hand, Connor-Davidson resilience subscales obtained significant scores, including individual competence, trust in personal instincts, tolerance of negative emotion, and spiritual influences in both groups in contact with this epidemic. These findings support that resilience in nurses and healthcare workers is a skill they can learn and enjoy to survive and thrive in the face of problems in the workplace (24,25). In the present study, most non-healthcare workers did not report any signs of anxiety or had mild anxiety about the coronavirus; this finding does not match the study of Wang et al. They found that 28.8% reported moderate to severe anxiety symptoms, while, 8.1% reported moderate to severe stress (26). The scientific evidence about COVID-19 on the mental health in the Iranian population is the lack of proper understanding of the major dangers of the COVID-19 epidemic, including unreliable information. One of the goals of telemedicine psychiatry in different countries is to provide services to patients with previous disorders, medical staff, and the general population in Iran, to improve the mental health of the community, and to provide individual online psychotherapy (26).

Based on this study, long working hours, care for sick or dying patients, quantitative and qualitative work pressure, lack of resources, interactive relationships with other employees, interpersonal conflicts, organizational policies, occupational hazards, and the risk of disease transmission have significant physical and psychological effects on this group. Therefore, based on the analysis of the results of this study, we found that COVID-19 had led to significantly higher anxiety and lower resilience in healthcare workers than in non-healthcare workers.

The sample size is one of the limitations of this study, so the results of this review may be limited to people. Different groups of healthcare workers have yet to be studied. For instance, we cannot discriminate between Intensive Care Unit (ICU) staff and other administrative staff; future studies with higher sample sizes and different groups are recommended. Various factors, such as personality, are also influential in resilience. Therefore, questionnaires that measure its relationship with personality should also be used.

Conclusion

Based on the results, COVID-19 has led to significantly higher anxiety and lower resilience in healthcare workers than non-healthcare workers.

Acknowledgments

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