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Factors Affecting Anxiety, Depression, and Health Anxiety among Healthcare Workers during the COVID-19 Pandemic in Iran

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Abstract

Background: The COVID-19 pandemic posed significant challenges to healthcare systems globally. Iranian healthcare workers faced increased psychological stress and workplace changes. This study aimed to identify factors influencing anxiety, depression, and health anxiety among Iranian healthcare workers during the pandemic.

Materials and Methods: A cross-sectional study was conducted in March 2020 among healthcare workers at public and private hospitals and COVID-19 clinics across six southern provinces of Iran. Convenience sampling was used. Data were collected via an online questionnaire including demographics, the Short Health Anxiety Inventory (SHAI), and the Modified Hospital Anxiety and Depression Scale (HADS). Logistic regression identified predictors of COVID-19-related anxiety, depression, and health anxiety.

Results: Among 308 participants, 85.1% were female and 53.9% were under 30 years old. Most were married (64%) and 42.9% had children. Marriage significantly increased the odds of severe depression (OR=1.84; 95% CI: 1.01–3.31; p=0.04) and severe anxiety (OR=1.99; 95% CI: 1.10–3.40; p=0.01). Having children also raised the risk of severe depression (OR = 2.56; 95% CI: 1.33–4.92). Experiencing COVID-19 symptoms was strongly linked to higher odds of depression (OR = 4.05; p = 0.023) and anxiety (OR = 2.74; p = 0.04). Regular or occasional exercise significantly reduced levels of anxiety ($p < 0.001$) and depression (p=0.03). Increased health anxiety was associated with greater concern about coronavirus, less exercise, working in COVID-19 wards, chronic illness, and temporary employment ($p<0.05$).

Conclusion: Marital status, having children, COVID-19 symptoms, and exercise habits significantly influenced anxiety, depression, and health anxiety among Iranian healthcare workers. Promoting healthy behaviors and targeted mental health support are crucial to safeguarding healthcare workers during public health crises.

Key Words: Anxiety, COVID-19, Depression, Health anxiety, Healthcare workers.

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1- INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has emerged as one of the most significant global health crises of the 21st century, profoundly impacting both the physical and mental health of populations worldwide (1, 2). Healthcare workers, particularly those on the frontlines, face considerable psychological pressures due to direct patient exposure, increased workloads, and concerns for their own and their families' health—pressures that often exceed those experienced by the general population (3, 4). The World Health Organization (WHO) has reported a high prevalence of occupational psychological disorders, especially among nurses, as a result of pandemic-related work stress (5, 6). Both global and national studies have documented significant increases in anxiety, depression, and health anxiety among medical staff (7, 8).

Healthcare workers in high-risk settings such as emergency departments, intensive care units, and isolation wards are especially vulnerable to severe psychological outcomes due to heavy workloads and direct contact with critically ill patients (9, 10). Factors influencing the severity of these mental health issues among healthcare workers include female gender, age between 41 and 60 years, long working hours, night shifts, prior mental health history, lack of protective equipment, and fear of transmitting the virus to family members (11-13). In Iran, the prevalence of anxiety and depression among healthcare workers is notably high; over half have experienced anxiety symptoms, and about 30% suffer from health anxiety (7, 13). Despite these challenges, the resilience and dedication of healthcare workers suggest that targeted support can effectively improve their mental well-being (12, 14).

Given the critical role of healthcare workers' mental health in ensuring quality care and sustaining health systems, understanding the factors influencing anxiety, depression, and health anxiety in this population is essential. Therefore, this study aimed to identify factors affecting anxiety, depression, and health anxiety among Iranian healthcare workers during the COVID-19 pandemic. The findings are expected to inform the development of targeted support programs and effective policies to enhance the mental health and working conditions of this vital workforce.

2- MATERIALS AND METHODS

This cross-sectional study is part of a larger research project investigating the impact of tele-counseling on the mental health of healthcare workers in hospitals and COVID-19 reference clinics in southern Iran. While previous publications have addressed depression data, the current analysis focuses on health anxiety as well as COVID-19-related anxiety and depression (15).

2-1. Participants and Sampling

Healthcare workers from public and private hospitals, as well as COVID-19 reference clinics in the southern provinces of Iran (Fars, Kerman, Hormozgan, Sistan and Baluchestan, Bushehr, and Khuzestan), were invited to participate. Data collection took place over three weeks (March 10–30, 2020) using a convenience sampling method. Recruitment was facilitated through official communications from Kerman University of Medical Sciences, email invitations containing a link to an online questionnaire, and outreach via social networks and professional contacts.

2-2. Inclusion and Exclusion Criteria

2-2-1. Inclusion Criteria: All healthcare workers, regardless of age or work experience, were eligible to participate, provided they had not previously engaged in psychological interventions targeting COVID-19-related mental health issues.

Informed consent was obtained electronically prior to questionnaire completion.

2-2-2. Exclusion Criteria: Participants were excluded if they had previously participated in psychological interventions addressing COVID-19-related anxiety, depression, or health anxiety, or if they submitted an incomplete questionnaire (i.e., did not answer all required items).

2-3. Data Collection Tools

2-3-1. Demographic Questionnaire: Collected data on age, gender, and marital status, income, and workplace characteristics.

2-3-2. Hospital Anxiety and Depression Scale (HADS): The Hospital Anxiety and Depression Scale (HADS) is a self-report questionnaire comprising 14 items, equally divided into two subscales measuring anxiety and depression (16). Each item is rated on a 4-point Likert scale from 0 to 3, with higher scores indicating greater symptom severity. Total scores for each subscale range from 0 to 21. Scores of 0–7 indicate no significant symptoms, 8–10 suggest mild symptoms, and scores above 10 reflect clinically relevant anxiety or depression (17). The HADS has demonstrated good reliability and validity across various populations and languages, including Persian (18). In this study, the HADS was adapted by adding the phrase "related to the Coronavirus outbreak" to focus on COVID-19-specific symptoms.

2-3-3. Short Health Anxiety Inventory (SHAI): The Short Health Anxiety Inventory (SHAI) is an 18-item self-report scale designed to assess health anxiety independently of physical health status. Each item is rated on a 4-point Likert scale (0–3), producing total scores ranging from 0 to 54, with higher scores indicating greater severity of health anxiety (19). The SHAI evaluates two main dimensions: the perceived likelihood of becoming ill (items 1–14), and the anticipated negative consequences of illness (items 15–18), capturing both cognitive and emotional aspects of health anxiety. It is widely used in both clinical and non-clinical populations to measure health anxiety severity and monitor changes over time. The Persian version of the SHAI has demonstrated acceptable reliability in previous studies and has been used without modification to assess COVID-19-related health anxiety among healthcare workers, benefiting from its brevity and validated factor structure (20).

2-4. Sample Size Estimation

The sample size for this cross-sectional study was determined using the standard formula for estimating prevalence, with a 95% confidence level ($\alpha = 0.05$), an expected prevalence rate (p) of 0.50 to maximize the required sample size, and a margin of error (d) of 0.06. Assuming a prevalence of depression or stress at 50% ensures the largest sample size estimate. Based on these parameters, the minimum required sample size was calculated to be 267 participants. To account for potential non-response or incomplete questionnaires, an additional 15% was added, resulting in a final target sample size of 308 participants. The sample size formula used was:

$$n = \frac{(z^2_{1-\frac{\alpha}{2}} \times p \times (1-p))}{d^2}$$

2-5. Statistical Analysis

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to provide a comprehensive overview of the sample and key variables. To examine relationships between health anxiety dimensions and demographic or clinical factors, linear regression analyses were conducted. Additionally, logistic regression was employed to identify predictors of anxiety and depression, with odds ratios and 95% confidence intervals

reported to enhance interpretability and clinical relevance. All analyses were performed using SPSS version 22, with statistical significance set at $p < 0.05$.

2-6. Ethical Considerations

The study protocol was reviewed and approved by the Ethics Committee of Kerman University of Medical Sciences (IR.KMU.REC.1399.114). Participation was entirely voluntary, and all participants were informed of their right to withdraw from the study at any time without penalty. Data collection was performed anonymously to ensure confidentiality and safeguard participants' privacy. Before completing the online questionnaire, participants received comprehensive information about the study's objectives, procedures, and their rights as research subjects. Informed consent was obtained electronically through an embedded consent button within the survey platform. Furthermore, contact details of the research team were provided at the end of the questionnaire to address any questions or concerns from participants.

3- RESULTS

A total of 308 healthcare workers from 6 southern provinces participated in this study. The majority of participants (53.9%) were under 30 years of age, and most were female (85.1%). Regarding marital status, 64% were married, and 42.9% had children. A history of contact with a COVID-19 patient was reported by 24.7% of participants, while 16.6% had experienced symptoms suggestive of COVID-19. After work shifts, 95.1% of the staff returned home to rest, whereas the remaining participants stayed elsewhere. Notably, 78.6% identified their workplace as the main source of concern regarding the coronavirus, while the rest cited society or home as their primary source of worry. Additional demographic characteristics of the participants are detailed in **Table 1**.

3-1. Predictors of Health Anxiety in Healthcare Workers

As presented in **Table 2**, several variables were significant predictors of the first dimension of health anxiety. Working in an inpatient COVID-19 ward ($\beta = 2.51$, $p<0.001$) and having a specific physical illness ($\beta = 2.23$, $p = 0.04$) were both associated with higher anxiety scores. Furthermore, participants who engaged in regular ($\beta = 5.81$, $p < 0.001$) or occasional physical activity ($\beta = 4.21$, $p < 0.001$) reported significantly higher anxiety scores compared to those who did not exercise. Additional predictors of the first anxiety dimension included exhibiting symptoms of COVID-19, having a physical illness, undergoing medical interventions due to COVID-19 concerns, and identifying the main source of COVID-19-related worry.

Employment status and exercise were also significant predictors of the second dimension of anxiety. Specifically, individuals with temporary contractual employment had higher anxiety scores ($\beta=0.90$, $p < 0.001$), as did those who exercised regularly ($\beta = 2.52$, $p < 0.001$) or occasionally ($\beta = 1.63$, $p = 0.01$), compared to non-exercisers. No other variables showed significant associations with the anxiety dimensions.

3-2. Factors Linked to Anxiety and Depression in Healthcare Workers

Table 3 summarizes the characteristics of depression and anxiety as measured by the Hospital Anxiety and Depression Scale (HADS). Being married was significantly associated with an increased likelihood of severe anxiety (OR = 1.99, 95% CI: 1.10–3.40, $p = 0.01$) and severe depression (OR= 1.84, 95% CI: 1.01–3.31, $p = 0.04$). Having children was linked to a 2.56-fold greater risk of severe depression (OR=2.56, 95% CI: 1.33–4.92). Experiencing symptoms of COVID-19 markedly increased the risk of both severe depression (OR = 4.05, 95% CI: 1.21–13.54, $p=0.023$) and severe anxiety

(OR=2.74, 95% CI: 1.04–7.21, p = 0.04). In contrast, engaging in regular or occasional exercise was associated with lower odds of experiencing severe anxiety.

Table 1. Demographic and Occupational Characteristics of Healthcare Workers (n=308).

Variables	Category	Number (%)
Age (years)	< 30	166 (53.9%)
	≥ 30	142 (46.1%)
Gender	Male	46 (14.9%)
	Female	262 (85.1%)
Marital status	Married	199 (64.6%)
	Single	109 (35.4%)
Having children	Yes	132 (42.9%)
	No	176 (57.1%)
Post-Shift Resting Place	My home	293 (95.1%)
	Another place	15 (4.9%)
Doing exercise	Never	112 (36.4%)
	Sometimes	179 (58.1%)
	Regularly	17 (5.5%)
Workplace	Clinic	69 (22.4%)
	Public hospital	217 (70.5%)
	Private hospital	22 (7.1%)
Type of employment	Volunteer	7 (2.3%)
	Temporary	50 (16.2%)
	Contract-based	63 (20.5%)
	Apprenticeship	71 (23.1%)
	Permanent	117 (38.0%)
Physical illness	Yes	33 (10.7%)
	No	275 (89.3%)
Psychological illness	Yes	12 (3.9%)
	No	296 (96.1%)
Family support	Yes	286 (92.9%)
	No	22 (7.1%)
Ability to cope with stress in the past	Yes	289 (93.8%)
	No	19 (6.2%)
Taking care of an elderly	Yes	66 (21.4%)
	No	242 (78.6%)
Direct contact with a COVID-19 patient	Yes	76 (24.7%)
	No	232 (75.3%)
Corona ward staff	Yes	85 (27.6%)
	No	223 (72.4%)
Experiencing stressful situations in the last 3 months	Surgery	20 (6.5%)
	Marriage	14 (4.5%)
	Death of a loved one	41 (13.3%)
	None	233 (75.6%)
The main source of stress about COVID	Workplace	242 (78.6%)
	Society	58 (18.8%)
	Home	8 (2.6%)

Table-2: Relationship between Health Anxiety Dimensions and Demographic and Clinical Variables Using Linear Regression.

Variables	Illness Likelihood (Items 1–14), Mean± SD	Regression Coefficient (95% CI)	P-value	Negative Consequences (Items 15–18), Mean± SD	Regression Coefficient (95% CI)	P-value
Age (years)						
<30	13.89 ± 5.51	0.16 (–1.17, 1.50)	0.80	3.58 ± 2.79	–0.28 (–0.88, 0.32)	0.36
≥30	14.06 ± 6.49			3.30 ± 2.57		
Gender						
Male	12.71 ± 6.13	–1.47 (–3.34, 0.38)	0.12	3.57 ± 2.70	–0.81 (–1.65, 0.02)	0.05
Female	14.19 ± 5.93			2.76 ± 2.58		
Workplace						
Clinic	13.65 ± 4.60	1.56 (–1.28, 4.41)	0.28	3.88 ± 2.58	1.06 (–0.21, 2.35)	0.10
Public hospital	14.26 ± 6.44	2.17 (–0.42, 4.78)	0.10	3.38 ± 2.75	0.56 (–0.61, 1.73)	0.34
Private hospital	12.09 ± 4.69	1.56 (–1.28, 4.41)	028	2.81 ± 2.32	1.06 (–0.21, 2.35)	0.10
Employment						
Volunteer	13.85 ± 5.36	–0.81 (–5.34, 3.70)	0.72	3.28 ± 2.36	0.17 (–1.86, 2.21)	0.86
Contractual	13.70 ± 6.23	–0.87 (–2.83, 1.08)	0.38	4.02 ± 2.50	0.90 (0.02, 1.79)	0.04
Contract-based	13.96 ± 5.22	–0.70 (–2.52, 1.11)	0.44	3.77 ± 2.77	0.66 (–0.15, 1.48)	0.11
Apprenticeship	12.95 ± 5.09	–1.71 (–3.46, 0.31)	0.05	3.35 ± 3.03	0.24 (–0.54, 1.02)	0.54
Permanent	14.67 ± 6.72	–0.81 (–5.34, 3.70)	072	3.11 ± 2.51	0.17 (–1.86, 2.21)	086
Having children						
Yes	14.67 ± 6.44	1.18 (–0.14, 2.52)	0.08	3.62 ± 2.73	0.29 (–0.31, 0.90)	0.34
No	13.44 ± 5.56			3.32 ± 2.66		
Working in COVID-19 ward						
Yes	15.84 ± 6.54	2.51 (1.03, 3.99)	<0.001	3.61 ± 2.47	0.23 (–0.44, 0.91)	0.49
No	13.26 ± 5.60			3.39 ± 2.77		
Direct contact with COVID-19						
Yes	13.26 ± 5.64	–0.94 (–2.48, 0.59)	0.23	3.15 ± 2.60	–0.39 (–1.09, 0.30)	0.26
No	14.20 ± 6.07			3.55 ± 2.72		
Having symptoms of COVID-19						
Yes	16.52 ± 6.23	3.06 (1.30, 4.82)	<0.001	3.72 ± 2.68	0.32 (–0.48, 1.13)	0.43
No	13.46 ± 5.80					
Taking care of an elderly						
Yes	13.95 ± 7.08	–0.02 (–1.64, 1.59)	0.97	3.40 ± 2.62	–0.05 (–0.79, 0.67)	0.87
No	13.97 ± 6.65			3.46 ± 2.72		

Marital status						
Married	14.43 ± 6.10	1.29 (–0.09, 2.68)	0.06	3.66 ± 2.70	0.59 (–0.03, 1.21)	0.06
Single	13.13 ± 5.66			3.07 ± 2.64		
Family support						
Yes	13.87 ± 5.79	–1.06 (–3.68, 1.54)	0.42	3.45 ± 2.72	0.07 (–1.12, 1.27)	0.90
No	15.31 ± 8.04			3.50 ± 2.42		
History of psychological illness						
Yes	15.07 ± 8.52	0.58 (–2.78, 3.96)	0.73	4.15 ± 2.15	0.49 (–1.06, 2.03)	0.53
No	13.92 ± 5.85			3.42 ± 2.71		
Chronic physical illness						
Yes	15.96 ± 7.66	2.23 (0.09, 4.37)	0.04	3.42 ± 2.73	–0.03 (–1.00, 0.93)	0.94
No	13.73 ± 5.71			3.45 ± 2.69		
Doing exercise						
Regularly	15.22 ± 6.95	5.81 (2.84, 8.77)	<0.001	4.11 ± 2.89	2.52 (1.19, 3.86)	<0.001
Occasionally	13.62 ± 5.19	4.21 (1.32, 7.10)	<0.001	3.21 ± 2.51	1.63 (0.32, 2.95)	0.01
Never	9.41 ± 3.89	4.21 (1.32, 7.10)	<0.001	1.58 ± 1.87	1.63 (0.32, 2.95)	0.01
Stressful conditions (last 3 months)						
Surgery	14.15 ± 6.67	0.26 (–2.45, 2.98)	0.85	4.35 ± 2.53	0.96 (–0.26, 2.18)	0.12
Marriage	12.78 ± 5.16	–1.10 (–4.31, 2.10)	0.05	3.64 ± 2.97	0.25 (–1.18, 1.70)	0.72
Recent death of a loved one	14.78 ± 6.47	0.89 (–1.08, 2.86)	0.37	3.34 ± 2.34	–0.04 (–0.93, 0.84)	0.92
No	13.88 ± 5.89	0.26 (–2.45, 2.98)	0.85	3.38 ± 2.75	0.96 (–0.26, 2.18)	0.12
Ability to stress adaptation						
Yes	13.95 ± 5.88	–0.44 (–3.22, 2.32)	0.75	3.37 ± 2.63	–1.23 (–2.50, 0.03)	0.05
No	14.26 ± 7.47			4.63 ± 3.32		

Notes: Reference category is the baseline for regression comparison, P-values (≤0.05) indicate statistical significance, and Regression coefficients are presented with 95% confidence intervals.

Abbreviations: CI = Confidence Interval; SD = Standard Deviation; COVID-19 = Coronavirus Disease 2019.

Table-3: Comparison of Characteristics between Healthcare Workers With and Without COVID-19 Related Depression and Anxiety.

Variables	Without Depression, n (%)	With Depression, n (%)	OR (95% CI)	P-value	Without Anxiety, n (%)	With Anxiety, n (%)	OR (95% CI)	P-value
Age (years)								
<30	32 (58.2)	134 (53.0)	0.821 (0.473, 1.424)	0.483	32 (50.0)	110 (45.1)	1.23 (0.685, 2.229)	0.482
≥30	23 (41.8)	119 (47.0)			32 (50.0)	134 (54.9)		
Doing Exercise								
Sometimes	33 (60.0)	95 (37.5)	2.32 (0.72, 7.45)	0.280	36 (56.3)	143 (58.6)	10.245 (3.341, 31.420)	0.000
Regularly	5 (9.1)	12 (4.7)	1.84 (0.60, 5.59)	0.280	11 (17.2)	6 (2.5)	7.282 (2.524, 21.014)	0.000
Never	17 (30.9)	146 (57.7)	2.56 (1.36, 4.82)	0.003	17 (26.6)	95 (38.9)	1.80 (1.01, 3.22)	0.045
Gender								
Male	10 (18.2)	36 (14.2)	0.747 (0.345, 1.613)	0.457	14 (21.9)	32 (13.1)	0.539 (0.268, 1.085)	0.083
Female	45 (81.8)	217 (85.8)			50 (78.1)	212 (86.9)		
Workplace								
Clinic	11 (20.0)	58 (22.9)	0.833 (0.210, 3.302)	0.794	16 (25.0)	53 (21.7)	0.343 (0.137, 1.997)	0.343
Public hospital	58 (22.9)	172 (70.5)	1.12 (0.63, 1.97)	0.698	45 (70.3)	172 (70.5)	0.74 (0.41, 1.34)	0.320
Private hospital	3 (4.7)	19 (7.8)	1.22 (0.34, 4.34)	0.762	3 (4.7)	19 (7.5)	1.29 (0.35, 4.76)	0.700
Employment								
Volunteer	2 (3.6)	5 (2.0)	0.455 (0.082, 2.526)	0.368	3 (4.7)	4 (1.6)	0.362 (0.076, 1.726)	0.202
Corporate	12 (21.8)	38 (15.0)	0.576 (0.253, 1.308)	0.187	9 (14.1)	41 (16.8)	1.238 (0.531, 2.885)	0.621
Contractual	13 (23.6)	50 (19.8)	0.699 (0.317, 1.541)	0.375	13 (20.3)	50 (20.5)	1.045 (0.492, 2.220)	0.909
Apprenticeship	10 (18.2)	61 (24.1)	1.109 (0.481, 2.559)	0.808	14 (21.9)	57 (23.4)	1.106 (0.532, 2.303)	0.787
Permanent	18 (32.7)	99 (39.1)	1.05 (0.58, 1.90)	0.870	25 (39.1)	92 (37.7)	0.94 (0.54, 1.66)	0.840
Chronic Physical Illness								
Yes	5 (9.1)	28 (11.1)	1.244 (0.458, 3.382)	0.668	5 (7.8)	28 (11.5)	1.53 (0.566, 4.13)	0.402
No	50 (90.9)	225 (88.9)			59 (92.2)	216 (88.5)		
History of Psychological Illness								
Yes	1 (1.8)	12 (4.7)	2.455 (0.310, 19.418)	0.395	1 (1.6)	12 (4.9)	3.259 (0.416, 25.539)	0.261
No	54 (98.2)	241 (95.3)			63 (98.4)	232 (95.1)		
Family Support								
Yes	52 (94.5)	234 (92.5)	0.711 (0.203, 2.490)	0.593	60 (93.8)	226 (92.6)	0.837 (0.273, 2.566)	0.756
No	3 (5.5)	19 (7.5)			4 (6.3)	18 (7.4)		
Ability to Stress Adaptation in the Past								

Yes	49 (89.1)	240 (94.9)	2.261 (0.819, 6.238)	0.115	62 (96.9)	227 (93.0)	0.431 (0.097, 1.915)	0.268
No	6 (10.9)	13 (5.1)			2 (3.1)	17 (7.0)		
Marital Status								
Married	29 (52.7)	170 (67.2)	1.836 (1.017, 3.315)	0.044	33 (51.6)	166 (68.0)	1.999 (1.143, 3.497)	0.015
Single	26 (47.3)	83 (32.8)			31 (48.4)	78 (32.0)		
Taking Care of Elderly								
Yes	10 (18.2)	56 (22.1)	1.279 (0.606, 2.699)	0.518	16 (25.0)	50 (20.5)	0.773 (0.405, 1.475)	0.435
No	45 (81.8)	197 (77.9)			48 (75.0)	194 (79.5)		
Having Symptoms of COVID-19								
Yes	3 (5.5)	48 (19.0)	4.059 (1.216, 13.549)	0.230	5 (7.8)	46 (18.9)	2.741 (1.042, 7.215)	0.041
No	52 (94.5)	205 (81.0)			59 (92.2)	198 (81.1)		
Direct Contact with COVID-19 Patients								
Yes	13 (23.6)	63 (24.9)	1.071 (0.540, 2.123)	0.844	20 (31.3)	56 (23.0)	0.655 (0.357, 1.202)	0.172
No	42 (76.4)	190 (75.1)			44 (68.8)	188 (77.0)		
COVID-19 Specialized Unit Personnel								
Yes	17 (30.9)	68 (26.9)	0.822 (0.435, 1.552)	0.545	15 (23.4)	70 (28.7)	1.314 (0.692, 2.496)	0.404
No	38 (69.1)	185 (73.1)			49 (76.6)	174 (71.3)		
Having Children								
Yes	14 (25.5)	118 (46.6)	2.560 (1.330, 4.928)	0.005	23 (35.9)	109 (44.7)	1.439 (0.814, 2.544)	0.210
No	41 (74.5)	135 (53.4)			41 (64.1)	135 (55.3)		
Stressful Conditions in Last 3 Months								
Surgery	6 (10.9)	14 (5.5)	0.455 (0.164, 1.258)	0.129	4 (6.3)	16 (6.6)	1.038 (0.332, 3.247)	0.949
Marriage	4 (7.3)	10 (4.0)	0.487 (0.145, 1.635)	0.244	5 (7.8)	9 (3.7)	0.467 (0.150, 1.458)	0.190
Death of a Loved One	7 (12.7)	34 (13.4)	0.947 (0.391, 2.293)	0.903	7 (10.9)	34 (13.9)	1.260 (0.526, 3.018)	0.604
None	38 (69.1)	195 (77.1)	Reference	-	48 (75.0)	185 (75.8)	Reference	-

Notes: Reference category is the baseline for regression comparison, P-values (≤0.05) indicate statistical significance, and Regression coefficients are presented with 95% confidence intervals.

Abbreviations: CI = Confidence Interval; OR = Odds Ratio; COVID-19 = Coronavirus Disease 2019.

4- DISCUSSION

The COVID-19 pandemic has placed unprecedented psychological strain on healthcare workers worldwide, with Iranian healthcare professionals experiencing particularly high levels of anxiety, depression, and health anxiety (7, 13, 21). This study aimed to identify key factors influencing these mental health outcomes among healthcare workers during the pandemic. By examining demographic characteristics, work environment, physical health status, and behavioral factors such as physical activity, the study provides insight into the complex interplay of variables affecting psychological well-being in this vulnerable population.

4-1. Key Findings from the Present Study

The COVID-19 pandemic has had a significant psychological impact on Iranian healthcare workers, with notably high rates of anxiety, depression, and health anxiety observed in this population (7, 13). In this study, 308 healthcare workers participated, most of whom were women under 30 years of age. Over half were married, and nearly half had children.

A key finding was the predominant role of the work environment as the main source of concern: 78.6% of participants identified their workplace as the primary cause of COVID-19-related worries. This underscores the critical influence of working conditions, direct contact with COVID-19 patients, and job-related pressures in elevating anxiety and depression among healthcare staff (6, 21, 22). Approximately one-quarter of participants had direct contact with COVID-19 patients, and 16.6% had experienced symptoms suggestive of COVID-19 themselves. Such direct exposure has been identified in other studies as a major factor contributing to increased anxiety and depression among healthcare workers (6, 22–24).

Regression analysis revealed that working in inpatient COVID-19 wards and having a specific physical illness were significantly associated with higher health anxiety scores. Interestingly, participants who engaged in regular or occasional physical activity reported higher health anxiety scores, yet exercise was linked to a lower likelihood of severe anxiety. This suggests that physically active individuals, possibly due to heightened awareness of their health status, may report more health anxiety, while exercise serves as a coping strategy that reduces anxiety severity (7, 13, 25–27).

The present study also demonstrated that employment status significantly affects anxiety levels, with healthcare workers on temporary contracts experiencing higher anxiety. This finding aligns with previous research emphasizing the protective role of job stability and economic security in reducing psychological distress (28, 29). Additionally, being married and having children were associated with an increased risk of severe anxiety and depression, while experiencing COVID-19 symptoms markedly heightened these risks. These results are consistent with earlier studies reporting similar associations among healthcare workers during the pandemic (7, 8, 22, 23, 30).

4-2. Comparison with Global and National Studies

The COVID-19 pandemic has exerted a substantial psychological toll on Iranian healthcare workers, with high prevalence rates of anxiety and depression reported across multiple studies. For instance, Etesam et al. (2022) found that approximately 40% of healthcare professionals in referral hospitals experienced anxiety and depression, with emotion-based coping strategies being predominant among those affected (31).

Similarly, Eskandari et al. (2023) reported anxiety prevalence ranging widely up to 97.24%, and depression rates between 35.1% and 38.7% in Iranian healthcare workers (7). Another study highlighted significant mental health challenges among healthcare workers in Shiraz, Iran (32). Factors such as direct contact with COVID-19 patients, female gender, younger age, and job stressors including inadequate protective equipment were consistently associated with increased psychological distress (7, 12). These findings underscore the urgent need for targeted mental health interventions and organizational support to protect healthcare workers' well-being during and beyond the pandemic.

Globally, consistent risk factors for mental health problems among healthcare workers include female gender, younger age, prior psychiatric history, direct contact with COVID-19 patients, long working hours, night shifts, and insufficient protective equipment (6, 8, 21, 23, 24, 33). Our study confirms these factors, particularly emphasizing the central role of workplace-related worries, patient contact, and the impact of experiencing COVID-19 symptoms.

International research further highlights that adequate access to protective equipment and strong organizational support are important protective factors against psychological distress (21, 24). Generally, regular exercise and a healthy lifestyle are associated with reduced severity of mental health problems. However, in this study, although regular exercise was correlated with higher health anxiety scores, it was also linked to a lower likelihood of severe anxiety. This paradox may reflect greater health awareness among physically active individuals, with exercise serving as a coping mechanism that helps mitigate anxiety severity (20, 25).

4-3. Implications and Recommendations

Both this study and global evidence indicate that healthcare workers—particularly women, young adults, married individuals with children, and those working in high-risk wards—are at greatest risk of psychological harm during pandemics (8, 21, 23, 24). Given the high prevalence of anxiety and depression, there is a clear need for targeted support interventions, including workload reduction, enhancement of job security, training in coping strategies, and resilience-building programs (6, 7, 31, 34). Despite substantial psychological pressure, many healthcare workers continued their duties, demonstrating remarkable resilience and commitment. With appropriate support, this resilience can be further strengthened to mitigate psychological consequences in future crises (22, 24, 29, 35).

4-4. Study Limitations

This study has several limitations. The web-based survey may have caused self-selection bias, inflating anxiety prevalence and limiting generalizability (36, 37). Lack of interviewer interaction and technical issues could affect data quality, while survey fatigue might bias responses (38-40). The cross-sectional design prevents causal conclusions, highlighting the need for longitudinal studies (41). Focusing only on healthcare workers in southern Iran at one time point also limits geographic and long-term applicability. Future research should include diverse populations and multiple assessments.

5- CONCLUSION

This study highlights the profound psychological impact of the COVID-19 pandemic on Iranian healthcare workers, particularly young female professionals. Key factors such as working directly in COVID-19 inpatient wards, having underlying physical illnesses, and experiencing COVID-19 symptoms significantly increased health anxiety

levels. The workplace environment was identified as the primary source of stress, while marital status and parenting responsibilities further elevated the risk of severe anxiety and depression. Additionally, temporary employment was associated with higher anxiety, underscoring the importance of job security. Although physically active individuals reported greater health anxiety awareness, regular exercise emerged as a strong protective factor against severe anxiety, emphasizing its role in fostering mental health resilience.

These findings underscore the urgent need for targeted mental health interventions and supportive organizational policies tailored to the unique challenges faced by healthcare workers. Prioritizing stable employment, reducing workplace stressors, and promoting physical activity can substantially alleviate psychological distress. Investing in these strategies will not only protect healthcare workers' well-being but also strengthen the capacity of healthcare systems to respond effectively to current and future public health emergencies.

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7- CONFLICT OF INTEREST: None.

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