



# Examining the Relationship Between Psychological Hardiness and Fear of Death among Nurses Working in Intensive Care and Emergency Wards

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## Abstract:

**Background:** Psychological hardiness positively impacts the nursing profession by improving nurses' overall well-being and enhancing their ability to cope with existential challenges in patient care, such as the fear of death.

**Aim:** This study aimed to determine the relationship between psychological hardiness and fear of death in nurses working in intensive care and emergency departments.

**Methods:** This cross-sectional study was conducted through a census method involving 370 nurses employed in intensive care and emergency departments of hospitals in Birjand City in 2024. Data were collected using the Ahvaz Psychological Hardiness Questionnaire and the Collett-Lester Fear of Death Scale and analyzed using descriptive and inferential statistics.

**Results:** The mean scores for psychological hardiness and fear of death among the studied nurses were  $46.81 \pm 6.60$  and  $84.42 \pm 12.09$ , respectively. A significant negative correlation was found between psychological hardiness and fear of death overall and across its components in nurses ( $p < 0.001$ ). Significant relationships were observed between psychological hardiness and variables such as gender, marital status, department of service, age, work experience, and the number of patients cared for per shift ( $p < 0.05$ ). Significant correlations were found between gender, department of service, the number of patients cared for at the end of life, direct participation in resuscitation efforts, and the observation of patient deaths with fear of death in nurses ( $p < 0.05$ ).

**Conclusion:** Enhancing psychological hardiness in nurses may help them better cope with the emotions and fears associated with their work. Educational and supportive programs to strengthen nurses' psychological hardiness are recommended.

**Keywords:** Psychological hardiness, Fear of death, Nurses, Intensive care and emergency departments, Hospitals.

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## 1. INTRODUCTION

Nursing is one of the most stressful professions, and nurses are constantly exposed to various psychological pressures [1]. Studies indicated that the stress levels of

nurses vary based on the type of service provided and activities in different hospital wards, and high levels of stress and tension can lead to various fears among nurses [2]. Previous research has reported on the fear of death among nurses, with some findings indicating that nurses

working in intensive care and emergency wards experience moderate to severe fear of death [3]. Factors such as workload, patient deaths, and issues related to patient companions, as well as the balance between work and family, contribute to anxiety and fear of death [4]. The death of a patient can evoke feelings such as fear of helplessness, separation, loss of control, and worthlessness, which can negatively impact the mental health of nurses [5]. The higher the psychological stress levels of nurses, the more they may harm themselves and cause irreparable damage to patients [6]. A study by Aghajani *et al.* (2009) [7] found that 30.32% of nurses working in intensive care wards experienced severe death anxiety. Also, a study by Arab *et al.* (2019) reported a high mean score of death anxiety among intensive care nurses [8]. Fear of death is a significant source of psychological disorders, making its investigation in the field of mental health particularly important. Fear of death adversely affects the quality of nursing services and is considered a stressor for nurses [9]. As the mental health of nurses improves, the quality of nursing care provided to patients also increases, which in turn reduces the occurrence of medical errors [10].

One of the factors that can influence the assessment and perception of stress, fear, and psychological distress is psychological hardiness [11]. It seems that psychological hardiness had an influential effect on fear of death. It is viewed as a combination of beliefs about oneself and the world that protects individuals from external and internal pressures, essentially providing the ability to process internal and external stimuli effectively [11, 12]. In examining the factors related to the psychological stress of nurses, it appears that the level of resilience or the ability to endure work-related hardships may correlate with their psychological stress [13]. Psychological hardiness refers to individuals who demonstrate greater resistance to stress and psychological tension and are generally less prone to illness [14]. Individuals with psychological hardiness are more effective in their lives, have better confidence in their actions, and embrace new beliefs and changes [15]. Occupational hardiness is defined as the ability to withstand difficult and challenging work situations. Hardiness consists of three components: commitment, control, and challenge. Individuals with high commitment recognize the importance of their identity and the activities they engage in. Those with high control perceive life events as manageable and believe they can influence life events through effort. Individuals with a challenging disposition experience less fear and believe that change and transformation are essential aspects of life [16]. Nurses with high hardiness can better withstand job-related psychological pressures, experience less burnout, and ultimately enjoy better mental health [17]. Patient care in intensive care units and emergency departments can have significant impacts on the well-being of nurses and the quality of patient care due to the psychological pressures and stress associated with working in these critical environments [18, 19]. Psychological hardiness

helps nurses cope better with job-related challenges and pressures, thereby enhancing their ability to provide effective care to patients [20, 21]. On the other hand, fear of death can negatively affect nurses' professional performance and intensify feelings of anxiety and uncertainty [22, 23]. Therefore, understanding these relationships can lead to the development of supportive and educational programs for nurses, ultimately contributing to improved patient care quality and increased job satisfaction among nurses. In light of this, the present study was conducted with the aim of determining the relationship between psychological hardiness and fear of death among nurses working in intensive care units and emergency departments.

## 2. METHODS AND MATERIALS

This study used a descriptive-correlational methodology and was carried out in 2024 using a census approach with 370 nurses employed in emergency and critical care units in Birjand City. The study population consisted of all nurses employed in the intensive care and emergency wards of hospitals in Birjand (including Vali-e-asr, Razi, Imam Reza, Iran Mehr, Milad, and Shahid Rahimi hospitals), who were evaluated based on specific inclusion and exclusion criteria. Inclusion criteria included willingness to participate in the study, having at least six months of work experience in intensive care and emergency departments, no use of sedative medications, and no diagnosed mental illnesses by a specialist physician. Exclusion criteria included unwillingness to continue participation in the study and incomplete responses to the questionnaire.

Data collection was performed using a three-part questionnaire. The first part collected demographic information, including gender, education level, age, marital status, number of children, presence of first-degree relatives, employment status, job position, dominant work shift, number of patients cared for per shift, number of patients in the end-of-life stage, direct participation in end-of-life care, direct involvement in resuscitation efforts, and the number of patient deaths observed in the past three months.

The second part of the questionnaire utilized the Ahvaz Psychological Hardiness Questionnaire, designed by Kiamarathi *et al.* This questionnaire consists of 27 items, each with four response options: "never=0", "rarely=1," "sometimes=2", and "most of the time=3". Items 6, 7, 10, 13, 17, and 21 are scored in reverse. The scoring range for the psychological hardiness questionnaire is from 0 to 81, with higher scores indicating greater psychological hardiness. In Kiamarathi *et al.*'s study, the internal consistency of the Ahvaz Psychological Hardiness Questionnaire was assessed using Cronbach's alpha, yielding coefficients of 0.76 for the total sample, 0.76 for male participants, and 0.74 for female participants. The concurrent validity of the questionnaire was also found to be acceptable [24].

The third part of the questionnaire included the Collett-Lester Death Anxiety Scale, initially designed by

Collett and Lester in 1969 [25, 26]. This self-report tool measures the level of fear and anxiety related to death and consists of 32 items across four subscales: fear of one's death, fear of dying oneself, fear of others' death, and fear of others dying. Each subscale contains eight items, scored on a Likert scale from one (not important) to five (very important). The score range for each subscale is from 8 to 40, and the total score ranges from 32 to 160. A higher score indicates greater death anxiety. Lester (1990) reported test-retest reliability for the subscales: fear of one's death at 0.85, fear of witnessing one's death at 0.79, fear of others' death at 0.86, and fear of witnessing others' death at 0.83. In the current study, the reliability of the psychological hardiness and death anxiety instruments was confirmed using Cronbach's alpha, yielding a reliability coefficient of 0.83.

### 2.1. Procedure

To collect data, the researchers obtained permission from the ethics committee. They provided an introduction letter to the heads of the intensive care and emergency wards, along with obtaining informed consent from the target nurse group. Data collection was conducted at times that minimized interference with the staff's work, and the researchers visited during different shifts to complete the study questionnaire. After obtaining approval from the research wards, written informed consent was obtained. Participants were then asked to complete the demographic, Ahvaz Psychological Hardiness Questionnaire, and Collett-Lester Death Anxiety Scale by the end of their work shift. The questionnaires were collected by the researcher upon a follow-up visit. If participants were unable to answer the questions at that time, the researcher allowed additional time and returned later for collection. Throughout this period, the researcher was present to provide any necessary guidance. Questionnaires that were not fully completed were excluded from the study and not considered in the analysis.

### 2.2. Statistical Analysis

Statistical analysis was performed using SPSS version 24. Descriptive statistics, including frequency distribution, mean, standard deviation, and standard error, were used

to summarize the sample characteristics. For analytical statistics, the normality of quantitative variables was assessed using the skewness and kurtosis indices. Pearson correlation was used to determine relationships between normally distributed quantitative variables, while Spearman correlation was used for non-normally distributed variables. Independent t-tests or one-way ANOVA were applied to determine relationships between ordinal variables with normal distribution; otherwise, Mann-Whitney or Kruskal-Wallis tests were used. In this study, a confidence level of 95% ( $\alpha = 0.05$ ) and a significance level of less than 0.05 were considered for all tests.

## 3. RESULTS

In this study, 370 nurses working in the intensive care and emergency wards of hospitals in Birjand were evaluated. The demographic characteristics of the participating nurses are presented in Tables 1 and 2.

As shown in Table 1, the minimum age of the nurses was 23 years, the maximum was 60 years, and the mean age was  $32.6 \pm 95.11$  years. The average number of children, work experience, and work experience in emergency and ICU departments were  $1.1 \pm 23.04$ ,  $8.5 \pm 80.14$  years, and  $6.4 \pm 89.34$  years, respectively. The average number of patients cared for per shift was  $4.2 \pm 83.11$ , the number of patients at the end of life was  $2.5 \pm 85.51$ , the number of direct participation in resuscitation efforts was  $3.26 \pm 4.63$ , and the number of patient deaths observed in the last three months was  $2.3 \pm 37.22$ .

As shown in Table 2, the majority of the participants were female nurses (61.4%), married (73.2%), held a bachelor's degree (90.8%), and were officially employed (61.9%). Among the participants, 58 nurses (15.7%) reported the death of a first-degree relative in the last six months. Only 9 participants (2.4%) were head nurses, and most of the nurses (90.5%) identified as Shia. Most of the participants worked rotating shifts (91.1%) and were employed in the emergency department (81.4%). Only 4 nurses (1.1%) reported using sedative medications, and the majority (48.6%) indicated that they used crying as a coping mechanism when facing death.

**Table 1. Mean and standard deviation of demographic characteristics of nurses studied.**

Variable	Minimum	Maximum	Mean $\pm$ SD
Age	23	60	$32.6 \pm 95.11$
Number of Children	0	5	$1.1 \pm 23.04$
Work Experience	1	24	$8.5 \pm 80.14$
Work Experience (in the Emergency ward or ICU ward)	1	24	$6.4 \pm 89.34$
Number of Patients Cared for per Shift	1	15	$4.2 \pm 83.11$
Number of Patients at End of Life in the Last 3 Months	0	50	$2.5 \pm 85.51$
Direct Participation in Resuscitation in the Last 3 Months	0	40	$3.4 \pm 26.63$
Number of Patient Deaths Observed in the Last 3 Months	0	20	$2.3 \pm 37.22$

**Table 2. Frequency distribution of demographic characteristics of nurses studied.**

Variable	Frequency	Percentage
<b>Gender</b>		
Male	143	38.6%
Female	227	61.4%
<b>Marital Status</b>		
Married	271	73.2%
Single	99	26.8%
<b>Education Level</b>		
Bachelor's Degree	336	90.8%
Master's Degree	34	9.2%
<b>Employment Status</b>		
Official	229	61.9%
Contractual	78	21.1%
Temporary	18	4.9%
Company	11	3.0%
Project	34	9.2%
<b>Death of First-Degree Relatives (in last 6 months)</b>		
No	312	84.3%
Yes	58	15.7%
<b>Job Position</b>		
Nurse	361	97.6%
Head Nurse	9	2.4%
<b>Dominant Work Shift</b>		
Fixed	33	8.9%
Rotating	337	91.1%
<b>Religion</b>		
Shia	335	90.5%
Sunni	35	9.5%
<b>Ward of Service</b>		
Emergency	301	81.4%
CCU	31	8.4%
ICU	9	2.4%
NICU	19	5.1%
Dialysis	10	2.7%
<b>Use of Sedative Medications</b>		
No	366	98.9%
Yes	4	1.1%
<b>Coping Mechanisms in Facing Death</b>		
Crying	180	48.6%
Exercise	71	19.2%
Communication with Friends	61	16.5%
Visiting Cemetery	52	14.1%
Laughing	2	0.5%
Watching Movies and Traveling	4	1.1%

The normality of the data was first examined using skewness and kurtosis indices, as shown in Table 3. The results indicate that the skewness and kurtosis coefficients for the variables of psychological hardiness and overall fear of death, as well as their components, fall within the range of (-2, 2). Therefore, the research data followed a normal distribution and parametric tests were used to examine the research hypotheses.

The results in Table 3 showed that the skewness and kurtosis coefficients for the variables of psychological

hardiness and fear of death, overall and in their components, are within the range of (-2, 2). Therefore, the research data followed a normal distribution and parametric tests were used to examine the research hypotheses.

The mean scores of psychological hardiness and its components, namely commitment, challenge, and control, were  $46.81 \pm 6.60$ ,  $18.05 \pm 2.39$ ,  $13.58 \pm 2.85$ , and  $15.19 \pm 2.91$ , respectively. Also, the mean scores of fear of death and its components, *i.e.*, fear of own death, fear of witnessing own death, and fear of others' death, were  $84.42 \pm 12.06$ ,  $18.27 \pm 4.44$ ,  $18.89 \pm 4.81$ , and  $23.69 \pm 4.22$ , respectively.

**Table 3. Skewness and kurtosis indices for examining the normality of research variables.**

Variable	Skewness	Kurtosis
Commitment	-0.33	0.34
Challenge	-0.32	0.33
Control	-0.07	0.33
Overall Psychological hardiness	-0.43	1.06
Fear of Own Death	0.09	0.01
Fear of Witnessing Own Death	0.23	0.03
Fear of Others' Death	0.77	0.81
Fear of Witnessing Others' Death	0.81	1.02
Overall Fear of Death	1.18	1.51

**Table 4. Correlation between psychological hardiness and overall fear of death in studied nurses.**

Variable	Fear of Own Death	Fear of Witnessing Own Death	Fear of Others' Death	Fear of Witnessing Others' Death	Overall Fear of Death
Commitment	$r = -0.27$	$r = -0.28$	$r = -0.36$	$r = -0.30$	$r = -0.45$
P value	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$
Challenge	$r = -0.26$	$r = -0.28$	$r = -0.38$	$r = -0.35$	$r = -0.47$
P value	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$
Control	$r = -0.39$	$r = -0.30$	$r = -0.31$	$r = -0.23$	$r = -0.45$
P value	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$
Overall Psychological hardiness	$r = -0.39$	$r = -0.37$	$r = -0.45$	$r = -0.37$	$r = -0.58$
P value	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$	$p < 0.001$

**Table 5. Regression results for predicting fear of death in nurses based on components of psychological hardiness.**

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Value	Significance Level	Correlation Coefficient	Coefficient of Determination
Psychological hardiness Components	182.80	3	6084.93	62.45	$p < 0.001$	0.58	0.33
Residual	356.58	366	97.44				
Total	539.38	369	-				

As shown in Table 4, there was a significant negative correlation between psychological hardiness and overall fear of death, as well as its components, in the studied nurses ( $p < 0.001$ ).

To determine the extent to which the components of psychological hardiness can predict fear of death in the studied nurses, a simultaneous multiple regression test was conducted, with fear of death as the dependent variable and the components of psychological hardiness as independent variables. The results of the regression test in Table 5 indicated that the components of psychological hardiness can collectively predict approximately 33% of the fear of death in nurses, which is statistically significant ( $p < 0.001$ ,  $F = 62.45$ ).

These results highlighted the significant relationship between psychological hardiness and fear of death among nurses, indicating that enhancing resilience may help mitigate death-related anxieties.

Statistical analysis indicated that there were

significant positive correlations between the psychological hardiness with the variables of age ( $r = 0.12$ ,  $p = 0.02$ ), work experience ( $r = 0.12$ ,  $p = 0.02$ ), and the number of patients cared for per shift ( $r = 0.13$ ,  $p = 0.01$ ). However, no significant correlation was observed between the number of children, work experience in emergency and ICU departments, number of patients at the end of life, direct participation in resuscitation efforts, and the number of patient deaths observed with psychological hardiness ( $p > 0.05$ ).

In this study, the mean score of psychological hardiness in male nurses was significantly higher than that of female nurses ( $p = 0.007$ ) and in married nurses compared to single nurses ( $p < 0.001$ ). The mean score of psychological hardiness among nurses varied significantly based on their department of service ( $p < 0.001$ ). The post-hoc Tukey test revealed that the mean score of psychological hardiness in nurses working in the emergency, CCU, and dialysis departments was significantly higher than that of nurses in the ICU and

NICU departments ( $p < 0.05$ ). However, no significant differences in the mean score of psychological hardiness were found based on education level, employment status, death of first-degree relatives, job position, work shift, religion, use of sedative medications, and coping mechanisms when facing death ( $p > 0.05$ ); (Table 6).

These findings provide valuable insights into the factors influencing psychological hardiness and fear of death among nurses, highlighting the importance of enhancing resilience to mitigate anxiety related to death.

In our study, there are no significant correlations between the variables of age, number of children, work experience, work experience in emergency and ICU departments, and the number of patients cared for per shift with fear of death in nurses ( $p > 0.05$ ). However, significant positive correlations were observed between the fear of death in nurses with the number of patients cared for at the end of life ( $r = 0.16$ ,  $p = 0.002$ ), direct participation in resuscitation efforts ( $r = 0.17$ ,  $p = 0.001$ ), and the number of patient deaths observed ( $r = 0.11$ ,  $p = 0.04$ ).

**Table 6. Comparison of mean psychological hardiness scores in nurses based on demographic characteristics.**

Variable	Mean $\pm$ SD	Statistical Test Result
<b>Gender</b>		
Male	47.5 $\pm$ 97.54	t= 2.69, p= 0.007
Female	46.7 $\pm$ 08.10	
<b>Marital Status</b>		
Married	47.6 $\pm$ 47.70	t= 3.23, p< 0.001
Single	45.5 $\pm$ 00.96	
<b>Education Level</b>		
Bachelor's Degree	46.6 $\pm$ 73.67	t= 0.75; p= 0.46
Master's Degree	47.7 $\pm$ 62.88	
<b>Employment Status</b>		
Official	46.6 $\pm$ 90.11	F = 1.19; p= 0.32
Contractual	47.6 $\pm$ 53.78	
Temporary	47.7 $\pm$ 17.01	
Company	45.8 $\pm$ 64.59	
Project	44.8 $\pm$ 74.23	
<b>Death of First-Degree Relatives (in last 6 months)</b>		
No	46.6 $\pm$ 83.54	t = 0.13; P = 0.90
Yes	46.6 $\pm$ 71.95	
<b>Job Position</b>		
Nurse	46.6 $\pm$ 84.46	t= 0.63; p= 0.53
Head Nurse	45.11 $\pm$ 44.24	
<b>Work Shift</b>		
Fixed	46.9 $\pm$ 76.12	t= 0.05; p= 0.96
Rotating	46.6 $\pm$ 82.46	
<b>Religion</b>		
Shia	46.6 $\pm$ 86.31	t= 0.41; p= 0.680
Sunni	46.8 $\pm$ 37.97	
<b>Department of Service</b>		
Emergency	47.6 $\pm$ 31.19	F= 14.90; p< 0.001
CCU	46.5 $\pm$ 52.47	
ICU	39.7 $\pm$ 44.83	
NICU	40.8 $\pm$ 68.35	
Dialysis	51.6 $\pm$ 10.98	
<b>Use of Sedative Medications</b>		
No	46.6 $\pm$ 85.61	t = 1.09 p = 0.28
Yes	43.3 $\pm$ 25.30	
<b>Coping Mechanisms in Facing Death</b>		
Crying	46.6 $\pm$ 87.90	F = 1.62; p= 0.16
Exercise	47.5 $\pm$ 11.51	
Communication with Friends	47.6 $\pm$ 30.49	
Visiting Cemetery	46.6 $\pm$ 19.67	
Laughing	34.0 $\pm$ 50.71	
Watching Movies and Traveling	45.9 $\pm$ 75.43	

**Table 7. Comparison of mean fear of death scores in nurses based on demographic characteristics.**

Variable	Mean ± SD	Statistical Test Result
<b>Gender</b>		
Male	82.9 ± 75.62	t= 2.13; p= 0.03
Female	85.13 ± 48.32	
<b>Marital status</b>		
Married	84.12 ± 37.06	t= 0.14; p= 0.89
Single	84.12 ± 57.23	
<b>Education level</b>		
Bachelor's degree	84.12 ± 57.24	t= 0.74; p= 0.46
Master's degree	82.10 ± 49.97	
<b>Employment status</b>		
Official	83.11 ± 76.70	F= 0.53; p= 0.72
Contractual	85.11 ± 05.04	
Temporary	85.11 ± 83.33	
Company	86.15 ± 82.09	
Project	85.16 ± 94.08	
<b>Death of First-Degree Relatives (in last 6 months)</b>		
No	84.11 ± 43.97	t= 0.02; p= 0.99
Yes	84.12 ± 40.80	
<b>Job position</b>		
Nurse	84.11 ± 24.94	t 1.91; p= 0.06
Head nurse	92.16 ± 00.02	
<b>Work shift</b>		
Fixed	86.14 ± 94.95	t= 1.25; p= 0.21
Rotating	84.11 ± 18.77	
<b>Religion</b>		
Shia	84.11 ± 41.78	t= 0.09; p= 0.93
Sunni	84.14 ± 60.95	
<b>Department of service</b>		
Emergency	83.10 ± 94.90	F= 6.59; p< 0.001
CCU	82.11 ± 68.41	
ICU	99.17 ± 89.28	
NICU	91.20 ± 16.48	
Dialysis	77.9 ± 70.31	
<b>Use of sedative medications</b>		
No	89.11 ± 00.17	t= 0.76; p= 0.45
Yes	84.12 ± 37.10	
<b>Coping Mechanisms in Facing Death</b>		
Crying	84.12 ± 08.32	F= 0.94; p= 0.46
Exercise	83.7 ± 41.39	
Communication with friends	85.14 ± 62.05	
Visiting cemetery	84.13 ± 79.69	
Laughing	83.2 ± 00.83	
Watching movies and traveling	95.16 ± 50.42	

As indicated in Table 7, the mean score of fear of death in female nurses was significantly higher than that in male nurses ( $p = 0.03$ ). Additionally, the mean score of fear of death among nurses varied significantly based on their department of service ( $p < 0.001$ ). The post-hoc Tukey test revealed that the mean score of fear of death in nurses working in the emergency, CCU, and dialysis departments was significantly lower than that of nurses working in the ICU department ( $p < 0.05$ ). However, no significant differences in the mean score of fear of death were found based on marital status, education level, employment status,

death of first-degree relatives, job position, work shift, religion, use of sedative medications, and coping mechanisms when facing death ( $p > 0.05$ ).

These findings highlight the factors influencing fear of death among nurses, indicating that gender and department of service play significant roles. In contrast, other demographic factors may not have as strong an impact.

#### 4. DISCUSSION

The current study aimed to determine the relationship

between psychological hardiness and fear of death among nurses working in the intensive care and emergency wards. The findings of this research indicated that the average score of psychological hardiness among the studied nurses was  $46.6 \pm 81.60$ , which is considered moderate. In line with this finding, the results of the study by Zakeri *et al.* showed that the level of psychological hardiness in nurses ranged from moderate to high and that psychological hardiness is the best predictor for managing and adapting to professional and family conditions [27]. Conversely, the results of some studies indicate lower levels of mental health components among nurses [28-31], especially during crises such as the COVID-19 pandemic, where mental health components were significantly affected by increased stress and burnout. Maintaining a moderate level of psychological hardiness in nursing, particularly in challenging work environments, can present several potential risks. Moderate levels may not provide sufficient resilience against the stressors inherent in nursing. Nurses with moderate hardiness may be more susceptible to burnout due to their inability to engage with the challenges of their work environment fully. Studies indicate that while psychological hardiness can act as a buffer against stress, moderate levels may not adequately protect nurses from experiencing high levels of emotional exhaustion and depersonalization, leading to burnout [27, 32]. Moderate hardiness can affect a nurse's ability to maintain compassion satisfaction. Research shows that higher levels of psychological hardiness correlate positively with compassion satisfaction, which is crucial for effective patient care. Nurses with only moderate hardiness may struggle to find fulfillment in their roles, potentially impacting the quality of care provided to patients [27, 33]. Nurses are frequently exposed to traumatic situations and the suffering of patients. Moderate psychological hardiness may not offer sufficient protection against Secondary Traumatic Stress (STS), which can manifest as irritability, poor concentration, and sleep disturbances. This condition can arise from the emotional toll of caring for patients in distressing circumstances, leading to further mental health challenges [27, 34]. Individuals with moderate psychological hardiness might resort to less effective coping strategies when faced with high-stress situations. This could lead to maladaptive behaviors such as avoidance or disengagement from stressful tasks, exacerbating feelings of inadequacy and stress over time [34, 35]. The interplay between stress and psychological hardiness suggests that nurses with moderate hardiness might experience a decline in mental health over time. This decline could be attributed to chronic exposure to workplace stressors without adequate resilience mechanisms in place, potentially leading to anxiety and depression [35-37]. In explaining this research finding, it can be noted that nurses possess moderate abilities to cope with stress and professional challenges. The average score in this area suggests that nurses may sometimes be able to manage work-related pressures and stress. Still, they may also encounter difficulties in facing certain challenges and pressures. These discrepancies highlight the importance of the work environment, contextual conditions, pandemics, and individual experiences in assessing psychological hardiness among nursing managers and policymakers. This finding could serve as an indicator of the need to strengthen psychological skills and provide necessary support to nurses

in their work environments. Given that nurses in intensive care and emergency wards continuously face stressful and critical situations, enhancing psychological hardiness could improve the quality of services provided and the mental health of the nurses themselves.

The findings of the present study also indicated that the average score of fear of death among the nurses studied was  $84.42 \pm 12.09$ , which is considered moderate. According to this research, the results of the study by Farokhnezhad *et al.* (2021) demonstrated that nurses experience death fear at a moderate to high level in various work situations and hospital departments [38]. Additionally, numerous studies have reported moderate to high levels of death anxiety among nurses [39-41]. The moderate level of fear of death among nurses is noteworthy, considering the high-stress environment in which they work. Nurses in emergency and intensive care wards often face life-and-death situations, which can exacerbate anxiety regarding mortality. However, the average score indicates that while they may have concerns about death, these concerns are not excessively high, suggesting a certain level of psychological hardiness or coping mechanisms that allow them to manage these fears effectively. This moderate level of fear of death among nurses may have significant implications for their mental health and job performance. Understanding that nurses experience a moderate level of fear can highlight the need for targeted interventions and support systems.

The findings of the present study regarding the relationship between psychological hardiness and fear of death indicated that there is a significant negative correlation between psychological hardiness and fear of death among the studied nurses. Specifically, for each one-point increase in psychological hardiness in the components of commitment, challenge, and control, fear of death in nurses decreases by 0.26, 0.27, and 0.22, respectively. In line with these findings, the results of the study by Ahmadi and Bagheri (2015) showed that there is a significant negative relationship between psychological hardiness and death anxiety, indicating that as psychological hardiness increases, death anxiety decreases [42]. Additionally, the study by Aghabozorg (2012) found that death anxiety has a significant negative correlation with personality traits [43]. Furthermore, several studies have indicated that factors related to mental health have a significant negative relationship with anxiety, particularly death anxiety [17, 44]. This finding can be explained by noting that psychological hardiness, as a personality trait, encompasses an individual's ability to cope with life's challenges and pressures. This trait can contribute to improved mental health and reduced anxiety. Fear of death is also an important aspect of mental health that is influenced by psychological hardiness. Hardiness fosters a specific internal attitude that affects how individuals confront various life issues. The more developed this trait is in a person, the less their unconscious fear of death and the end of life becomes, leading them to approach their fears with confidence and planning rather than avoidance [12, 42].

The findings of the present study regarding the relationship between the psychological hardiness of nurses in intensive care and emergency wards and demographic characteristics showed a significant positive correlation between age, work experience, and the number of patients cared for per shift with psychological hardiness. In line with



this finding, the results of the study by Park *et al.* (2017) [18] and the study by Rodriguez *et al.* (2022) [35] indicated that psychological hardiness has a significant relationship with the personality and demographic characteristics of nurses. Specifically, demographic factors, such as increasing age, greater work experience, and having experience working in critical conditions, can enhance psychological hardiness in nurses. However, contrary to this finding, some other studies suggest that while psychological hardiness is an important factor in work conditions, it may not directly correlate with demographic characteristics, as cultural factors, resilience, mental well-being, and mental health can also influence work conditions and an individual's psychological hardiness [45, 46]. The discrepancies in these findings may be attributed to different demographic groups and varying geographical and cultural conditions in the studies examined. In explaining this finding, it can be noted that psychological hardiness is a personality construct characterized by commitment, control, and challenge in individuals' approaches to life and work demands. This study shows that older nurses, those with more work experience, and those who care for a larger number of patients per shift have higher psychological hardiness. This finding may suggest that these nurses, due to their age and work experience, have higher hardiness to harsh conditions and psychological trauma, and this personality resilience ultimately leads to better adaptability in coping with the stresses and challenges of the nursing profession.

The findings of the present study regarding the relationship between fear of death in nurses in intensive care and emergency wards and demographic characteristics indicated a significant positive correlation between the number of patients cared for at the end of life, direct participation in resuscitation efforts, and the number of patient deaths observed with fear of death in nurses. In line with this finding, the results of the study by Safargholi and Rafeipour (2021) showed that personality traits and professional ethics in nurses have a significant relationship with their death anxiety, indicating that personality traits and professional ethics predict 73.8% of nurses' death anxiety [46]. Additionally, various studies suggest that the demographic and professional characteristics of nurses have a significant positive effect on the level of fear of death among nurses [47-49]. This finding can be explained by the fact that repeated exposure to patient death and participation in resuscitation efforts can lead to increased sensitivity and fear of death among nurses. This is especially true for younger and less experienced nurses who have not yet come to terms with this issue. Caring for patients at the end of life and witnessing their suffering can be challenging and frightening for nurses, potentially increasing their fear of death. Fear of death among nurses can negatively impact the quality of patient care and their job performance. Nurses with greater fear of death may struggle to provide effective care. Therefore, providing appropriate training to nurses on managing fear of death and offering psychological and social support can be effective in reducing this fear and improving their job performance. Additionally, creating opportunities for nurses to discuss and share their experiences regarding this issue can help them cope with it.

## CONCLUSION AND RECOMMENDATIONS

The results indicated that the average scores of psychological hardiness and fear of death among nurses in intensive care and emergency wards were at a moderate level. This situation may reflect the psychological and emotional challenges associated with working in high-stress and critical environments. The average scores on both scales suggest that while nurses may face psychological pressures at times, they generally possess the ability to cope with these challenges. A significant negative correlation between psychological hardiness and fear of death in our study underscores the importance of enhancing psychological hardiness in nurses to help them better cope with the emotions and fears associated with their work. Our results suggest that more experienced and older nurses who cared for more patients per shift may have greater abilities to manage stress and professional challenges. This highlights the importance of training and developing psychological skills in novice nurses, enabling them to achieve higher levels of psychological hardiness gradually. On the other hand, the positive correlation between fear of death and the number of patients cared for at the end of life, direct participation in resuscitation efforts, and the observation of patient deaths indicates that frequent exposure to these experiences may lead to increased fear of death among nurses. These findings emphasize the importance of creating supportive environments and providing opportunities for nurses to discuss and share their emotional experiences. Ultimately, it is recommended that nursing managers and policymakers design educational and supportive programs to enhance the psychological hardiness of nurses. These programs could include stress management workshops, psychological counseling, and the establishment of supportive spaces for sharing experiences. Longitudinal studies could be recommended to assess how psychological hardiness and fear of death change over time in response to interventions or changes in work conditions. Additionally, longitudinal studies are recommended to evaluate how psychological hardiness and fear of death change over time in response to interventions or changes in work conditions.

## LIMITATIONS AND STRENGTHS OF THE STUDY

This survey exclusively included nursing staff from Birjand University of Medical Sciences hospitals. As such, care should be taken when extrapolating the results. Long-term, thorough research is advised in order to increase the precision described. Because this study was cross-sectional, inferences regarding causality are challenging to make. The cross-sectional design limits causal inferences. Another limitation of the present study is the presence of confounding variables such as honesty in responding to the questionnaire items and the psychological state of individuals when answering the questions, which were beyond the control of the researcher. Another limitation of the current study is the cultural and geographical characteristics of the sample (nurses from hospitals in Birjand, Iran), which restricts the generalizability of the findings. To strengthen the dependability of the results, additional research should be undertaken at multiple hospitals with a bigger sample size, taking into account the limits mentioned above.

## AUTHORS' CONTRIBUTIONS

S.H.: Contributed to the study conception and design; S.H.T.: Collected the data; S.H.: Contributed to the analysis and interpretation of results; R.D., S.H., and S.A.V.: Drafted the manuscript. All authors reviewed the results and approved the final version of the manuscript.

## ABBREVIATION

STS = Secondary Traumatic Stress

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study has been approved by the Ethics Council of Birjand University of Medical Sciences, Iran with the code of ethics (IR.BUMS.REC.1402.121).

## HUMAN AND ANIMAL RIGHTS

All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

## CONSENT FOR PUBLICATION

Written informed consent was acquired following permission from the research wards.

## STANDARDS OF REPORTING

STROBE guidelines have been followed.

## AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are available from the corresponding author [S.A.V] upon reasonable request.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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