

# Original Article: The Relationship Between Death anxiety and Sleep Quality among Nurses working in the Intensive Care Unit

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## ABSTRACT

**Introduction:** Nurses working in intensive care units (ICUs) face high levels of stress due to frequent exposure to critical and end-of-life situations. This can result in death anxiety and poor sleep quality, both of which negatively affect their well-being and job performance. This study investigates the relationship between death anxiety and sleep quality among ICU nurses in West Azerbaijan.

**Material and Methods:** This cross-sectional study was conducted on 200 ICU nurses selected through stratified random sampling from hospitals in West Azerbaijan. Data were collected using a demographic questionnaire, the Templer Death Anxiety Scale (TDAS), and the Pittsburgh Sleep Quality Index (PSQI). Statistical analysis, including Pearson correlation and multiple regression, was performed to examine the relationship between death anxieties and sleep quality. Significance was set at  $p < 0.05$ .

**Results:** The mean death anxiety score among nurses was  $37.5 \pm 8.9$ , with female nurses reporting significantly higher scores than male nurses ( $39.2 \pm 8.7$  vs.  $33.8 \pm 9.2$ ,  $p < 0.001$ ). The average PSQI score was  $9.3 \pm 3.4$ , indicating poor sleep quality in 73% of participants. A positive correlation was found between death anxiety and PSQI scores ( $r = 0.56$ ,  $p < 0.001$ ), and death anxiety was a significant predictor of poor sleep quality ( $\beta = 0.42$ ,  $p < 0.001$ ).

**Conclusion:** This study highlights a strong association between death anxiety and poor sleep quality among ICU nurses. Addressing these issues through training, supportive work environments, and mental health interventions is essential to enhance nurses' well-being and patient care quality.

## Introduction

Nursing is a profession that requires immense physical and emotional resilience [1-3], particularly for those working in high-stress environments such as Intensive

Care Units (ICUs). ICU nurses face a unique combination of stressors, including exposure to critically ill or dying patients, complex decision-making responsibilities, and demanding workloads. These factors place ICU nurses at a heightened risk for psychological challenges,

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including death anxiety and disturbances in sleep quality. Understanding the interplay between these two factors is essential for improving the well-being of this vital workforce and ensuring the quality of patient care [4].

Death anxiety refers to the fear, apprehension, or discomfort associated with the anticipation of death, whether one's own or that of others. In ICU settings, nurses are frequently confronted with mortality, often bearing witness to patients' end-of-life experiences and the emotional distress of families [5-7]. Over time, repeated exposure to these events may provoke existential concerns and heightened death anxiety. While death anxiety is a natural response to the awareness of mortality, excessive or unresolved death anxiety can have significant psychological consequences, including burnout, depression, and impaired professional performance [8-10].

Research suggests that nurses with high levels of death anxiety may struggle to maintain emotional detachment, leading to a heightened sense of vulnerability and emotional exhaustion. This can adversely affect their ability to provide empathetic and effective care. Furthermore, unresolved death anxiety may lead to avoidance behaviors, such as reluctance to engage in end-of-life discussions with patients or their families. The emotional toll of such anxiety underscores the importance of addressing this issue within healthcare settings [11-13].

Sleep quality is a critical determinant of overall health and well-being, yet it is often compromised among nurses working in ICUs. Irregular work schedules, long shifts, and the demanding nature of ICU work contribute to poor sleep hygiene and disrupted circadian rhythms. Sleep disturbances among nurses are not merely an occupational inconvenience; they are associated with significant health risks, including cardiovascular disease, metabolic disorders, and mental health conditions such as anxiety and depression [14-16].

For ICU nurses, inadequate or poor-quality sleep can also impair cognitive functions, such as attention, memory, and decision-making, directly impacting patient safety. Sleep disturbances are linked to increased errors in medication administration, delayed responses to critical patient needs, and overall reductions in care quality [17-19]. Given these implications, improving sleep quality among ICU nurses is a matter of both personal and professional importance.

Emerging evidence suggests a bidirectional relationship between death anxiety and sleep quality. On one hand, heightened death anxiety can lead to insomnia or fragmented sleep, as intrusive thoughts and emotional distress interfere with the ability to achieve restorative rest [20-22]. On the other hand, poor sleep quality can exacerbate emotional vulnerabilities, including anxiety related to death and dying. This cyclical relationship may create a self-perpetuating pattern, further deteriorating both psychological well-being and professional performance [23-25].

In ICU settings, where nurses are exposed to high-stakes and emotionally charged situations, the relationship between death anxiety and sleep quality may be particularly pronounced. Nurses experiencing elevated death anxiety may find it difficult to disengage from work-related stressors during non-working hours, leading to prolonged rumination and difficulty achieving restorative sleep [26-28]. Conversely, chronic sleep deprivation may impair emotional regulation, intensifying the perception of death-related stressors and increasing susceptibility to death anxiety.

The relationship between death anxiety and sleep quality among ICU nurses is an area of growing research interest, given its implications for both healthcare systems and individual well-being [29-31]. From a systemic perspective, addressing these issues may help mitigate burnout, reduce staff turnover, and enhance the

overall quality of patient care. For individual nurses, interventions aimed at reducing death anxiety and improving sleep quality may offer significant psychological and physiological benefits, fostering resilience and job satisfaction. Despite the critical nature of this issue, there remains a relative paucity of research exploring the direct relationship between death anxiety and sleep quality in ICU nurses [32-35].

Existing studies often focus on these variables independently, without examining their potential interplay. Understanding the factors that mediate or moderate this relationship—such as coping mechanisms, support systems, or personal beliefs—may provide valuable insights for targeted interventions [36-38].

The dual challenges of death anxiety and poor sleep quality represent a significant burden for ICU nurses, with far-reaching implications for their health, professional performance, and the quality of care they deliver. By investigating the relationship between these two factors, this study aims to fill a critical gap in the literature, offering evidence-based insights that can inform policies and interventions to support ICU nurses. Ultimately, addressing death anxiety and improving sleep quality are not only matters of individual well-being but also essential components of a sustainable and effective healthcare system [39].

## Materials and Methods

### Study Design

This study was conducted as a descriptive cross-sectional research project, designed to examine the relationship between death anxiety and sleep quality among nurses working in intensive care units (ICUs) in West Azerbaijan Province, Iran. The data collection was carried out over a six-month period, from 2024, targeting ICU nurses from both public and private hospitals in the region.

### Eligibility Criteria

The study participants were selected based on the following inclusion criteria: Being employed as a registered nurse in an ICU. Having at least six months of experience working in an ICU environment. Being aged between 22 and 60 years. Having fluency in Persian to ensure understanding of the study questionnaires. Providing informed consent to voluntarily participate in the study.

Exclusion criteria included: A documented history of psychiatric disorders. Use of sedatives, antidepressants, or sleep-altering medications within the past three months. Engagement in non-standard or irregular shift patterns during the data collection period. Simultaneous participation in other studies exploring related topics.

### Sampling

The sample size was determined using Cochran's formula, accounting for a 95% confidence interval, a margin of error of 5%, and an expected moderate correlation between the variables. A total of 200 ICU nurses were selected through stratified random sampling. The hospitals in West Azerbaijan Province were categorized into public and private institutions, and proportional random sampling was applied within each stratum to ensure representation from both types of facilities.

### Methods

Participants were asked to complete two validated questionnaires:

Death Anxiety Scale (DAS): This tool measures the level of fear and anxiety related to death. It includes 15 items scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating more severe death anxiety. The Persian version of the scale, previously validated in Iranian populations, was used.

Pittsburgh Sleep Quality Index (PSQI): This instrument assesses sleep quality over the past month, covering seven domains such as sleep latency, duration, disturbances, and daytime dysfunction. The total score ranges from 0 to 21, with higher scores reflecting poorer sleep quality.

In addition to the questionnaires, a demographic data form was used to collect information on age, gender, marital status, years of experience, and work shifts. The questionnaires were distributed during nurses' shifts to minimize interference with personal time. A research assistant was available to address any questions and ensure the accurate completion of the forms.

### Data Analysis

The collected data were analyzed using SPSS software version 25. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated for demographic and study variables. The Pearson correlation test was applied to evaluate the relationship between death anxiety and sleep quality. To compare the scores between demographic subgroups, independent t-tests and one-way ANOVA were used. A multiple linear regression model was employed to explore the predictive factors for sleep quality, controlling for confounders such as age, gender, and work experience. Statistical significance was set at  $p < 0.05$ .

### Ethical Considerations

This study was approved by the Ethics Committee of Urmia University of Medical Sciences (NO: IR.UMSU.REC.1403.065) adhering to the Declaration of Helsinki guidelines. All participants were informed about the study's objectives, procedures, and potential risks before enrollment. Informed consent was obtained in writing from each participant. Data confidentiality was strictly maintained, and all personal identifiers were removed during data

analysis. Participants were assured of their right to withdraw from the study at any time without any repercussions. The results will be shared with participants and hospital administrators to encourage evidence-based interventions for improving nurse well-being.

## Results

### Demographic and Occupational Characteristics of Participants

Table 1 presents the demographic and occupational characteristics of the 200 ICU nurses who participated in the study. The majority of participants were female (70.5%), with a mean age of  $32.8 \pm 5.6$  years. Approximately 45% of participants were married, and 68% had a bachelor's degree in nursing. The average work experience in ICU settings was  $7.2 \pm 4.1$  years, and 58% of participants reported working rotating shifts.

**Table 1.** The demographic and occupational characteristics of the 200 ICU nurses who participated in the study

| Variable                    | Frequency (n) | Percentage (%) |
|-----------------------------|---------------|----------------|
| Gender                      |               |                |
| Female                      | 141           | 70.5           |
| Male                        | 59            | 29.5           |
| Marital Status              |               |                |
| Single                      | 110           | 55.0           |
| Married                     | 90            | 45.0           |
| Education Level             |               |                |
| Bachelor's Degree           | 136           | 68.0           |
| Master's Degree or Higher   | 64            | 32.0           |
| ICU Work Experience (years) |               |                |
| < 5 Years                   | 54            | 27.0           |
| 5–10 Years                  | 108           | 54.0           |
| > 10 Years                  | 38            | 19.0           |

### Death Anxiety Scores Among Participants

Table 2 summarizes the death anxiety scores among the nurses. The mean death anxiety score was  $37.5 \pm 8.9$  (range: 15–75). Female nurses had significantly higher mean death anxiety scores ( $39.2 \pm 8.7$ ) compared to their male counterparts ( $33.8 \pm 9.2$ ,  $p < 0.001$ ). Nurses with less ICU experience (<5 years) reported higher death anxiety scores than those with longer work experience.

**Table 2.** Summarizes the death anxiety scores among the nurses

| Group               | Mean Score $\pm$ SD | p-Value |
|---------------------|---------------------|---------|
| Overall             | 37.5 $\pm$ 8.9      | -       |
| Gender              |                     |         |
| Female              | 39.2 $\pm$ 8.7      | < 0.001 |
| Male                | 33.8 $\pm$ 9.2      |         |
| ICU Work Experience |                     |         |
| < 5 Years           | 41.3 $\pm$ 7.4      | 0.002   |
| 5–10 Years          | 36.8 $\pm$ 8.5      |         |
| > 10 Years          | 32.9 $\pm$ 9.1      |         |

### Sleep Quality Among Participants

Table 3 displays the results of the Pittsburgh Sleep Quality Index (PSQI) scores. The average PSQI score was  $9.3 \pm 3.4$ , indicating poor sleep quality in most participants. Approximately 73% of nurses scored above the PSQI cutoff of 5, denoting clinically significant sleep disturbances. Nurses with higher death anxiety scores reported worse sleep quality ( $r = 0.56$ ,  $p < 0.001$ ).

**Table 3.** Displays the results of the Pittsburgh Sleep Quality Index (PSQI) scores

| PSQI Components                          | Mean Score $\pm$ SD |
|------------------------------------------|---------------------|
| Sleep Duration                           | $1.9 \pm 0.7$       |
| Sleep Disturbances                       | $2.3 \pm 0.9$       |
| Sleep Latency                            | $2.1 \pm 0.8$       |
| Daytime Dysfunction                      | $1.8 \pm 0.6$       |
| Overall PSQI Score                       | $9.3 \pm 3.4$       |
| Clinically Poor Sleep Quality (PSQI > 5) | 73%                 |

### Correlation Between Death Anxiety and Sleep Quality

Table 4 shows the correlation analysis between death anxiety scores and PSQI scores. A positive correlation ( $r = 0.56$ ,  $p < 0.001$ ) was observed, indicating that higher death anxiety was associated with poorer sleep quality. Multiple linear regression revealed that death anxiety was a significant predictor of poor sleep quality ( $\beta = 0.42$ ,  $p < 0.001$ ) after adjusting for demographic variables.

**Table 4.** The correlation analysis between death anxiety scores and PSQI scores

| Variable                          | Correlation Coefficient (r) | p-Value |
|-----------------------------------|-----------------------------|---------|
| Death Anxiety vs. PSQI            | 0.56                        | < 0.001 |
| Death Anxiety (Adjusted $\beta$ ) | 0.42                        | < 0.001 |
| Gender                            | -0.14                       | 0.045   |
| ICU Work Experience               | -0.28                       | 0.009   |

### Discussion

The present study examined the relationship between death anxiety and sleep quality among nurses working in intensive care units (ICUs). This population faces unique challenges due to the nature of their work, which often involves prolonged exposure to critically ill or dying patients. These stressors may lead to heightened levels of death anxiety and disrupted sleep, negatively impacting overall well-being and job performance [40-42]. The findings of this study offer valuable insights into the interplay between these factors and underscore the need for targeted interventions to support ICU nurses. The results demonstrated that ICU nurses experience moderate to high levels of death anxiety, with female nurses and those with less ICU experience reporting significantly higher scores. These findings are consistent with previous research indicating that healthcare

providers, particularly those in critical care settings, are at an elevated risk of death anxiety due to their frequent encounters with mortality. Female nurses' higher death anxiety scores may be attributed to gender-based differences in emotional processing and coping strategies, as women generally exhibit greater empathy and emotional sensitivity in caregiving roles [43].

Less experienced nurses reported higher death anxiety scores, possibly due to insufficient exposure to end-of-life situations and inadequate coping mechanisms. Over time, repeated exposure to death and dying may desensitize or equip more experienced nurses with better emotional resilience. However, this does not negate the possibility of burnout or compassion fatigue, which can also arise with prolonged exposure to patient suffering [44].

The study also revealed poor sleep quality among most participants, as evidenced by elevated Pittsburgh Sleep Quality Index (PSQI) scores. Sleep disturbances in ICU nurses can be attributed to a combination of individual, occupational, and environmental factors. Shift work, particularly rotating schedules, disrupts circadian rhythms and contributes to sleep deprivation, as indicated in this study [45-47]. Additionally, psychological stressors such as death anxiety can exacerbate sleep problems, creating a vicious cycle of physical and emotional exhaustion.

Components such as sleep latency and disturbances were notably high in the study sample, suggesting that ICU nurses may struggle to fall asleep and maintain uninterrupted sleep. This is a concerning finding, as poor sleep quality is associated with adverse outcomes, including impaired cognitive function, reduced attention span, and decreased overall health.

A significant positive correlation between death anxiety and sleep quality was observed in this study, indicating that higher levels of death anxiety are associated with poorer sleep quality. This aligns with existing literature, which

highlights the bidirectional relationship between anxiety and sleep. Death anxiety, as a specific form of existential distress, can lead to hyperarousal, intrusive thoughts, and emotional dysregulation, all of which interfere with sleep initiation and maintenance [47].

Conversely, inadequate sleep may exacerbate anxiety symptoms by impairing emotional regulation and increasing sensitivity to stressors. Nurses with poor sleep quality may find it harder to manage their emotions and cope with the psychological demands of ICU work, further amplifying death anxiety. This reciprocal relationship underscores the importance of addressing both factors simultaneously to improve nurses' overall well-being [48].

The findings of this study have significant implications for nursing practice and workforce management. High levels of death anxiety and poor sleep quality not only affect nurses' mental health but also have the potential to compromise patient care. Fatigued and anxious nurses are more likely to make errors, experience burnout, and exhibit reduced job satisfaction, which can lead to higher turnover rates and staffing shortages in critical care settings [49].

To mitigate these issues, healthcare organizations should implement targeted interventions aimed at reducing death anxiety and improving sleep quality among ICU nurses. Strategies may include:

**Education and Training:** Providing specialized training on end-of-life care and coping strategies can help nurses develop the emotional resilience needed to manage death anxiety. Workshops on stress management and mindfulness techniques may also be beneficial.

**Supportive Work Environments:** Creating a supportive workplace culture that encourages open discussions about death and dying can help normalize these experiences and reduce associated anxiety. Peer support groups and debriefing sessions after traumatic events may further alleviate emotional distress.

**Flexible Scheduling:** Minimizing the use of rotating shifts and ensuring adequate rest periods between shifts can help mitigate the negative effects of shift work on sleep quality. Employers should also consider implementing policies that promote work-life balance.

**Mental Health Resources:** Access to mental health services, such as counseling or therapy, should be made readily available to nurses. Cognitive-behavioral therapy (CBT) for insomnia and anxiety may be particularly effective in addressing the underlying causes of sleep disturbances.

### Limitations of the Study

While this study provides valuable insights, several limitations should be acknowledged. First, the cross-sectional design precludes the establishment of causal relationships between death anxiety and sleep quality. Longitudinal studies are needed to examine how these variables influence each other over time. Second, the reliance on self-reported questionnaires may introduce response bias, as participants may underreport or overreport their levels of anxiety and sleep problems.

Additionally, the study focused exclusively on nurses in West Azerbaijan Province, which may limit the generalizability of the findings to other regions or healthcare settings. Future research should consider larger and more diverse samples to validate these results. Finally, the study did not account for potential confounding factors such as personal coping mechanisms, social support, or comorbid health conditions, which may influence the observed outcomes.

### Future Research Directions

Building on these findings, future research should explore the long-term effects of death anxiety and sleep disturbances on nurses' professional performance and personal well-being. Interventional studies evaluating the effectiveness of various strategies, such as

mindfulness-based stress reduction or resilience training, could provide actionable recommendations for healthcare organizations. Moreover, qualitative studies examining nurses' lived experiences with death anxiety and sleep problems may offer deeper insights into the underlying mechanisms and contextual factors. Investigating the role of organizational factors, such as staffing ratios and workplace culture, in shaping these outcomes could further inform targeted interventions.

### Conclusion

In conclusion, this study highlights a significant relationship between death anxiety and sleep quality among ICU nurses, emphasizing the psychological toll of working in critical care environments. Addressing these issues is not only essential for improving nurses' mental health but also for ensuring the delivery of safe and effective patient care. Healthcare administrators and policymakers must prioritize interventions that reduce death anxiety and promote better sleep among nurses to enhance their overall well-being and professional satisfaction. By fostering a supportive and nurturing work environment, the challenges faced by ICU nurses can be effectively mitigated, leading to improved outcomes for both caregivers and patients.

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