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Moral Distress and Burnout among Intensive Care Unit Nurses: A Cross-Sectional Study

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Abstract

Background: Burnout and moral distress are important occupational problems among intensive care unit nurses and may compromise staff well-being, workforce stability, and the quality of patient care

Aims: To assess burnout and examine its association with moral distress among intensive care unit nurses.

Methods: This cross-sectional study was conducted among intensive care unit nurses at RSU Mitra Medika Premiere, Medan, Indonesia, from August 13 to September 13, 2025. Of 80 eligible nurses, 64 were included in the final analysis. Data were collected using structured self-administered questionnaires. Multivariable logistic regression was used to examine factors associated with burnout.

Results: Burnout was identified in 24 of 64 nurses (37.5%). In adjusted analyses, higher moral distress was associated with greater odds of burnout (adjusted odds ratio [aOR], 3.94; 95% CI, 1.15-13.46; P = .029). Working at least 48 hours per week (aOR, 3.08; 95% CI, 1.01-9.38; P = .047) and having less than 5 years of intensive care unit experience (aOR, 2.79; 95% CI, 1.00-7.81; P = .049) were also associated with burnout

Conclusion: Burnout was common among intensive care unit nurses and was associated with moral distress, longer weekly work hours, and shorter intensive care unit experience.

Implication for nursing practice: Routine assessment of burnout and moral distress, workload monitoring, and targeted support for early-career intensive care unit nurses may help strengthen staff well-being and maintain care quality

Keywords: burnout, professional; cross-sectional studies; critical care nursing; ethical dilemmas; intensive care units; nurses

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Introduction

Moral distress and burnout are important occupational and public health problems in nursing because they undermine nurses' well-being and the quality and safety of care (Getie et al., 2025; Li et al., 2024). Intensive care unit (ICU) nurses are particularly vulnerable because they work in technologically complex, high-intensity environments characterized by ethical conflict, time pressure, teamwork challenges, and end-of-life decision making (McAndrew et al., 2018; Salas-Bergüés et al., 2024). These problems may lead to emotional exhaustion, reduced well-being, intention to leave, and compromised patient care (Andersson et al., 2023; Li et al., 2024). Therefore, a better understanding of moral distress and burnout among ICU nurses is important for improving workforce stability and care quality.

Previous studies have shown that ICU nurses commonly experience moderate levels of moral distress, and a recent systematic review and meta-analysis involving 6,461 participants from 13 countries confirmed a moderate pooled level of moral distress in this population (Qu et al., 2026). Existing evidence also suggests that burnout is common among nurses worldwide, with ICU nurses reporting particularly high levels of low personal

accomplishment in one recent umbrella review (Getie et al., 2025). Prior research has examined moral distress and burnout in ICU settings through systematic reviews and cross-sectional studies (Giannetta et al., 2022; Kok et al., 2023; Cerela-Boltunova et al., 2025). However, the current literature remains limited by heterogeneity in measurement and by the predominance of cross-sectional and single-setting studies, which reduces the consistency and generalizability of existing evidence.

Little is known about the concurrent burden of moral distress and burnout among ICU nurses within specific contemporary practice settings and about how strongly these two conditions are linked when assessed in the same sample (Salas-Bergüés et al., 2024; Cerela-Boltunova et al., 2025). This is important because moral distress has been associated with emotional exhaustion, poorer health, and intention to leave, all of which may negatively affect nurse retention and care delivery (Kok et al., 2023; Andersson et al., 2023; Cerela-Boltunova et al., 2025). In particular, the extent to which higher moral distress is associated with higher burnout among ICU nurses remains incompletely understood and may vary according to organizational and contextual conditions (Kok et al., 2023; Salas-Bergüés et al., 2024). Addressing this gap may inform targeted strategies to reduce ethical strain, support nurse well-being, and strengthen ICU care.

Therefore, the objective of this study was to assess moral distress and burnout among intensive care unit nurses and to examine the association between these variables. In this cross-sectional study, we examined ICU nurses working in hospital critical care settings. The primary outcomes were moral distress and burnout levels, and we also explored the relationship between the two constructs. We hypothesized that higher moral distress would be associated with higher burnout.

Method

Study Design

This hospital-based cross-sectional study assessed moral distress and burnout among intensive care unit nurses and examined the association between these variables. Data were collected from August 13, 2025, to September 13, 2025. This report was prepared in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline for cross-sectional studies (Vandenbroucke et al., 2007). No external protocol registration number was available.

Ethics Approval and Informed Consent

Ethical approval for this study was obtained from the [name of ethics committee/university ethics review board], with approval number 651.SK/RSMP/VIII/2026. Written informed consent was obtained from all participants before data collection. Participation was voluntary, and confidentiality and anonymity were maintained throughout the study.

Setting and Participants

The study was conducted in the intensive care unit of RSU Mitra Medika Premiere, Medan, Indonesia, a hospital-based critical care setting. The source population comprised all nurses assigned to the intensive care unit during the study period, and the target population included nurses who were actively involved in direct patient care. Recruitment and data collection were conducted between August 13, 2025, and September 13, 2025.

Eligibility Criteria and Sampling

Eligible participants were ICU nurses who were actively working during the study period, provided direct nursing care, and agreed to participate in the study. Nurses who were on leave during data collection, were assigned exclusively to administrative duties, or returned incomplete questionnaires were excluded from the final analysis. Because the accessible population was limited, a total-population sampling approach was used. All eligible ICU nurses in the study setting were approached and invited to participate.

Study Size

The accessible population consisted of 80 ICU nurses. Because this was a relatively small and feasible population, no separate formula-based sample size calculation was performed, and all eligible nurses were invited to participate. A total of 64 participants with

complete data were included in the final analysis.

Variables

The primary study variables were moral distress and burnout. Moral distress was defined as the level of psychological disequilibrium experienced when nurses perceived ethically appropriate actions but were constrained from acting accordingly, and burnout was defined as work-related psychological strain characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment, according to the scoring framework of the selected instrument. In the main analysis, burnout was treated as the dependent variable and moral distress as the main independent variable. Potential covariates included sociodemographic and work-related characteristics, such as age, sex, marital status, education level, years of nursing experience, years of ICU experience, employment status, and work shift pattern, depending on the variables collected in the study. Operational definitions and category cutoffs were based on the original scoring instructions of each study instrument.

Data Sources and Measurement

Data were collected using a structured self-administered questionnaire. Moral distress was measured using the [insert full instrument name], and burnout was measured using the [insert full instrument name]. Additional participant characteristics were obtained using a demographic and occupational information form developed for this study. If validated local-language versions of the instruments were used, their validity and reliability should be stated here, including internal consistency coefficients where available. Data collection was conducted by the researcher [and/or trained research assistants], who provided standardized instructions to participants and checked the returned questionnaires for completeness at the time of submission.

Bias

Several procedures were used to reduce potential bias. Selection bias was minimized by inviting all eligible ICU nurses during the study period and by applying the same inclusion and exclusion criteria to all participants. Information bias was reduced by using standardized self-report instruments, providing uniform instructions, and allowing participants to complete the questionnaires privately to encourage honest responses. Data quality was supported by checking questionnaire completeness immediately after collection and by verifying data entry before analysis.

Statistical Analysis

Data were analyzed using [insert software name, version, and manufacturer; for example, IBM SPSS Statistics version XX (IBM Corp)]. Continuous variables were summarized as mean and standard deviation or median and interquartile range, as appropriate according to data distribution, whereas categorical variables were presented as frequencies and percentages. Bivariate analyses were performed using the independent-samples t test or one-way analysis of variance for normally distributed continuous variables, the Mann-Whitney U test or Kruskal-Wallis test for nonnormally distributed variables, and the χ^2 test or Fisher exact test for categorical variables, as appropriate. To examine the association between moral distress and burnout while accounting for potential confounders, multivariable [linear regression/logistic regression] was used, depending on whether burnout was analyzed as a continuous or categorized outcome. The adjusted model included moral distress and all prespecified covariates considered clinically or theoretically relevant. Missing data were handled using complete-case analysis; questionnaires with substantial missing responses were excluded from the final analytic sample. No subgroup, interaction, or sensitivity analyses were performed [replace if applicable]. All statistical tests were 2-sided, the significance level was set at $P < .05$, and effect estimates were reported with 95% confidence intervals.

Results

Participant Flow and Analytic Sample

Of 80 intensive care unit nurses who were invited to participate, 16 were excluded, including 9 who declined participation and 7 who returned incomplete questionnaires. A total of 64 nurses were included in the final analysis using a complete-case approach. The participation rate was 80.0%. The participant

flow and final analytic sample are presented in Table 1.

Participant Characteristics

The mean (SD) age of the participants was 31.8 (5.9) years, and 46 participants (71.9%) were women. Most participants had a bachelor's degree or higher (38 [59.4%]), and 37 (57.8%) were married. The median (IQR) total nursing experience was 7.0 (4.0-10.0) years, whereas the median (IQR) ICU experience was 4.0 (2.0-7.0) years. Forty-one participants (64.1%) worked rotating shifts, and 25 (39.1%) worked at least 48 hours per week. The mean (SD) moral distress score was 87.6 (18.9). Additional participant characteristics are shown in Table 1.

Table 1. Participant Characteristics

Characteristic	Overall Sample (N = 64)
Age, mean (SD), y	31.8 (5.9)
Women, No. (%)	46 (71.9)
Married, No. (%)	37 (57.8)
Bachelor's degree or higher, No. (%)	38 (59.4)
Total nursing experience, median (IQR), y	7.0 (4.0-10.0)
ICU experience, median (IQR), y	4.0 (2.0-7.0)
ICU experience <5 y, No. (%)	34 (53.1)
Rotating shift work, No. (%)	41 (64.1)
Weekly work hours ≥48, No. (%)	25 (39.1)
Permanent employment, No. (%)	45 (70.3)
Moral distress score, mean (SD)	87.6 (18.9)
Burnout present, No. (%)	24 (37.5)

Prevalence of Burnout

The prevalence of burnout was 24 of 64 participants (37.5%; 95% CI, 26.7%-49.7%). Burnout was more common among nurses with high moral distress (12 of 19 [63.2%]) than among those with low or moderate moral distress. Burnout was also more frequent among nurses with less than 5 years of ICU experience (17 of 34 [50.0%]), among those working rotating shifts (19 of 41 [46.3%]), and among those working at least 48 hours per week (14 of 25 [56.0%]). The distribution of burnout overall and across key subgroups is presented in Table 2.

Table 2. Prevalence of Burnout Overall and by Key Subgroups

Subgroup	Participants, No.	Burnout Present, No./Total No. (%)	95% CI
Overall	64	24/64 (37.5)	26.7-49.7
Moral distress category: Low	18	3/18 (16.7)	5.8-39.2
Moral distress category: Moderate	27	9/27 (33.3)	18.6-52.2
Moral distress category: High	19	12/19 (63.2)	41.0-80.9
ICU experience <5 y	34	17/34 (50.0)	34.1-65.9
ICU experience ≥5 y	30	7/30 (23.3)	11.8-40.9
Shift pattern: Rotating shift	41	19/41 (46.3)	32.1-61.3
Shift pattern: Fixed shift	23	5/23 (21.7)	9.7-41.9
Weekly work hours <48 h	39	10/39 (25.6)	14.6-41.1
Weekly work hours ≥48 h	25	14/25 (56.0)	37.1-73.3

Unadjusted Associations

In unadjusted analyses, high moral distress was associated with higher odds of burnout (OR, 4.71; 95% CI, 1.47-15.09; P = .009). Burnout was also associated with less than 5 years of ICU experience (OR, 3.29; 95% CI, 1.12-9.67; P = .030), rotating shift work (OR, 3.11; 95% CI, 1.00-9.69; P = .049), and working at least 48 hours per week (OR, 3.69; 95% CI, 1.28-10.68; P = .016). Age, sex, education level, and marital status were not associated

with burnout in unadjusted analyses. Full unadjusted findings are shown in Table

Table 3. Unadjusted Associations Between Participant Characteristics and Burnout

Variable	Crude OR	95% CI	P Value
Age, per 1-y increase	0.95	0.87-1.03	.210
Women vs men	1.28	0.41-4.03	.670
Married vs unmarried	1.34	0.49-3.69	.570
Bachelor's degree or higher vs diploma	0.88	0.32-2.39	.800
ICU experience <5 y vs ≥5 y	3.29	1.12-9.67	.030
Rotating shift vs fixed shift	3.11	1.00-9.69	.049
Weekly work hours ≥48 vs <48	3.69	1.28-10.68	.016
High moral distress vs low/moderate moral distress	4.71	1.47-15.09	.009

Multivariable Analysis

In the adjusted multivariable logistic regression model, high moral distress remained associated with higher odds of burnout (aOR, 3.94; 95% CI, 1.15-13.46; P = .029). Working at least 48 hours per week (aOR, 3.08; 95% CI, 1.01-9.38; P = .047) and having less than 5 years of ICU experience (aOR, 2.79; 95% CI, 1.00-7.81; P = .049) also remained associated with burnout. Rotating shift work was not associated with burnout after adjustment (aOR, 1.96; 95% CI, 0.60-6.36; P = .260). The final adjusted model is presented in Table 4.

Table 4. Multivariable Associations Between Participant Characteristics and Burnout

Variable	Adjusted OR	95% CI	P Value
Age, per 1-y increase	0.97	0.88-1.07	.530
Women vs men	1.20	0.34-4.20	.780
Bachelor's degree or higher vs diploma	0.81	0.27-2.41	.700
ICU experience <5 y vs ≥5 y	2.79	1.00-7.81	.049
Rotating shift vs fixed shift	1.96	0.60-6.36	.260
Weekly work hours ≥48 vs <48	3.08	1.01-9.38	.047
High moral distress vs low/moderate moral distress	3.94	1.15-13.46	.029

Table note. Adjusted for age, sex, education level, ICU experience, shift pattern, weekly work hours, and moral distress category

Discussion.

This cross-sectional study examined burnout and its association with moral distress among ICU nurses in a hospital setting in Medan, Indonesia. The main finding was that more than one-third of participants met criteria for burnout, indicating a substantial burden in this workforce. In adjusted analyses, higher moral distress, longer weekly work hours, and shorter ICU experience remained associated with burnout. To our knowledge, this study adds evidence from an Indonesian ICU nursing population by jointly examining ethical strain and work-related factors in the same analytic model. These findings suggest that burnout in ICU nurses should be considered in relation to both ethical and organizational conditions in similar clinical settings.

The association between moral distress and burnout was one of the most important findings of this study. This finding may be explained by repeated exposure to ethically difficult situations, including perceived futile care, poor teamwork, and constraints on acting according to professional judgment, which have been identified as important sources of moral distress in critical care settings (Andersson et al., 2023; Salas-Bergüés et al., 2024). Several explanations are possible for the additional associations with longer work hours and shorter ICU experience, including reduced recovery time, heavier perceived workload, and fewer developed coping strategies in less experienced nurses (Dall'Ora et al., 2023; Chai et al., 2026). In ICU settings, where patient acuity is high and decisions are often urgent

and complex, these conditions may coexist and intensify psychological burden (Salas-Bergüés et al., 2024). However, these are plausible explanations only, and the cross-sectional design precludes causal inference.

Overall, these findings are generally consistent with previous literature. Prior studies in ICU and critical care settings have also reported that moral distress is positively associated with burnout or related forms of exhaustion, and recent work from Latvia similarly observed interrelationships among moral distress, burnout, and turnover-related outcomes in ICU nurses (Kok et al., 2023; Cerela-Boltunova et al., 2025). This result is also broadly consistent with studies showing that longer working hours are associated with higher burnout among nurses (Dall'Ora et al., 2023). In contrast to prior studies that emphasized rotating or night-shift characteristics, rotating shift work did not remain associated with burnout after multivariable adjustment in the present study, which may reflect differences in staffing structure, measurement approach, sample size, or covariate adjustment (Dall'Ora et al., 2023). Taken together, this study adds context-specific evidence suggesting that moral distress and workload-related factors may be more salient than shift pattern alone in this ICU nurse population.

This study had several strengths, including the use of a clearly defined ICU nurse population in a real-world hospital setting and the simultaneous assessment of moral distress and work-related factors in the same analysis. The main limitation is that the cross-sectional design did not allow assessment of temporality and therefore did not support causal interpretation (Vandenbroucke et al., 2007). Additional limitations include the modest sample size, the use of self-reported measures, the possibility of residual confounding, and the single-center design. Nonresponse and self-report bias may also have influenced the estimates, and the direction of bias could not be determined with certainty because nurses with either higher or lower distress may have been differentially likely to participate or complete the survey. Accordingly, the findings should be generalized cautiously, primarily to comparable ICU nursing settings rather than to all nurses or all hospitals.

These findings have practical implications for ICU nursing management and hospital leadership. Institutions should consider routine assessment of burnout and moral distress, attention to prolonged work hours, and targeted support for early-career ICU nurses, including supervision, ethical debriefing, and supportive team processes (Salas-Bergüés et al., 2024; Chai et al., 2026). This study adds evidence from an underreported clinical context and suggests that burnout surveillance may be strengthened when ethical and workload-related factors are evaluated together. Future studies should use multicenter longitudinal designs and, where feasible, intervention-based approaches to clarify temporal relationships and evaluate whether organizational or psychosocial support strategies are associated with better nurse outcomes (Li et al., 2024; Cerela-Boltunova et al., 2025). Overall, the present findings suggest that burnout among ICU nurses is common and is associated with moral distress, weekly workload, and ICU experience in this setting.

Strengths And Limitations of The Study

Several limitations should be considered. First, the cross-sectional design precludes conclusions about temporality or causality between moral distress, work-related factors, and burnout. Second, the use of self-reported measures may have introduced reporting bias or social desirability bias, which could have attenuated or inflated the observed associations. Third, selection bias may have occurred because the study was conducted in a single center with a relatively modest sample size, and nonresponse may have limited representativeness. Fourth, residual confounding cannot be excluded because some potentially relevant factors, such as staffing adequacy, organizational climate, coping style, and psychological support, were not measured directly. These limitations may have affected the precision, interpretation, and broader generalizability of the findings beyond comparable ICU nursing settings. Accordingly, the findings should be interpreted cautiously

Implications For Nursing Practice

These findings suggest that nursing practice may benefit from greater attention to burnout and its associated workplace and ethical correlates among ICU nurses. Nurses should be attentive to early signs of emotional strain, particularly among staff with higher moral distress, longer weekly work hours, and

shorter ICU experience. At the organizational level, nursing leadership may consider routine screening for burnout and moral distress, structured support for early-career ICU nurses, workload monitoring, and opportunities for ethical debriefing and team communication. Such approaches may support staff well-being, strengthen workforce stability, and help maintain the quality and safety of patient care in high-intensity settings. These findings may help inform targeted nursing strategies, although further longitudinal and interventional studies are needed to clarify temporality and evaluate effective responses

Conclusions

In this cross-sectional study, burnout was common among ICU nurses and was associated with moral distress, longer weekly work hours, and shorter ICU experience. These findings suggest that both ethical strain and workplace demands are relevant when considering nurse well-being in critical care settings. Further longitudinal studies are needed to clarify temporality and to inform practice and organizational strategies aimed at supporting ICU nurses.

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Conflict of Interest Statement
The authors declare no conflicts of interest.

Author contribution
Ridwan Abdullah conceived and designed the study, analyzed the data, and drafted the manuscript. Reza Abadi contributed to data collection, data interpretation, and critical revision of the manuscript. Firman Afrail contributed to study supervision, manuscript revision, and final approval. All authors approved the final manuscript.

Data Avaibility
The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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