The Review Of
DIABETIC
STUDIES OPEN ACCESS

Evaluating The Effect Of Mindfulness-Based Training Programs On Reducing Burnout Among Emergency Department Nurses

Hanan Hasan Mohammed Esmaeel[1], Habb Faisal Saeed Almashhad[2], Sammar Ali Hassan Almiftah[3], Hafsah Saleh Fallatah[4], Fatima Shafiq Ahmed Al Khalif[5], Hazim Hamden Muhammad Alahmadi[6], Hanan Mohammed Albarnawi[7], Areej Omar Alsabbak[8], Amal Habib Albishi[9], Maryam Abdulkarem Almozain[10], Hessa Abdulrahman Ali Alkhaibari[11], Mariam Shoei Mohammed Qaysi[12], Abdul Rahman Marzraq Al Otaibi[13], Sabah Bakr Adam Fallatah[14]

[1]ER Head Nurse, King Fahad Armed Forces Hospital, Jeddah
[2] Registered Nurse RN, Qatif General Hospital, Nursing
[3]Senior Specialist, Adult Critical Care Nursing, King Fahd Armed Forces Hospital, Jeddah
[4]Senior Specialist, Adult Critical Care Nursing, King Fahad Armed Forces Hospital
[5]Nursing Technician, Ras Tanura General Hospital
[6]General Nursing Technician, Al-Amal and Psychiatric Hospital
[7]Nursing Specialist, Umm Al-Qura University Medical Clinic
[8]Diabetic Health Educator, Umm Al-Qura University Medical Clinic
[9]Community Health Nursing, University Medical Clinic, Umm Al-Qura University
[10]Nursing, Home Care, Ras Tanura
[11]ER Nurse, King Fahad Force Armed Hospital
[12] Nurse Specialist, East Jeddah Hospital
[13]Epidemiology Technician, Primary Care and Preventive Medicine, Shaqra Sector, Shaqra General Hospital
[14]Nurse, Security Forces Hospital Makkah

Abstract

Background: Emergency department (ED) nurses operate in high-stress, unpredictable environments, placing them at significant risk of occupational burnout—characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment. Burnout not only impacts nurse well-being but also threatens patient safety and care quality. Mindfulness-based interventions (MBIs) have shown promise in reducing stress and burnout in healthcare settings, yet there is a need for targeted research within the unique context of emergency nursing.
Methods: This quasi-experimental study utilized a pre-test/post-test design to evaluate the effects of an eight-week mindfulness-based training program on burnout levels among ED nurses. A purposive sample of 120 registered nurses participated in weekly 90-minute sessions incorporating guided meditation, breathing exercises, and reflective practices. Burnout was measured using a validated questionnaire assessing emotional exhaustion, depersonalization, and personal accomplishment. Data were collected before and after the intervention and analyzed using paired sample t-tests.
Results: Following the intervention, significant reductions in burnout were observed across all dimensions. High emotional exhaustion decreased from 41.7% to 12.5%, high depersonalization from 25% to 12.5%, and low personal accomplishment from 25% to 8.3%. Mean scores for emotional exhaustion (28.5 to 19.3), depersonalization (16.2 to 10.8), and personal accomplishment (31.0 to 38.6) showed statistically significant improvements ($p < 0.001$ for all).
Conclusion: The mindfulness-based training program effectively reduced burnout among ED nurses, enhancing emotional resilience and professional fulfillment. These findings support the integration of structured mindfulness interventions into nurse support programs to mitigate burnout, improve well-being, and promote a more resilient emergency care workforce.

Introduction

Background

Emergency department (ED) nurses face some of the most intense and unpredictable work environments in healthcare. Constant exposure to critical cases, high patient volumes, and life-or-death situations creates sustained levels of stress that can be physically, emotionally, and mentally taxing. Unlike other hospital units where workflows may be more predictable, the ED operates under urgent timelines, often requiring split-second decisions that impact patient outcomes. These high-stakes demands contribute to chronic stress, making emergency nurses particularly vulnerable to occupational burnout (Wang et al., 2023).

Burnout among ED nurses is characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. Emotional exhaustion manifests as a depletion of energy, leaving nurses feeling drained and unable to meet job demands. Depersonalization refers to a negative, detached attitude toward patients, which can impact the quality of care. Reduced personal accomplishment is the feeling of inadequacy or failure despite effort and competence, which further undermines morale and job satisfaction. The combination of these factors not only affects nurses' well-being but can also compromise patient safety and overall healthcare quality (Green & Kinchen, 2021).

High stress levels in emergency nursing are amplified by the constant exposure to trauma, including witnessing patient suffering and death. Repeated encounters with critical incidents can induce psychological strain, potentially leading to secondary traumatic stress or compassion fatigue. This chronic psychological load affects cognitive functioning, decision-making, and emotional regulation. Nurses may develop maladaptive coping strategies, including emotional withdrawal, cynicism, or even absenteeism, which further perpetuate the cycle of burnout (Talebiazar et al., 2025).

Staffing shortages and high turnover rates in EDs exacerbate the problem. With fewer nurses available, workload per individual increases, further intensifying stress and the risk of burnout. Moreover, shift work and irregular schedules disrupt sleep patterns and circadian rhythms, contributing to fatigue and impaired resilience. Organizational constraints such as limited resources, administrative burdens, and high patient-to-nurse ratios create an environment where stress is sustained and support is often inadequate (Dou et al., 2025).

Workplace culture and social support within the ED play a significant role in burnout development. A collaborative, communicative, and supportive team can buffer the effects of stress, whereas toxic or unsupportive work environments can magnify burnout risk. Nurses who perceive a lack of recognition, inadequate professional development opportunities, or minimal input in decision-making are more likely to experience chronic stress. This highlights the importance of interventions that not only target individual coping mechanisms but also address organizational and environmental factors (Trygg Lycke et al., 2023).

Mindfulness-based interventions (MBIs) have gained attention as effective strategies for stress reduction and burnout prevention. Mindfulness involves cultivating present-moment awareness, non-judgmental acceptance, and emotional regulation. For nurses, mindfulness practices can enhance attention, improve emotional resilience, and foster a sense of balance despite high-pressure situations. Through techniques such as meditation, breathing exercises, and reflective practices, mindfulness can help nurses respond to stress more adaptively, reducing the likelihood of emotional exhaustion and depersonalization (Erden et al., 2023).

Evidence from various healthcare settings indicates that MBIs can positively impact well-being and reduce burnout symptoms. Participants in mindfulness programs often report lower stress levels, improved emotional regulation, and enhanced job satisfaction. MBIs may also improve interpersonal relationships at work by promoting empathy, patience, and effective communication, which are critical in high-intensity environments like the ED. These outcomes suggest that mindfulness training could be a valuable tool in mitigating the negative effects of chronic stress in emergency nursing (Zhou et al., 2025).

The implementation of structured mindfulness programs within healthcare organizations requires careful consideration of practical factors. Scheduling, program duration, delivery method, and organizational support all influence participation and effectiveness. Programs that are too time-intensive or poorly integrated into work routines may see low adherence, limiting their impact. Conversely, well-designed, flexible programs that accommodate nurses' schedules and include ongoing support are more likely to yield meaningful outcomes (Shoker et al., 2024).

Despite growing interest in mindfulness interventions, there remains a need for targeted research focused specifically on emergency department nurses. While studies have explored the impact of MBIs in general nursing populations, the unique stressors of the ED setting warrant investigation. Understanding how mindfulness programs affect burnout in this context can guide the development of tailored interventions that address both individual well-being and organizational resilience (Kriakous et al., 2021).

Addressing burnout among ED nurses is essential not only for staff health but also for patient care quality and organizational efficiency. Reducing burnout can enhance retention, improve workplace morale, and decrease errors, ultimately leading to safer, more effective healthcare delivery. By exploring the effect of mindfulness-based training programs on burnout, this research aims to provide evidence-based strategies that support both nurse well-being and the performance of emergency care systems (Othman et al., 2023).

Methodology

Study Design

This study employed a quantitative, quasi-experimental design to evaluate the effect of mindfulness-based training programs on reducing burnout among emergency department nurses. The design allowed for the assessment of changes in burnout levels before and after the intervention while providing a structured framework to examine the effectiveness of the mindfulness program. A pre-test and post-test approach was utilized to measure outcomes, enabling direct comparisons of participants' burnout levels and psychological well-being following the intervention.

Participants

Participants were registered nurses working in emergency care units. Inclusion criteria required participants to have a minimum of one year of clinical experience in emergency settings and full-time employment status. Nurses who were on extended leave or who had participated in similar mindfulness programs within the past year were excluded. A total of 120 nurses were recruited, with participants voluntarily enrolling after receiving detailed information about the study objectives, procedures, and confidentiality assurances.

Sampling Technique

A purposive sampling method was employed to ensure that participants met the inclusion criteria and were representative of nurses actively engaged in high-stress emergency care environments. Participants were invited through internal announcements and staff meetings. The final sample included those who provided written informed consent and completed both the pre-intervention and post-intervention assessments.

Intervention

The mindfulness-based training program was structured over an eight-week period, consisting of weekly sessions lasting 90 minutes each. The program incorporated evidence-based practices, including guided meditation, breathing exercises, body scanning, and reflective mindfulness activities. Each session emphasized the development of awareness, stress regulation, and emotional resilience. Participants were also encouraged to engage in daily mindfulness exercises outside of the formal sessions to reinforce learned techniques. Program content was delivered by certified mindfulness instructors with experience in healthcare settings, ensuring practical applicability to the nurses' work environment.

Data Collection Instruments

Burnout levels were measured using a standardized, validated questionnaire that assessed emotional exhaustion, depersonalization, and personal accomplishment. The instrument employed a Likert-scale format, providing quantitative data suitable for statistical analysis. In addition, demographic and professional background information was collected, including age, gender, years of clinical experience, and shift patterns, to explore potential correlations with burnout levels.

Data Collection Procedure

Data were collected at two points: prior to the commencement of the mindfulness program (pre-test) and immediately following the completion of the eight-week program (post-test). Participants completed the burnout questionnaire in a quiet and private setting to ensure candid responses. Data collection was facilitated by research assistants who provided guidance on questionnaire completion and addressed any queries. All responses were anonymized to maintain participant confidentiality.

Ethical Considerations

The study adhered to ethical research standards. Informed consent was obtained from all participants, who were informed of their right to withdraw at any time without repercussions. Confidentiality and anonymity

were maintained throughout the study by assigning unique codes to participants' data. Additionally, the study was conducted in accordance with established ethical guidelines for research involving human participants, ensuring minimal risk and safeguarding participants' well-being.

Data Analysis

Data were analyzed using statistical software to determine the impact of the mindfulness-based training program on burnout levels. Descriptive statistics summarized participant characteristics and baseline burnout levels. Paired sample t-tests were conducted to compare pre-test and post-test burnout scores, assessing the statistical significance of changes in emotional exhaustion, depersonalization, and personal accomplishment. Effect sizes were calculated to determine the practical significance of the intervention. Additionally, subgroup analyses were performed to explore differences based on demographic variables such as years of experience and shift type.

Reliability and Validity

The burnout assessment instrument demonstrated high reliability, as indicated by Cronbach's alpha values exceeding 0.85. Validity was supported through prior empirical use in similar nursing populations and the inclusion of clearly defined constructs aligned with the theoretical framework of burnout. Steps were taken to minimize bias, including standardized administration procedures and consistent guidance from research assistants.

Limitations

While the methodology was rigorous, several limitations were acknowledged. The quasi-experimental design lacked a control group, which limited the ability to infer causal relationships definitively. Self-reported measures were subject to potential response biases, including social desirability and recall errors. Additionally, adherence to home-based mindfulness exercises varied among participants, which may have influenced the magnitude of the observed effects.

Results

The purpose of this study was to evaluate the effect of mindfulness-based training programs on reducing burnout among emergency department nurses. Data were collected from 120 participants who completed both pre- and post-intervention assessments. Descriptive statistics were used to summarize participant characteristics, and paired comparisons were conducted to assess changes in burnout levels across the three primary dimensions: emotional exhaustion, depersonalization, and personal accomplishment. Frequencies and percentages were calculated to provide a clear overview of participant demographics and burnout distributions.

Table 1: Demographic Characteristics of Participants (N = 120)

Characteristic	Frequency	Percentage (%)
Gender		
– Male	38	31.7
– Female	82	68.3
Age (years)		
– 20–29	40	33.3
– 30–39	50	41.7
– 40–49	25	20.8
– 50 and above	5	4.2
Years of Experience		
– 1–5 years	30	25.0
– 6–10 years	45	37.5
– 11–15 years	25	20.8
– >15 years	20	16.7
Shift Type		
– Day Shift	50	41.7
– Night Shift	30	25.0
– Rotating Shift	40	33.3

The majority of participants were female (68.3%), with most aged between 30–39 years (41.7%). Most nurses had 6–10 years of experience (37.5%), reflecting a relatively experienced workforce. The sample included a mix of day, night, and rotating shift nurses, ensuring representation across common ED schedules. These characteristics provided a comprehensive view of the population exposed to high-stress conditions in emergency settings.

Table 2: Pre-Intervention Burnout Levels (N = 120)

Burnout Dimension	Low Frequency (%)	Moderate Frequency (%)	High Frequency (%)
Emotional Exhaustion	20 (16.7%)	50 (41.7%)	50 (41.7%)
Depersonalization	35 (29.2%)	55 (45.8%)	30 (25.0%)
Personal Accomplishment	30 (25.0%)	60 (50.0%)	30 (25.0%)

Before the intervention, a substantial proportion of nurses experienced high emotional exhaustion (41.7%), indicating a significant baseline level of burnout. Depersonalization was moderate or high in 70.8% of participants, while personal accomplishment was low or moderate in 75% of nurses. These results confirm the presence of considerable burnout among emergency nurses prior to participation in the mindfulness program.

Table 3: Post-Intervention Burnout Levels (N = 120)

Burnout Dimension	Low Frequency (%)	Moderate Frequency (%)	High Frequency (%)
Emotional Exhaustion	55 (45.8%)	50 (41.7%)	15 (12.5%)
Depersonalization	60 (50.0%)	45 (37.5%)	15 (12.5%)
Personal Accomplishment	65 (54.2%)	45 (37.5%)	10 (8.3%)

Following the mindfulness program, there was a notable shift in burnout levels. High emotional exhaustion decreased from 41.7% to 12.5%, while low emotional exhaustion increased from 16.7% to 45.8%. Similarly, high depersonalization reduced from 25% to 12.5%, and low depersonalization increased from 29.2% to 50%. Personal accomplishment improved, with low levels decreasing to 8.3% and high levels rising to 54.2%. These changes indicate a significant positive impact of mindfulness-based training on reducing burnout symptoms.

Table 4: Comparative Pre- and Post-Intervention Burnout Scores (Mean ± SD)

Burnout Dimension	Pre-Intervention Mean ± SD	Post-Intervention Mean ± SD	t-value	p-value
Emotional Exhaustion	28.5 ± 6.2	19.3 ± 5.4	12.45	<0.001
Depersonalization	16.2 ± 4.8	10.8 ± 3.7	10.37	<0.001
Personal Accomplishment	31.0 ± 5.9	38.6 ± 6.1	11.20	<0.001

Paired t-test analysis revealed statistically significant improvements across all burnout dimensions. Emotional exhaustion decreased significantly from 28.5 to 19.3 ($p < 0.001$), depersonalization declined from 16.2 to 10.8 ($p < 0.001$), and personal accomplishment increased from 31.0 to 38.6 ($p < 0.001$). These findings confirm that the mindfulness-based training program effectively reduced burnout and enhanced nurses' sense of personal achievement.

Discussion

The results of this study demonstrated that the eight-week mindfulness-based training program significantly reduced burnout among emergency department nurses, with notable decreases in emotional exhaustion and depersonalization alongside substantial increases in personal accomplishment. This aligns with existing evidence suggesting that mindfulness interventions can effectively mitigate burnout symptoms in nursing populations. Wang et al. (2023) conducted a systematic review and meta-analysis which also found that mindfulness-based interventions were associated with significant reductions in burnout among nurses, indicating that such interventions can improve psychological well-being in high-stress clinical environments.

Our findings of substantial improvements in emotional exhaustion are consistent with both prior research and theoretical expectations. Emotional exhaustion, a core component of burnout, reflects feelings of being emotionally overextended and depleted by work demands. Green and Kinchen (2021) observed that mindfulness meditation significantly reduced stress and emotional exhaustion in nursing staff, underscoring how present-moment awareness and stress regulation strategies can alleviate chronic work-related fatigue and improve professional functioning.

The significant decrease in depersonalization observed in our study further highlights the potential of mindfulness training to foster more adaptive emotional responses toward patients and work. Depersonalization reflects a cynical or detached attitude that often emerges as a coping response to prolonged stress. In line with Talebiazar et al. (2025), who reported that mindfulness-based stress reduction significantly lowered burnout and stress levels in nurses, our results suggest that cultivating mindful awareness supports healthier engagement with work, reducing tendencies toward emotional numbing and detachment.

Improvements in personal accomplishment observed post-intervention in our research indicate enhanced feelings of competence and effectiveness in nursing roles. This finding supports broader research showing that mindfulness can enhance self-efficacy and job satisfaction, factors inversely related to burnout severity. Dou et al. (2025), in their meta-analysis, concluded that mindfulness-based interventions not only reduce burnout but also contribute to greater psychological resilience and overall well-being in nurses, which may help explain our observed increases in personal accomplishment after the intervention.

Beyond burnout, mindfulness may also bolster emotional regulation and coping capacity. By cultivating non-judgmental awareness of internal experiences, nurses may become better equipped to manage stress without over-identifying with negative thoughts or emotions. Shoker et al. (2024) found that standardized mindfulness programs were effective in decreasing burnout across various healthcare professions, supporting the idea that mindfulness interventions promote adaptive cognitive and emotional processing in demanding work settings.

Qualitative perspectives further support the positive impact of mindfulness on nurses' work experiences. Trygg Lycke, Airosa, and Lundh (2023) reported that emergency department nurses experienced increased present-moment awareness, improved coping strategies, and greater emotional balance following mindfulness training. Their phenomenological study highlighted participants' descriptions of feeling more grounded and less overwhelmed, which aligns with the quantitative reductions in burnout reported in the current research.

Consistent with the broader literature, our findings suggest that the effects of mindfulness may extend beyond burnout reduction to promote psychological resilience. While the present study did not directly measure resilience as an outcome, the observed improvements in personal accomplishment could be indicative of enhanced adaptive capacity. Dou et al. (2025) found that mindfulness-based interventions improved resilience among nurses, suggesting that these programs support broader psychological resources that buffer against workplace stress.

The mechanisms through which mindfulness exerts its effects have been explored in both clinical and theoretical research. Mindfulness training may reduce physiological stress responses and enhance cognitive flexibility, thereby diminishing the intensity of emotional exhaustion and fostering more adaptive responses to stressors. Zhou, Chen, and Lin (2025) highlighted that mindfulness-based stress reduction positively influences mental health markers in emergency nurses by reducing stress reactivity and improving emotional regulation, which can contribute to sustained reductions in burnout.

Our study's findings nevertheless must be considered within the context of existing methodological limitations in the mindfulness literature. Systematic reviews, including the work of Wang et al. (2023), have noted variability in study designs, intervention duration, and measurement approaches, contributing to heterogeneity in reported effects. Additionally, some reviews have highlighted that while short-term improvements are common, longer-term sustainability of benefits remains less well understood, pointing to the need for extended follow-up in future research.

Despite these limitations, the consistency of results across studies lends confidence to the utility of mindfulness interventions in nursing contexts. Othman, Hassan, and Mohamed (2023) demonstrated that quasi-experimental mindfulness programs significantly reduced emotional exhaustion and depersonalization among critical care nurses, paralleling the results observed in our emergency department sample.

The positive outcomes observed in our study also align with broader meta-analytic findings indicating that mindfulness can improve both psychological functioning and job-related outcomes in healthcare professionals. Kriakous et al. (2021) reported that mindfulness-based stress reduction had beneficial effects on overall psychological functioning among healthcare workers, which may underlie reductions in burnout and improvements in job satisfaction observed in our sample.

Furthermore, mindfulness practices may enhance self-compassion and emotional balance, which can serve as protective factors against burnout. Increased self-compassion allows nurses to respond to stressors with understanding rather than self-criticism, potentially reducing vulnerability to emotional exhaustion and cynicism over time. Erden, Karakurt, and Çoban (2023) found that mindfulness training improved quality of work life and motivational factors among nurses, suggesting that psychological benefits may translate into enhanced professional well-being more broadly.

While the current study focused on emergency department nurses, other research indicates that the benefits of mindfulness extend across a variety of clinical settings, reinforcing the generalizability of these interventions. For example, mindfulness training delivered through digital and instructor-led formats has been shown to reduce stress and burnout among emergency and intermediate care unit staff, highlighting the flexibility and accessibility of mindfulness modalities.

In summary, the findings of this research corroborate a substantial body of literature suggesting that mindfulness-based training is an effective approach for reducing burnout and improving psychological well-being among nurses. These results support the integration of mindfulness programs within nurse support initiatives and underscore the potential benefits for both individual practitioners and healthcare systems.

Conclusion

The mindfulness-based training program implemented in this study significantly reduced burnout among emergency department nurses, with marked improvements in emotional exhaustion, depersonalization, and personal accomplishment. These results are consistent with existing evidence suggesting that mindfulness interventions are effective in mitigating burnout and enhancing psychological functioning in nursing populations, supporting their inclusion in interventions aimed at improving nurse well-being and workplace resilience.

References

1. Wang, Q., Wang, F., Zhang, S., Liu, C., Feng, Y., & Chen, J. (2023). Effects of a mindfulness-based interventions on stress, burnout in nurses: a systematic review and meta-analysis. Frontiers in psychiatry, 14, 1218340. https://doi.org/10.3389/fpsyt.2023.1218340

2. Green, A. A., & Kinchen, E. V. (2021). The Effects of Mindfulness Meditation on Stress and Burnout in Nurses. Journal of holistic nursing : official journal of the American Holistic Nurses' Association, 39(4), 356–368. https://doi.org/10.1177/08980101211015818

3. Talebiazar, N., Anzali, B. C., Abbasi, M., Azizi, N., Goli, R., Faraji, N., Bagheri, M., Amiri, N., & Kazemi, S. (2025). Does mindfulness-based stress reduction training have an impact on the occupational burnout and stress experienced by nurses? A randomized controlled trial. International archives of occupational and environmental health, 98(1), 1–11. https://doi.org/10.1007/s00420-024-02078-8

4. Dou, J., Lian, Y., Lin, L., Asmuri, S. N. B., Wang, P., & Rajen Durai, R. A. (2025). Effectiveness of mindfulness-based interventions on burnout, resilience and sleep quality among nurses: a systematic review and meta-analysis of randomized controlled trials. BMC nursing, 24(1), 739. https://doi.org/10.1186/s12912-025-03101-0

5. Trygg Lycke, S., Airosa, F., & Lundh, L. (2023). Emergency Department Nurses' Experiences of a Mindfulness Training Intervention: A Phenomenological Exploration. Journal of holistic nursing : official journal of the American Holistic Nurses' Association, 41(2), 170–184. https://doi.org/10.1177/08980101221100091

6. Erden, Y., Karakurt, N., & Çoban, G. İ. (2023). Evaluation of the Effect of Mindfulness-Based Training on the Quality of Work-Life and Motivations of Nurses Working During the COVID-19 Pandemic. The Eurasian journal of medicine, 55(3), 178–184. https://doi.org/10.5152/eurasianjmed.2023.23180

7. Zhou, R. R., Chen, L. L., & Lin, L. D. (2025). Mindfulness-based stress reduction and mental health in department of emergency nurses: A narrative review. World journal of psychiatry, 15(9), 107630. https://doi.org/10.5498/wjp.v15.i9.107630
8. Shoker, D., Desmet, L., Ledoux, N., & Héron, A. (2024). Effects of standardized mindfulness programs on burnout: a systematic review and original analysis from randomized controlled trials. Frontiers in public health, 12, 1381373. https://doi.org/10.3389/fpubh.2024.1381373
9. Kriakous, S. A., Elliott, K. A., Lamers, C., & Owen, R. (2021). The Effectiveness of Mindfulness-Based Stress Reduction on the Psychological Functioning of Healthcare Professionals: a Systematic Review. Mindfulness, 12(1), 1–28. https://doi.org/10.1007/s12671-020-01500-9