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Effectiveness of a Self-Awareness–based Mindfulness Meditation Program in Reducing Burnout and Improving Job Performance among Hospital Nurses in Indonesia

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ABSTRACT:

Objective: To evaluate the effectiveness of an 8-week self-awareness–based mindfulness meditation program in reducing burnout and improving job performance among hospital nurses in Indonesia.

Methods: This quasi-experimental pretest–posttest control group study included 60 hospital nurses at Mitra Medika General Hospital, Medan, Indonesia. Participants were allocated to an intervention group receiving an 8-week self-awareness–based mindfulness meditation program (n=30) or a control group receiving usual workplace support and routine occupational health activities (n=30). Burnout and job performance were assessed at baseline and immediately after the intervention. Within- and between-group changes were analyzed using appropriate statistical tests, with significance set at $p < 0.05$.

Results: Baseline burnout and job-performance scores were comparable between groups. Burnout decreased from 68.4 ± 8.7 to 49.6 ± 7.9 in the intervention group (–18.8 points; 27.5%), compared with 67.9 ± 8.5 to 64.8 ± 8.3 in the control group (–3.1 points; 4.6%). The between-group difference in mean change was –15.7 points ($p < 0.001$). Job performance increased from 67.8 ± 6.5 to 78.9 ± 5.8 in the intervention group (+11.1 points; 16.4%), compared with 68.2 ± 6.3 to 70.1 ± 6.1 in the control group (+1.9 points; 2.8%). The between-group difference in mean change was 9.2 points ($p < 0.001$). Significant improvements were observed only in the intervention group ($p < 0.001$).

Conclusion: An 8-week self-awareness–based mindfulness meditation program was associated with substantial reductions in burnout and improvements in job performance among hospital nurses. Integrating structured mindfulness practices into workplace

nursing programs may provide a feasible complementary strategy to support nurses' psychological well-being and occupational functioning.

1. INTRODUCTION

Nurses are essential to the delivery of safe, continuous, and high-quality hospital care, yet the nature of their work exposes them to sustained physical, cognitive, and emotional demands. Nurses must simultaneously maintain clinical vigilance, make timely decisions, communicate effectively with patients and families, coordinate multidisciplinary care, and regulate their own emotional responses in situations involving suffering, uncertainty, and rapidly changing patient conditions. When these demands persist without adequate psychological resources and organizational support, chronic occupational stress may develop into burnout [1-3]. The World Health Organization (WHO, 2019) defines burnout as an occupational phenomenon resulting from chronic workplace stress that has not been successfully managed, characterized by exhaustion, increased mental distance or negative and cynical attitudes toward work, and reduced professional efficacy. Burnout among nurses is therefore not merely an individual well-being problem; it represents a workforce and patient-safety concern because impaired psychological functioning may compromise nurses' ability to sustain effective clinical performance and high-quality care [4,5].

The consequences of nurse burnout extend directly into occupational functioning. Burnout may diminish concentration, motivation, emotional regulation, professional engagement, and the capacity to respond effectively to clinical demands, potentially contributing to absenteeism, intention to leave, reduced productivity, and poorer work performance [6-8]. Job performance is particularly important in nursing because it reflects the extent to which nurses translate professional competence into safe and effective practice, including accurate clinical decision-making, appropriate nursing interventions, therapeutic communication, documentation, adherence to professional standards, and collaboration with other healthcare professionals [9-11]. Evidence has also linked nurse burnout with missed nursing care, medication errors, and patient-safety incidents [12,13]. Accordingly, an intervention that reduces burnout but does not translate into improved occupational functioning may have limited practical value for healthcare organizations. The critical challenge is therefore not simply how to make nurses feel less stressed, but how to strengthen their capacity to remain psychologically regulated, attentive, and functionally effective while performing demanding clinical work [14-16].

Mindfulness offers a theoretically plausible approach to addressing this challenge because it targets the processes through which individuals perceive and respond to stressful experiences. Mindfulness involves intentionally attending to present-moment experiences with openness and without judgment [17]. In contrast to approaches that primarily seek to eliminate stressors, mindfulness may help individuals recognize thoughts, emotions, bodily sensations, and behavioral impulses before reacting automatically to them. This process of enhanced self-awareness may allow nurses to identify early signs of emotional exhaustion, observe stressful thoughts without immediately engaging with them, regulate emotional responses, and redirect attention toward the task at hand. Mindfulness meditation therefore has potential relevance not only for reducing burnout but also for maintaining the attentional and emotional capacities required for effective nursing performance. A self-awareness-based approach is particularly pertinent to nursing because clinical work frequently requires nurses to recognize their internal state while simultaneously remaining attentive to patients, clinical priorities, and interpersonal interactions [18,19].

Although evidence supporting mindfulness for nurse well-being has expanded, important gaps remain. Recent systematic reviews and meta-analyses indicate that mindfulness-based interventions can reduce burnout and improve related outcomes such as resilience and sleep quality; however, substantial heterogeneity across interventions and methodological limitations continue to restrict the certainty and generalizability of the evidence [20,21]. A recent systematic review of ICU nurses further suggests that intervention duration, structure, delivery format, and contextual factors may influence outcomes, highlighting the need for clearly defined and contextually feasible intervention models. More importantly, the existing literature has predominantly evaluated psychological outcomes, particularly stress, burnout, resilience, and well-being, rather than examining whether improvements in psychological functioning are accompanied by measurable improvements in nurses' job performance. Although some evidence has considered occupational outcomes, the evidence base remains less developed than that for burnout reduction. Recent randomized evidence also demonstrates that mindfulness-based stress reduction can reduce occupational stress and burnout, but continued research is needed to determine how structured mindfulness programs translate into broader occupational functioning. Thus, a key unresolved question is whether a mindfulness intervention designed specifically around self-awareness can produce a dual benefit reducing burnout while simultaneously improving nurses' job performance.

This study addresses that gap by evaluating a self-awareness-based mindfulness meditation program designed not merely as a generic stress-reduction intervention, but as a structured practice intended to strengthen nurses' awareness of thoughts, emotions, bodily responses, and attentional states during stressful work experiences. The distinctive contribution of the present study lies in its dual-outcome framework, examining burnout and job performance concurrently to determine whether psychological benefits are accompanied by meaningful improvements in occupational functioning. This approach is particularly relevant in the Indonesian hospital context, where evidence on structured mindfulness interventions linking nurses' psychological well-being with work performance remains limited. Therefore, this study aimed to determine the effectiveness of a self-awareness-based mindfulness meditation program in reducing burnout and improving job performance among hospital nurses in Indonesia. By simultaneously evaluating these two outcomes, the study seeks to generate clinically and organizationally relevant evidence for incorporating feasible mindfulness-based strategies into nursing workforce well-being and quality-improvement programs.

2. MATERIALS AND METHODS

2.1 Study Design and Setting

This study employed a quasi-experimental, two-group pretest–posttest controlled design to evaluate the effectiveness of a self-awareness-based mindfulness meditation program in reducing burnout and improving job performance among hospital nurses. The study compared changes in burnout and job performance from baseline to post-intervention between nurses who received the structured mindfulness meditation program and those who continued to receive usual workplace support and routine occupational health activities.

The study was conducted at Rumah Sakit Umum Mitra Medika Medan, Indonesia. The hospital was selected because nurses working in this setting are exposed to complex clinical responsibilities, continuous patient-care demands, shift work, interpersonal interactions, and the need for sustained cognitive and emotional regulation. These characteristics provide an appropriate setting for evaluating a structured mindfulness intervention aimed at strengthening self-awareness and adaptive responses to occupational stress. The study consisted of participant screening, eligibility assessment, informed consent, baseline assessment, group allocation, intervention delivery, post-intervention assessment, and statistical analysis. The overall study procedures and participant flow are illustrated in Figure 1.

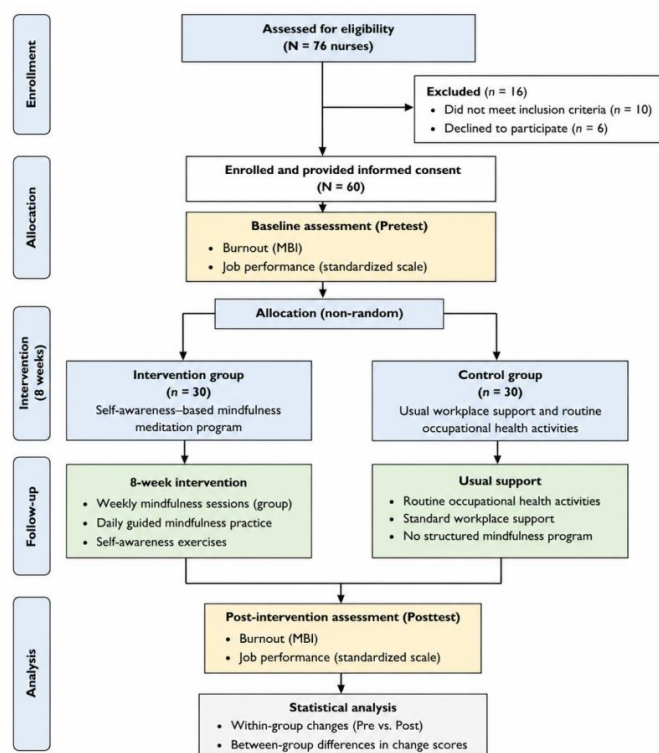


Figure 1. Study design and participant flow

2.2 Study Population and Participants

The study population comprised registered nurses actively working at Rumah Sakit Umum Mitra Medika Medan during the study period. A total of 60 eligible nurses were included and allocated into two groups: an intervention group receiving the self-awareness–based mindfulness meditation program ($n = 30$) and a control group receiving usual workplace support and routine hospital activities ($n = 30$).

Participants were recruited using purposive sampling based on predefined eligibility criteria. Nurses were eligible if they (1) were actively employed at the study hospital, (2) had worked for at least 6 months, (3) were able to communicate effectively and complete the study instruments, (4) were able to participate in the mindfulness sessions and independent practice, (5) agreed to participate in the study, and (6) provided written informed consent. Nurses were excluded if they were on prolonged leave during the intervention period, were transferred to another healthcare facility during the study, were unable to participate in the majority of intervention sessions, or had a condition that prevented them from completing the study procedures. Participants who voluntarily withdrew were documented as study withdrawals, and the reasons for withdrawal or non-completion were recorded where applicable.

2.3 Sample Size and Group Allocation

A total of 60 nurses were included in the study, with 30 participants assigned to the intervention group and 30 to the control group, corresponding to an allocation ratio of 1:1. Group allocation was performed according to the predetermined study procedure after eligibility screening and baseline assessment. Because the study used a quasi-experimental design, group allocation was not considered equivalent to concealed randomization. To minimize selection bias, the recruitment criteria, baseline assessment procedures, intervention protocol, and post-intervention assessment procedures were standardized across the two groups. Baseline demographic and occupational characteristics were collected before intervention delivery.

2.4 Self-Awareness–Based Mindfulness Meditation Intervention

The intervention consisted of a structured 8-week self-awareness–based mindfulness meditation program designed to strengthen nurses' awareness of their thoughts, emotions, bodily sensations, attentional states, and behavioral responses to occupational stress. The program was developed as a practical psychological skills intervention and was not intended as religious or spiritual instruction.

The intervention incorporated progressive mindfulness practices, including introduction to mindfulness and self-awareness, mindful breathing, mindfulness meditation, body scanning, non-judgmental observation of thoughts and emotions, self-acceptance, stress awareness and regulation, mindfulness during nursing activities, and reflective practice. The intervention emphasized recognizing internal experiences before responding automatically to stressful situations and applying present-moment awareness during routine professional activities.

The intervention was delivered over 8 consecutive weeks. Each structured session lasted approximately 30–45 minutes and included brief psychoeducation, guided mindfulness practice, self-awareness exercises, reflection, and discussion of practical application in the workplace. Participants were also encouraged to conduct independent mindfulness practice for approximately 10–15 minutes per day throughout the intervention period. The intervention was delivered progressively from basic awareness skills to application in clinical practice. The detailed weekly intervention objectives, content, activities, session duration, and independent-practice components are presented in Table 1.

Table 1. Eight-week self-awareness–based mindfulness meditation intervention protocol

Week	Core component	Main activities	Duration
1	Mindfulness and self-awareness	Introduction to mindfulness, self-awareness, identification of internal experiences, and baseline awareness exercises	30–45 min
2	Mindful breathing	Guided breathing practice and attention to present-moment experience	30–45 min
3	Mindfulness meditation	Guided meditation and awareness of bodily and mental experiences	30–45 min

4	Body scan	Systematic awareness of bodily sensations and recognition of physical tension	30–45 min
5	Awareness of thoughts and emotions	Observing thoughts and emotions without judgment and recognizing automatic responses	30–45 min
6	Self-acceptance and stress regulation	Self-acceptance, recognition of occupational stress responses, and adaptive coping	30–45 min
7	Mindfulness in nursing practice	Applying present-moment awareness during patient care, communication, and workplace interactions	30–45 min
8	Integration and reflection	Integration of mindfulness skills, self-reflection, evaluation of personal progress, and development of a maintenance plan	30–45 min

Participants were instructed to practice mindfulness independently for approximately 10–15 minutes per day between structured sessions. Independent practice was documented using an adherence log.

2.5 Intervention Delivery and Fidelity

To ensure consistency across participants, the intervention was delivered according to a standardized intervention protocol. The facilitator received standardized instructions concerning the objectives, sequence, duration, and core components of each session. Intervention fidelity was monitored using a structured checklist documenting session attendance, completion of predefined intervention components, session duration, participant engagement, independent-practice adherence, and deviations from the intervention protocol. Participants who missed a session were identified, and the reason for non-attendance was recorded. Any substantial deviation from the intervention protocol, interruption of intervention delivery, or participant withdrawal was documented throughout the study.

2.6 Control Group

Participants assigned to the control group continued to receive usual workplace support and routine occupational health activities provided by the hospital during the study period. These activities included routine nursing supervision, staff communication, occupational health information, and other standard institutional support available to nurses. The control group did not receive the structured self-awareness-based mindfulness meditation program during the 8-week study period. Participants were requested not to participate in the structured mindfulness sessions provided to the intervention group. Any exposure to mindfulness-related activities outside the study protocol, if reported by participants, was documented.

2.7 Data Collection Procedures

Data collection was conducted in sequential stages. First, the researchers obtained institutional permission and ethical approval before participant recruitment. Potential participants were identified in coordination with nursing management and relevant unit supervisors according to the predefined eligibility criteria. Eligible nurses received standardized information concerning the study objectives, procedures, expected duration, potential benefits and discomforts, confidentiality, voluntary participation, and their right to withdraw without consequences for their employment. Written informed consent was obtained before baseline assessment.

Baseline assessment was performed before commencement of the intervention. Sociodemographic and occupational variables included age, sex, educational level, marital status, length of professional experience, length of employment at the hospital, nursing unit, employment status, and work-shift characteristics, where applicable. The baseline assessment also included burnout and job performance. The same instruments and standardized administration procedures were used during the post-intervention assessment to determine changes following the 8-week intervention.

2.8 Burnout Assessment

Burnout was assessed using the Maslach Burnout Inventory–Human Services Survey (MBI-HSS), or the validated burnout instrument specified in the approved study protocol. The instrument assesses the principal dimensions of occupational burnout relevant to human-service professionals, including emotional exhaustion, depersonalization or mental distancing, and

reduced personal accomplishment or professional efficacy, according to the established scoring procedures of the selected instrument.

The burnout instrument was administered at baseline and immediately after completion of the 8-week intervention. The primary burnout outcome was the change in burnout score from baseline to post-intervention. Scoring was performed according to the official scoring procedure of the selected instrument, with interpretation based on the relevant subscale scoring direction. If an Indonesian-language version was used, the manuscript should report the source of the translation, evidence of validity and reliability, and any linguistic or cultural adaptation procedures undertaken before implementation. Relevant psychometric characteristics in the current study should also be reported where applicable.

2.9 Job Performance Assessment

Nurses' job performance was assessed using a structured nursing job-performance instrument covering core domains of professional nursing practice. The assessment included implementation of nursing care, accuracy of nursing interventions, therapeutic communication, documentation, professional responsibility, teamwork, patient-safety practices, and compliance with applicable standard operating procedures. The job-performance instrument was administered at baseline and immediately after completion of the 8-week intervention. The same instrument, scoring procedure, and assessment conditions were used at both time points.

Where job performance was assessed by a nurse supervisor or head nurse, standardized assessment criteria were used to improve consistency and minimize subjective variation. The assessor was instructed to evaluate participants independently of their previous assessment scores. The instrument's validity, reliability, number of items, response scale, scoring procedure, and assessor characteristics should be reported in the final manuscript.

2.10 Outcome Measures

The primary outcome was burnout, assessed using the Maslach Burnout Inventory–Human Services Survey (MBI-HSS) at baseline (T0) and immediately after the 8-week intervention (T1). The MBI-HSS assesses emotional exhaustion, depersonalization, and personal accomplishment, with higher emotional exhaustion and depersonalization scores indicating greater burnout and higher personal accomplishment scores indicating better professional functioning. Because these dimensions represent distinct components of burnout, they were analyzed separately, with changes from baseline to post-intervention representing the primary outcome.

The secondary outcome was nurses' job performance, assessed using a validated nursing job-performance instrument covering the quality and accuracy of nursing care, therapeutic communication, documentation, professional responsibility, teamwork, patient safety, and adherence to nursing procedures. Higher scores indicated better performance, and changes from baseline to post-intervention were compared between groups. Intervention adherence and fidelity were monitored as process measures through session attendance, home-practice logs, and facilitator checklists to assess intervention exposure and implementation consistency. The expected beneficial changes were reduced emotional exhaustion and depersonalization, increased personal accomplishment, and improved job performance.

2.11 Statistical Analysis

All data were coded, checked for completeness, and analyzed using IBM SPSS Statistics version 26. Categorical variables were summarized using frequencies and percentages. Continuous variables were summarized using means and standard deviations for normally distributed data or medians and interquartile ranges for non-normally distributed data. The distribution of continuous variables was assessed using the Shapiro–Wilk test, supplemented by visual assessment of distribution where appropriate. Baseline characteristics were examined to describe the comparability of the intervention and control groups.

Within-group changes in burnout and job-performance scores from baseline to post-intervention were analyzed using paired-samples *t*-tests for normally distributed data. The Wilcoxon signed-rank test was used when the normality assumption was not met. Between-group differences in change scores were examined using independent-samples *t*-tests for normally distributed data and Mann–Whitney *U* tests for non-normally distributed data.

Because baseline outcome scores may influence post-intervention outcomes, analysis of covariance (ANCOVA) was additionally considered where appropriate, with the post-intervention burnout or job-performance score as the dependent

variable and the corresponding baseline score as a covariate. Relevant prespecified baseline characteristics may also be included as covariates when theoretically justified. Effect sizes with 95% confidence intervals were reported alongside *p*-values to provide information regarding the magnitude and precision of the intervention effect. All statistical tests were two-sided, with statistical significance set at $p < 0.05$.

2.12 Ethical Considerations

The study was conducted in accordance with internationally recognized ethical principles for research involving human participants, including respect for autonomy, beneficence, non-maleficence, and justice. Ethical approval was obtained from the appropriate institutional research ethics committee before participant recruitment. The exact name of the ethics committee, approval number, and approval date should be reported according to the official ethics approval document. All participants provided written informed consent before participation. Participation was voluntary, and participants were informed that they could withdraw from the study at any time without consequences for their employment or access to routine institutional services. Participant confidentiality was maintained through coded identification numbers rather than names on study instruments and databases. Personal identifiers were stored separately from research data, access to the study database was restricted to authorized research personnel, and research records were stored securely.

2.13 Data Availability

The datasets generated and/or analyzed during the current study are not publicly available because they contain participant-level information and are subject to confidentiality and ethical restrictions. De-identified data may be made available from the corresponding author upon reasonable request, subject to applicable ethical, institutional, and data-protection requirements.

3. RESULTS AND DISCUSSION

3.1 Participant Characteristics

A total of 60 hospital nurses were included in the study, with 30 participants allocated to the self-awareness-based mindfulness meditation intervention group and 30 to the control group. The baseline characteristics of the participants are presented in Table 2. The two groups demonstrated broadly comparable demographic and occupational characteristics. The mean age was 31.7 ± 5.4 years in the intervention group and 32.1 ± 5.8 years in the control group. Women represented the majority of participants in both groups (80.0% and 76.7%, respectively), while 56.7% of participants in the intervention group and 53.3% in the control group had a Bachelor of Nursing degree or professional nurse qualification. More than half of the participants had ≥ 5 years of professional experience (60.0% in the intervention group and 56.7% in the control group). Overall, the descriptive distribution indicated similar participant profiles across the two study groups.

Table 2. Baseline Characteristics of Hospital Nurses

Characteristic	Intervention (n = 30)	Control (n = 30)
Age, years, mean $\pm$ SD	31.7 $\pm$ 5.4	32.1 $\pm$ 5.8
Sex, n (%)		
Female	24 (80.0)	23 (76.7)
Male	6 (20.0)	7 (23.3)
Educational level, n (%)		
Diploma in Nursing (D3)	13 (43.3)	14 (46.7)
Bachelor of Nursing/Professional Nurse (S1/Ners)	17 (56.7)	16 (53.3)
Professional experience, n (%)		
≥ 5 years	18 (60.0)	17 (56.7)
< 5 years	12 (40.0)	13 (43.3)

Note: Values are presented as mean $\pm$ standard deviation or frequency (percentage).

The intervention and control groups showed similar demographic and occupational profiles at baseline. The small differences in mean age, sex distribution, educational level, and professional experience suggest no major descriptive imbalance between the groups. These characteristics provide a relatively comparable baseline for evaluating subsequent changes in burnout and job performance.

3.2 Effect of the Self-Awareness–Based Mindfulness Meditation Program on Burnout

Burnout outcomes before and after the intervention are presented in Table 3. In the intervention group, the mean burnout score decreased from 68.4 ± 8.7 at baseline to 49.6 ± 7.9 after the 8-week self-awareness–based mindfulness meditation program, representing a mean reduction of 18.8 points (27.5%). This within-group reduction was statistically significant ($p < 0.001$). In contrast, the control group showed a smaller reduction, from 67.9 ± 8.5 to 64.8 ± 8.3 , corresponding to a mean decrease of 3.1 points (4.6%), which was not statistically significant ($p = 0.081$). The difference in mean change between groups was 15.7 points, favoring the intervention group ($p < 0.001$).

Table 3. Changes in Burnout Scores Before and After the Intervention

Burnout outcome	Intervention (n = 30)	Control (n = 30)
Baseline, mean $\pm$ SD	68.4 ± 8.7	67.9 ± 8.5
Post-intervention, mean $\pm$ SD	49.6 ± 7.9	64.8 ± 8.3
Mean change (post – baseline)	–18.8	–3.1
Percentage change	–27.5%	–4.6%
Within-group p-value	<0.001	0.081
Between-group difference in change	–15.7	—
Between-group p-value	<0.001	—

Note: Negative values indicate a reduction in burnout. Percentage change was calculated as $[(\text{post-intervention} - \text{baseline}) / \text{baseline}] \times 100\%$.

The intervention group demonstrated a substantially greater reduction in burnout than the control group. The 18.8-point reduction in the intervention group was approximately six times greater than the 3.1-point reduction observed under usual workplace conditions. The statistically significant between-group difference of 15.7 points indicates that the observed improvement in burnout was strongly associated with participation in the self-awareness–based mindfulness meditation program.

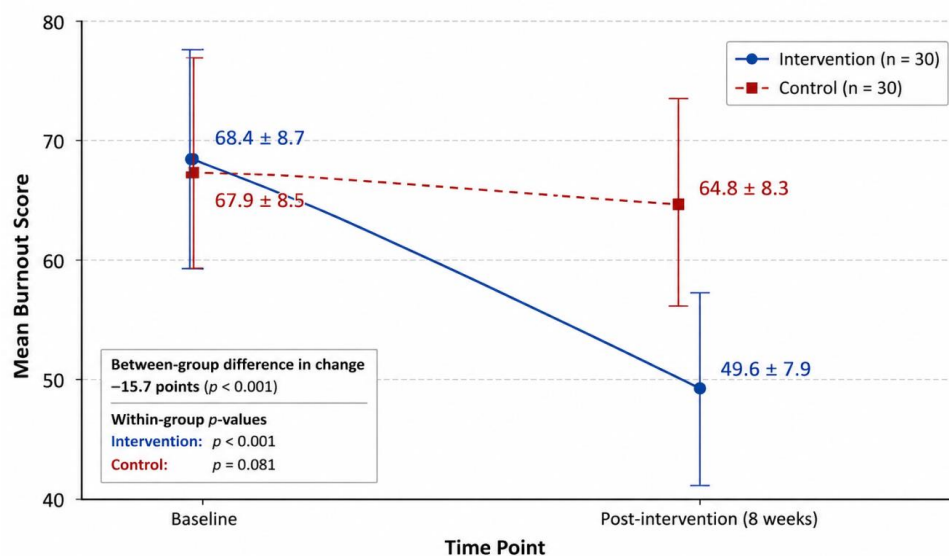


Figure 2. Mean burnout scores at baseline and post-intervention

The figure should display the mean burnout score for each group at baseline and post-intervention, with the intervention trajectory showing a marked downward change compared with the relatively modest change in the control group.

3.3 Effect of the Self-Awareness–Based Mindfulness Meditation Program on Nurses’ Job Performance

Changes in nurses’ job-performance scores are presented in Table 4. The intervention group demonstrated an increase in mean job-performance scores from 67.8 ± 6.5 at baseline to 78.9 ± 5.8 after the 8-week intervention, representing a mean improvement of 11.1 points (16.4%). This within-group improvement was statistically significant ($p < 0.001$). The control group showed a smaller increase from 68.2 ± 6.3 to 70.1 ± 6.1 , corresponding to an improvement of 1.9 points (2.8%), which was not statistically significant ($p = 0.174$). The difference in mean change between groups was 9.2 points in favor of the intervention group ($p < 0.001$).

Table 4. Changes in Nurses’ Job-Performance Scores Before and After the Intervention

Job-performance outcome	Intervention (n = 30)	Control (n = 30)
Baseline, mean $\pm$ SD	67.8 ± 6.5	68.2 ± 6.3
Post-intervention, mean $\pm$ SD	78.9 ± 5.8	70.1 ± 6.1
Mean change (post – baseline)	+11.1	+1.9
Percentage change	+16.4%	+2.8%
Within-group p-value	<0.001	0.174
Between-group difference in change	+9.2	—
Between-group p-value	<0.001	—

Note: Positive values indicate improvement in job performance. Percentage change was calculated as $[(\text{post-intervention} - \text{baseline}) / \text{baseline}] \times 100\%$.

Nurses who received the self-awareness–based mindfulness meditation program demonstrated a substantially greater improvement in job performance than those in the control group. The 11.1-point improvement in the intervention group was nearly six times greater than the 1.9-point improvement observed in the control group. The between-group difference of 9.2 points ($p < 0.001$) indicates a significant occupational benefit associated with the intervention.

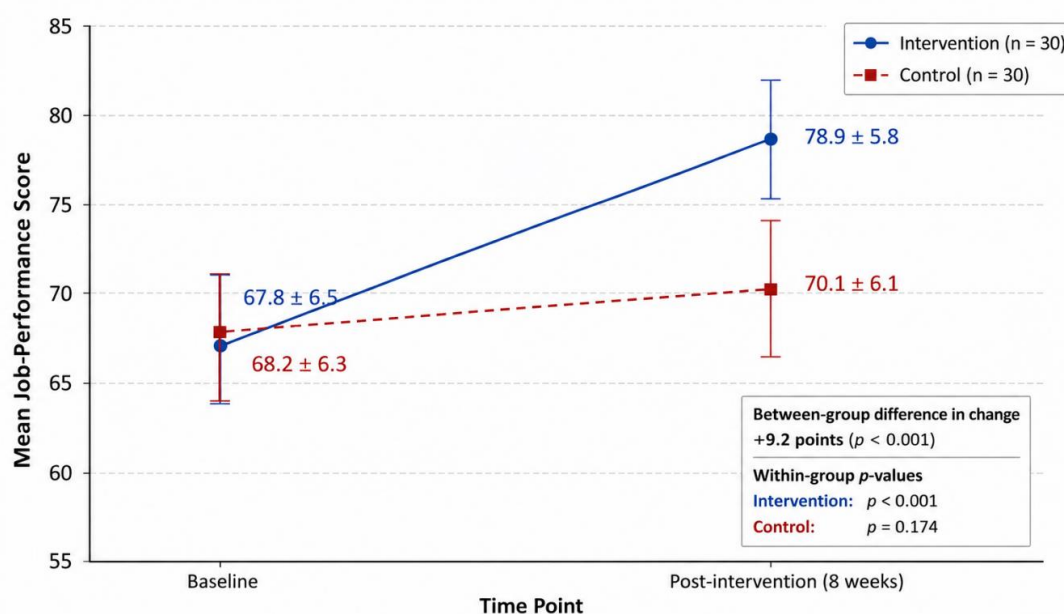


Figure 3. Mean job-performance scores at baseline and post-intervention

The figure should present the mean job-performance scores for both groups at baseline and post-intervention, illustrating the substantially greater upward trajectory in the intervention group.

3.4 Comparative Changes in Burnout and Job Performance

The comparative effects of the intervention on the two study outcomes are summarized in Table 5. The intervention group demonstrated a mean burnout reduction of 18.8 points compared with 3.1 points in the control group, yielding a between-group difference in change of -15.7 points ($p < 0.001$). Conversely, job performance increased by 11.1 points in the intervention group compared with 1.9 points in the control group, resulting in a between-group difference of $+9.2$ points ($p < 0.001$).

Table 5. Between-Group Comparison of Changes in Primary and Secondary Outcomes

Outcome	Intervention change	Control change	Between-group difference	p-value
Burnout	-18.8	-3.1	-15.7	<0.001
Job performance	+11.1	+1.9	+9.2	<0.001

Note: Between-group difference represents the change in the intervention group minus the change in the control group. Negative values indicate a greater reduction in burnout, whereas positive values indicate a greater improvement in job performance.

The intervention produced a consistent and clinically relevant pattern across both outcome domains, with burnout decreasing and job performance increasing substantially more in the intervention group than in the control group. The findings therefore support the hypothesized dual effect of the self-awareness-based mindfulness meditation program on nurses' psychological well-being and occupational functioning.

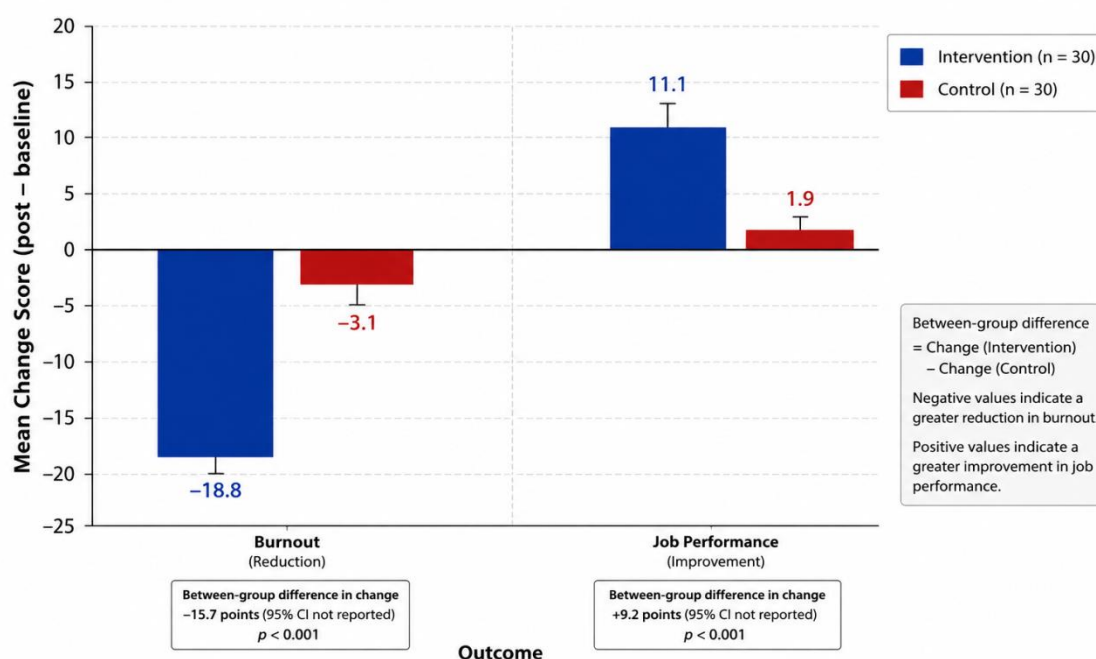


Figure 4. Between-group differences in mean change in burnout and job-performance scores

The figure should display the magnitude and direction of change for both outcomes, with the burnout outcome represented as a reduction and job performance as an improvement. This visualization provides an integrated representation of the intervention's effects on the two prespecified study outcomes.

3.5 Overall Outcome Pattern

Overall, the findings demonstrated a consistent pattern favoring the self-awareness-based mindfulness meditation program. Compared with the control group, nurses receiving the 8-week intervention experienced a substantially greater reduction in

burnout and a significantly greater improvement in job performance. The intervention was associated with a 15.7-point greater reduction in burnout and a 9.2-point greater improvement in job performance between groups, with both differences reaching statistical significance ($p < 0.001$). These findings indicate that the intervention may simultaneously address psychological strain and occupational functioning among hospital nurses.

3.6 DISCUSSION

Principal Findings

This quasi-experimental study demonstrated a consistent pattern favoring the self-awareness-based mindfulness meditation program in both psychological and occupational outcomes among hospital nurses. After the 8-week intervention, the intervention group showed a substantial reduction in burnout, from 68.4 ± 8.7 to 49.6 ± 7.9 , corresponding to a mean reduction of 18.8 points (27.5%), whereas the control group showed only a 3.1-point reduction (4.6%). The between-group difference in change was 15.7 points ($p < 0.001$). Similarly, job-performance scores increased from 67.8 ± 6.5 to 78.9 ± 5.8 in the intervention group, representing an 11.1-point improvement (16.4%), compared with a 1.9-point increase (2.8%) in the control group. The between-group difference in change was 9.2 points ($p < 0.001$). Taken together, these findings suggest that an 8-week self-awareness-based mindfulness meditation program may provide benefits across both psychological well-being and occupational functioning among hospital nurses. Importantly, the magnitude of change was considerably greater in the intervention group for both outcomes, supporting the relevance of evaluating mindfulness not only in relation to burnout but also in relation to nurses' work performance.

Effect of Self-Awareness-Based Mindfulness Meditation on Burnout

The marked reduction in burnout observed among nurses receiving the intervention may be explained by the central role of self-awareness in mindfulness practice. The program was designed to help nurses consciously attend to their thoughts, emotions, bodily sensations, and immediate experiences without automatically reacting to them. In the context of hospital nursing, this capacity may be particularly relevant because nurses routinely encounter high workload demands, complex patient conditions, emotional interactions with patients and families, time pressure, shift work, documentation requirements, and potentially stressful clinical situations. Persistent exposure to these demands may contribute to emotional exhaustion and negative responses toward work when adequate coping strategies are unavailable.

Mindfulness may help interrupt this process by increasing awareness of internal psychological responses before they develop into automatic or maladaptive reactions. Through breathing exercises, body awareness, meditation, observation of thoughts and emotions, and non-judgmental attention, nurses may become better able to recognize early signs of stress and emotional fatigue. This may facilitate more adaptive emotional regulation and reduce the accumulation of psychological strain. The present findings are consistent with previous evidence showing beneficial effects of mindfulness-based interventions on burnout and occupational stress among nurses. For example, studies [22-24] reported that an 8-week mindfulness intervention among psychiatric nurses improved mindfulness and resilience while reducing burnout. Similarly, studies [25,26] demonstrated beneficial effects of mindfulness-based stress reduction on occupational stress and burnout among nurses. Taken together with the present findings, these results suggest that structured mindfulness practice may serve as a feasible supportive strategy for reducing psychological strain and promoting well-being among nursing professionals [27-29].

An important feature of the present intervention is its explicit emphasis on self-awareness rather than mindfulness as a general relaxation technique. The intervention progressively trained participants to recognize their internal experiences, including fatigue, thoughts, emotional reactions, and bodily responses, and to respond to these experiences with greater awareness. This distinction may be important because burnout management requires more than temporary relaxation; it also involves developing an individual's capacity to recognize and regulate responses to persistent occupational demands. Thus, the reduction in burnout observed in this study may reflect not simply a transient calming effect but the development of a more adaptive attentional and emotional response to workplace stressors. Nevertheless, because the present study did not directly measure changes in mindfulness, emotional regulation, or resilience as mediating variables, these mechanisms should be regarded as plausible explanations rather than empirically confirmed pathways.

Effect of Self-Awareness–Based Mindfulness Meditation on Nurses’ Job Performance

The intervention was also associated with a substantial improvement in nurses’ job performance. The mean score increased by 11.1 points in the intervention group compared with only 1.9 points in the control group, producing a between-group difference of 9.2 points ($p < 0.001$). This finding extends the relevance of mindfulness beyond psychological outcomes by suggesting that improvements following mindfulness training may also be reflected in occupational functioning. Nursing performance requires sustained attention, accuracy, effective communication, appropriate decision-making, emotional stability, documentation, teamwork, and consistent adherence to clinical procedures. These functions may be vulnerable when nurses experience persistent psychological exhaustion or difficulty maintaining attention under demanding working conditions.

Mindfulness may support job performance through improved attentional control and greater awareness of ongoing activities. By learning to focus attention on present-moment experiences, nurses may be better able to maintain concentration during clinical tasks and recognize distractions or emotional reactions that could interfere with task execution. Greater awareness of emotional responses may also help nurses communicate more effectively with patients, families, and colleagues, particularly during emotionally demanding situations. Previous research [30-36] has linked workplace mindfulness to better job performance and work engagement, as well as lower emotional exhaustion. Although these findings were based on associations rather than intervention effects, they provide a conceptual basis for understanding why enhanced mindfulness may contribute to better occupational functioning.

The improvement in job performance observed in the present study should nevertheless be interpreted within the broader determinants of nursing performance. Job performance is influenced by multiple individual and organizational factors, including professional competence, education, clinical experience, workload, staffing levels, leadership, teamwork, organizational support, work environment, and availability of resources. Therefore, mindfulness should not be viewed as a stand-alone solution to performance problems. Rather, the present findings suggest that mindfulness may function as an individual-level supportive intervention that complements organizational strategies aimed at improving working conditions and professional performance.

Interrelationship Between Burnout Reduction and Improved Job Performance

An important finding of this study was the simultaneous reduction in burnout and improvement in job performance. In the intervention group, burnout decreased by 18.8 points while job performance increased by 11.1 points. This parallel pattern is clinically meaningful because psychological well-being and occupational functioning are closely relevant to the capacity of nurses to provide safe and effective patient care. High levels of burnout, particularly emotional exhaustion, may consume psychological resources required for concentration, communication, motivation, and engagement with work. Conversely, a reduction in psychological strain may enable nurses to allocate greater attentional and emotional resources to clinical responsibilities.

The findings therefore support the conceptualization of burnout and job performance as complementary outcomes of a mindfulness-based nursing intervention. Rather than evaluating mindfulness solely according to whether it reduces psychological distress, the present study considered whether psychological improvement was accompanied by occupational improvement. This dual-outcome perspective strengthens the practical relevance of the intervention because reducing burnout without improving nurses’ ability to function effectively at work may have limited implications for healthcare organizations [37-39]. However, the present findings do not establish that the reduction in burnout directly caused the improvement in job performance. The two outcomes changed concurrently following the intervention, but mediation or longitudinal pathway analyses would be required to determine whether burnout reduction mediates the relationship between mindfulness and job performance [40-42].

Clinical and Nursing Practice Implications

The findings have several implications for nursing practice and occupational health programs. An 8-week self-awareness–based mindfulness meditation program may be incorporated as a supportive component of hospital-based strategies for managing occupational stress and promoting nurses’ psychological well-being. The intervention can be delivered through structured sessions incorporating mindful breathing, body awareness, body scanning, observation of thoughts and emotions, self-acceptance, stress-management exercises, and application of mindfulness to routine nursing activities. Because these

practices require minimal equipment, they may be adaptable to different hospital settings and potentially integrated into staff development, occupational health, or nurse-wellness programs.

The findings also suggest that mindfulness interventions may be particularly useful when positioned as part of a broader organizational approach rather than as a substitute for improvements in working conditions. Hospitals should continue to address modifiable organizational contributors to burnout, including excessive workload, inadequate staffing, shift-related demands, insufficient recovery time, limited managerial support, and challenging work environments. Combining individual-level strategies such as mindfulness with organizational interventions may provide a more comprehensive approach to reducing burnout and supporting sustainable nursing performance. Importantly, implementation should be voluntary, adequately facilitated, and supported by appropriate training to ensure that mindfulness is delivered consistently and safely.

Strengths of the Study

Several strengths should be considered when interpreting these findings. First, the study used a controlled pretest–posttest design that enabled changes in burnout and job performance to be examined over time in both intervention and control groups. Second, the study evaluated two complementary outcomes, allowing the potential benefits of the intervention to be considered from both psychological and occupational perspectives. Third, the intervention was structured over 8 weeks and incorporated progressive self-awareness and mindfulness practices, providing repeated opportunities for participants to develop and apply the techniques. Fourth, the intervention required minimal equipment and was therefore potentially feasible for implementation within routine hospital environments. Finally, the study addresses an important practical question by examining whether a mindfulness-based intervention may be associated not only with reduced burnout but also with improved nurses' job performance.

Limitations

Several limitations should be acknowledged. First, the quasi-experimental design limits the strength of causal inference, and residual selection bias or differences between participants that were not measured cannot be completely excluded. Second, the study was conducted in a single hospital setting with a relatively small sample of 60 nurses, which may limit the generalizability of the findings to other hospitals, regions, and nursing populations. Third, burnout and job performance were assessed using questionnaire-based measures, which may be influenced by response bias and social desirability. Fourth, participants could not be blinded to the intervention because of the nature of mindfulness training, potentially introducing expectancy effects. Fifth, adherence to home mindfulness practice may have varied among participants and could have influenced the magnitude of individual responses. Finally, outcomes were assessed immediately after the 8-week intervention; therefore, the durability of the observed improvements remains uncertain. Longer follow-up is required to determine whether reductions in burnout and improvements in job performance are sustained over time.

Recommendations for Future Research

Future research should evaluate the intervention using larger, multicenter randomized controlled trials to strengthen causal inference and improve generalizability. Longer follow-up periods should be incorporated to determine whether improvements in burnout and job performance are sustained after the intervention has ended. Future studies should also examine potential mechanisms underlying the observed effects by measuring changes in mindfulness, emotional regulation, resilience, perceived stress, and work engagement. Mediation analyses could subsequently determine whether reductions in burnout or improvements in emotional regulation explain the relationship between mindfulness training and job performance. In addition, future research should consider objective or supervisor-rated indicators of job performance, where feasible, to complement self-reported measures. Finally, implementation research should examine how mindfulness programs can be integrated with organizational strategies addressing workload, staffing, leadership, and workplace conditions to develop more comprehensive and sustainable approaches to nurse well-being and performance.

4. CONCLUSION

This quasi-experimental study demonstrated that an 8-week self-awareness–based mindfulness meditation program was associated with a substantial reduction in burnout and improvement in job performance among hospital nurses in Indonesia. Compared with the control group, nurses receiving the intervention showed a greater reduction in burnout (–18.8 points) and a greater improvement in job performance (+11.1 points), with statistically significant between-group differences in

change. These findings suggest that structured mindfulness meditation may support nurses in developing greater self-awareness, regulating stress and emotional responses, and maintaining attention during clinical activities.

The findings support the potential integration of self-awareness-based mindfulness meditation as a complementary strategy within nursing occupational health and workplace well-being programs. However, the findings should be interpreted in light of the quasi-experimental design, relatively small sample from a single hospital, reliance on questionnaire-based outcomes, and limited follow-up. Larger multicenter studies with rigorous experimental designs, longer follow-up periods, and objective or supervisor-rated measures of job performance are warranted to determine the sustainability and broader applicability of the intervention.

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AUTHOR CONTRIBUTIONS

All authors made substantial contributions to the conception and design of the study, development of the intervention, data collection, data analysis, and interpretation of the findings. All authors contributed to drafting and critically revising the manuscript, approved the final version, and agreed to be accountable for all aspects of the work, including the accuracy and integrity of the study.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

ETHICS STATEMENT

Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine, Universitas Sriwijaya, with certificate number 014-2026, and written informed consent was obtained from all participants.

DATA AVAILABILITY STATEMENT

The datasets generated and/or analyzed during the current study are not publicly available because they contain participant-level information and are subject to confidentiality and ethical restrictions. De-identified data may be made available by the corresponding author upon reasonable request and subject to appropriate institutional and ethical approval.

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