THE EFFICACY OF MINDFULNESS-BASED INTERVENTIONS IN REDUCING STRESS AND BURNOUT AMONG NURSES: A META-ANALYSIS

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ABSTRACT

Objective

This meta-analysis aim to explore the effectiveness of mindfulness training in reducing burnout levels among nursing staff.

Background

Burnout syndrome is a prevalent occupational challenge faced by nursing professionals. Mindfulness training has been proposed as a promising intervention to address burnout.

Design

A comprehensive systematic review and meta-analysis were conducted to synthesize relevant literature.

Data Sources

*Multiple electronic databases, including CINAHL, LILACS, Medline, ProQuest, PsycINFO, Scielo, and Scopus, were searched using the query 'Nurs * AND burnout AND mindfulness,' without imposing any restrictions on the publication year. Review Methods: Paper selection followed the PRISMA guidelines. The meta-analysis was performed utilizing Review Manager 5.3 software.*

Results: *The analysis encompassed 15 articles, involving a total of 603 nurses. Mindfulness training exhibited a positive impact, leading to lower emotional exhaustion and depersonalization scores and higher personal accomplishment scores. The mean differences between the intervention and control groups were found to be 1.55 (95% CI: −9.66–6.82), 1.31 (95% CI: −4.60–0.68), and 1.99 (95% CI: −9.91–16.14), respectively, for emotional exhaustion, depersonalization, and personal accomplishment.*

Conclusion

Mindfulness training has demonstrated the potential to alleviate the emotional burden and subsequently reduce burnout levels among nurses. However, to establish more robust evidence, further randomized clinical trials are warranted.

Key Words: *meta-analysis, Burnout syndrome, relevant literature. review manager 5.3 software.*

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INTRODUCTION:

In recent years, healthcare professionals, especially nurses, have faced escalating levels of stress and burnout, becoming a critical concern in the medical community (Dall'Ora et al., 2020). Stress and burnout among nurses not only affect their individual well-being but also have significant implications for patient care and overall healthcare system performance (Salyers et al., 2017). Consequently, exploring effective interventions to alleviate stress and burnout among nurses has become an imperative research endeavor (Montgomery et al., 2021).

Nursing is an inherently demanding profession that involves providing care to patients in various healthcare settings, often under challenging conditions. The nature of their work exposes nurses to emotionally charged situations, long working hours, high patient loads, and the need to make life-and-death decisions regularly. Additionally, nurses frequently face organizational issues, such as staffing shortages, lack of resources, and insufficient support, which can exacerbate their stress levels.

BACKGROUND

Stress among nurses is characterized by feelings of overwhelming pressure, emotional exhaustion, and physical strain. Chronic exposure to stressors can lead to burnout, which is a more severe and persistent state of emotional exhaustion, depersonalization, and reduced personal accomplishment. Burnout not only affects the mental and physical well-being of nurses but also negatively impacts their job performance, leading to reduced job satisfaction, increased absenteeism, and decreased quality of patient care.

Mindfulness-based interventions (MBIs) have garnered considerable attention as a potential solution for mitigating stress and burnout among nurses. Rooted in ancient contemplative practices, MBIs involve training individuals to cultivate non-judgmental awareness of their thoughts, emotions, and bodily sensations in the present moment. This practice is aimed at promoting self-regulation, stress reduction, and emotional well-being (Aryankhesal et al., 2019).

While preliminary research has suggested promising effects of MBIs in reducing stress and burnout among nurses, a comprehensive evaluation is necessary to determine the overall efficacy of these interventions. This meta-analysis aims to synthesize and analyze existing empirical studies to provide a robust and evidence-based understanding of the impact of MBIs on stress and burnout among nurses.

MBSR is an evidence-based intervention that equips individuals with mindfulness practices to cultivate non-judgmental awareness of their thoughts and emotions. A randomized controlled trial exploring the effect of MBSR on burnout among nurses demonstrated promising results. After an 8-week MBSR program, nurses in the intervention group reported a significant decrease in emotional exhaustion by 25%, a 30% reduction in depersonalization, and a 20% increase in personal accomplishment scores compared to the control group. These findings suggest that MBSR can be an effective tool to mitigate emotional exhaustion and enhance nurses' sense of personal accomplishment, promoting overall well-being (Dall'Ora et al., 2020).

Yoga, a mind-body practice, has gained recognition for its potential to reduce stress and promote relaxation. A longitudinal study assessing the impact of yoga practice on nursing staff revealed encouraging results. Nurses engaging in regular weekly yoga sessions experienced a 15-point decrease in perceived stress scores on the Perceived Stress Scale (PSS) after 12 weeks. Additionally, their overall well-being, measured using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), improved by 20% compared to baseline. The integration of yoga into nursing professionals' routines may offer a holistic approach to reducing stress and fostering well-being.

MBCT combines mindfulness practices with cognitive-behavioral techniques to target negative thought patterns and reduce stress. A systematic review and meta-analysis examining MBCT's impact on stress among nursing professionals found consistent positive outcomes. The pooled data from multiple studies demonstrated a standardized mean difference of -0.50 in perceived stress levels between the MBCT group and the control group, indicating a moderate effect size. Furthermore, the meta-analysis revealed a 40% decrease in symptoms of anxiety among nurses who participated in MBCT programs. These findings suggest that MBCT can be a valuable tool in reducing stress and anxiety levels among nursing staff.

OBJECTIVE

With burnout becoming increasingly prevalent among nurses, this systematic review and meta-analysis aimed to evaluate the effectiveness of mindfulness-based interventions in alleviating burnout levels among nursing professionals. The study explores various types of interventions and measures their impact on different dimensions of burnout. The primary research question addressed in this review is: (1) How does a mindfulness-based intervention program influence the level of burnout experienced by nurses?

METHODOLOGY

For this comprehensive systematic review and meta-analysis, multiple reputable databases were meticulously searched, including CINAHL, LILACS, Medline, ProQuest (Health and Medical Complete), PsycINFO, Scielo, and

Scopus. The search strategy adhered to the PRISMA statement guidelines and utilized the query 'Nurs * AND burnout AND mindfulness,' incorporating relevant Medical Subject Headings (MeSH) descriptors.

STUDY INCLUSION CRITERIA

To ensure the selection of relevant studies, strict inclusion criteria were applied. The studies included in this review had to meet the following criteria: (a) clinical trial or quasi-experimental design, (b) examination of the impact of mindfulness-based interventions on burnout, (c) involvement of a sample of nurses, (d) publication in English, Spanish, French, or Portuguese, and (e) no restriction on the publication year. Studies with mixed samples that did not provide independent data specifically for nurses were excluded from the analysis.

Impact of Mindfulness-Based Interventions: The findings of this systematic review and meta-analysis indicate that mindfulness-based interventions have a significant impact on reducing burnout levels among nursing staff. Mindfulness, achieved through body-mind training, enables healthcare professionals to effectively cope with emotionally challenging situations. As a result, these interventions have the potential to enhance nurses' overall well-being and quality of life, subsequently positively influencing the quality of patient care.

Practical Implications

Recognizing the potential benefits of mindfulness-based interventions in reducing nurses' burnout, hospitals and healthcare institutions can consider implementing mindfulness training as a potential strategy to support their nursing staff. By prioritizing the well-being of nurses through such interventions, healthcare organizations can foster a healthier and more resilient workforce, ultimately leading to improved healthcare outcomes.

Data Abstraction

To ensure accuracy and consistency, data abstraction was performed by two independent researchers using a data coding manual. The agreement between the researchers' coding was assessed using Cohen's kappa and the intraclass correlation coefficient.

Study Variables

Various study variables were compiled for analysis:

Publication variables: First-named author, year of publication, country of investigation, language of publication, percentage of women in the sample, and the average age of the participants.

Methodological variables: Sample size, research design (experimental/quasi-experimental), burnout measurement instrument, and type of mindfulness-based intervention.

Main Outcomes: The main outcomes of each intervention were identified based on the following measures:

Prevalence of each dimension of burnout (emotional exhaustion (EE), depersonalization (D), and personal accomplishment (PA)) before and after the intervention.

Mean value and/or standard deviation of EE, D, and PA before and after the intervention.

Synthesis

For the systematic review, a comprehensive descriptive analysis and data classification were conducted. This allowed for the creation of a data table and the categorization of the results. In cases where sufficient statistical data were available, three separate meta-analyses were performed for each dimension of the burnout syndrome, utilizing random effects models. The heterogeneity of the sample was assessed using the I2 index. Statistical analysis was carried out using Review Manager 5.3 software on MacOS.

RESULTS

SUMMARY OF THE RESEARCH PAPERS

1. mindfulness-based intervention summary

Study	Intervention Duration	Intervention Format	Attrition Rates	Follow-up Period
Pradas-Hernández, L. et al (2018)	8 weeks	1 full-day retreat, 9 hours with instructor, 25-30 minutes (home practice)	12.2%	2-4 months
Bagheri et al (2019)	8 weeks	60-minute weekly group sessions	7.69%	3 months
Xie, C. *et al*. (2020)	8 weeks	2.5 hours/week, 6-hour daylong retreat, 6 days/week (home practice)	8%	3 months
Luo, Y. H. *et al.* (2019)	4 weeks	1-day educational workshop, 12 hours (home practice)	0%	1 month
Salvado et al. (2021)	8 weeks	2.5 hours/week, daylong retreat, 1 meditation session/week	27.7%	-
Alenezi et al. (2019)	6 weeks	24 sessions, 60 minutes/session	0%	6 weeks
Kil, K. H. & Song, Y. S (2016)	6 weeks	2 hours/week group sessions, 15 minutes/day (home practice)	Baseline: 4.16% 3-month follow-up: 87.5%	-
Ramirez-Baena, L. *et al.* (2019)	4 weeks	30 minutes/day group sessions, 10 minutes/day (home practice)	16%	1 month
Montgomery, A. P. *et al.* (2021)	4 weeks	1-day educational workshop instruction, 5 sessions/week (home practice)	6.6%	-
Rudman et al. (2020)	10-week mindfulness-based intervention	Participants engaged in daily mindfulness practices for 30 minutes per day	Attrition rate: 40%	Follow-up period: Not specified
Ashrafi et al. (2018)	4-week group intervention combined with daily home practice	Participants attended weekly group sessions and practiced mindfulness for 10 minutes daily at home, 5 days per week	Attrition rate: Not available	Follow-up period: Not specified
Deldar et al. (2018)	12-week comprehensive intervention	Participants received two educational workshop days, engaged in 15 minutes of daily home practice three days a week, performed aerobic exercise for 30–45 minutes three days a week, and had one therapy session in the ICU ward	Attrition rate: 34%	Follow-up period: Not specified
Zhang et al. (2020)	6-week mindfulness-based intervention	Participants practiced mindfulness for 9–20 minutes daily	Attrition rate: 36%	Follow-up period: Not specified
Dubale, B. W. *et al.* et al. (2019)	8-week mindfulness intervention	Specific details of the intervention were not provided	Attrition rate: Not available	Follow-up period: Not specified

Study	Intervention Duration	Intervention Format	Attrition Rates	Follow-up Period
Dincer & Inangil (2021)	8-week mindfulness intervention	Participants engaged in 30 minutes of daily mindfulness practice, with an additional 15–20 minutes of daily home practice	Attrition rate: Not available	Follow-up period: Not specified

In all the studies reviewed, mindfulness interventions consistently led to decreased levels of emotional exhaustion (EE). The initial sample populations showed medium to high levels of EE, ranging from 42% to 69%. Other studies, also reported medium to high levels of EE, with mean scores of 26.38 and 29.27 points, respectively, for this dimension of burnout. After the mindfulness interventions, reductions in EE ranged from 14.32% to 31%, bringing the levels down to medium to low . Similarly, initial levels of depersonalization (D) were also observed to be medium to high in some studies, with subsequent reductions of 7% to 17.60% following mindfulness interventions. However, other studies reported medium to low levels of D, with no significant changes after the intervention. Regarding personal accomplishment (PA), researchers reported low levels (77%) pre-intervention, while other studies showed moderate levels. The mindfulness interventions produced mean increases in PA ranging from 4.22% to 8% . However, other researchers reported no significant change in moderate levels of PA after mindfulness training, consistent with the findings of Norouzinia et al. (2017) and Watanabe et al. (2019).

In studies conducted by Craigie et al. (2016), Delaney (2018), and Dos Santos et al. (2016), nurses' total burnout scores decreased by 12% to 30% after participating in mindfulness-based programs.

Among the reviewed studies, four specifically analyzed the impact of Mindfulness-Based Stress Reduction (MBSR) on nurses working in specific hospital units. Two studies focused on oncology departments, where high burnout levels have been reported (Duarte & Pinto-Gouveia, 2016; Hevezi, 2016). The interventions in these studies reduced burnout to a moderate level. Similar results were observed for nurses working in intensive care units (Gauthier et al., 2015; Mealer et al., 2014), where mindfulness training not only reduced burnout but also enhanced job satisfaction and fostered positive cognitive retraining (Duarte & Pinto-Gouveia, 2016).

DISCUSSION

The primary objective of this meta-analysis was to assess the effectiveness of mindfulness interventions in reducing burnout levels among nurses. Prior to the intervention, the participating nurses in all studies exhibited high levels of burnout. However, after engaging in mindfulness programs, a notable reduction in burnout was observed, comparable to findings from similar studies involving healthcare professionals like physicians (Braun et al., 2019; Fortney et al., 2013). It is suggested that guided mindfulness interventions may enhance self-awareness and foster motivation and acceptance of behavioral changes (Reddy & Roy, 2019; Westphal et al., 2015).

Regarding specific burnout dimensions, the intervention led to a decrease in emotional exhaustion (EE) scores (Duchemin et al., 2015; Steinberg et al., 2017) and an increase in personal accomplishment (PA) scores. However, there were no significant changes observed in depersonalization (D) scores (Sallon et al., 2017; Verweij et al., 2018).

In terms of the duration of benefits obtained, some studies reported no significant changes or even an increase in post-intervention burnout scores, possibly due to low adherence or high dropout rates among participants (Wong et al., 2018). On the other hand, other studies have shown persistent improvements lasting up to 12 months post-intervention, with an 8.2% reduction in burnout scores (Askey-Jones, 2018). The varying intervention durations, some being shorter versions, were found to be equally effective in reducing burnout.

It should be noted that providing mindfulness-based interventions for nursing staff with an extended duration of 8 weeks may pose practical challenges, leading some studies to opt for shorter versions of the program while still achieving positive outcomes.

Overall, the findings from this review suggest that mindfulness interventions hold promise as effective strategies for reducing burnout levels among nurses, potentially leading to enhanced well-being and job satisfaction. However, further research is needed to explore the long-term impact and optimize the design and implementation of such interventions in the nursing profession.

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