The effectiveness of mindfulness based programs in reducing stress experienced by nurses in adult hospital settings: a systematic review of quantitative evidence protocol

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Review question/objective

The objective of this review is to identify the effectiveness of mindfulness based programs in reducing stress experienced by nurses in adult hospitalized patient care settings.

Background

Nursing professionals face extraordinary stressors in the medical environment. Many of these stressors have always been inherent to the profession: long work hours, dealing with pain, loss and emotional suffering, caring for dying patients and providing support to families.[1,2] Recently nurses have been experiencing increased stress related to other factors such as staffing shortages, increasingly complex patients, corporate financial constraints and the increased need for knowledge of ever-changing technology.[3] Stress affects high-level cognitive functions, specifically attention and memory, and this increases the already high stakes for nurses. Nurses are required to cope with very difficult situations that require accurate, timely decisions that affect human lives on a daily basis.[4]

Lapses in attention increase the risk of serious consequences such as medication errors, failure to recognize life-threatening signs and symptoms, and other essential patient safety issues.[4] Research has also shown that the stress inherent to health care occupations can lead to depression, reduced job satisfaction, psychological distress and disruptions to personal relationships.[5] These outcomes of stress are factors that create scenarios for risk of patient harm.

There are three main effects of stress on nurses: burnout, depression and lateral violence. Burnout has been defined as a syndrome of depersonalization, emotional exhaustion, and a sense of low personal accomplishment, and the occurrence of burnout has been closely linked to perceived stress.[6] Shimizu, Mizoue, Mishima and Nagata[7] state that nurses experience considerable job stress which has been a major factor in the high rates of burnout that has been recorded among nurses. Zangaro and Soeken[8] share this opinion and state that work related stress is largely contributing to the current nursing shortage. They report that work stress leads to a much higher turnover, especially during the first year after graduation, lowering retention rates in general.

In a study conducted in Pennsylvania, researchers found that while 43% of the nurses who reported high levels of burnout indicated their intent to leave their current position, only 11% of nurses who were not burned out intended to leave in the following 12 months.[9] In the same study patient-to-nurse ratios were significantly associated with emotional exhaustion and burnout. An increase of one patient per nurse assignment to a hospital's staffing level increased burnout by 23%.[9]

Depression can be defined as a mood disorder that causes a persistent feeling of sadness and loss of interest. Wang[10] found that high levels of work stress were associated with higher risk of mood and anxiety disorders. In Canada one out of every 10 nurses have shown depressive symptoms; compared to the average of 5.1% of the nurses' counterparts who do not work in healthcare.[11] High incidences of depression and depressive symptoms were also reported in studies among Chinese nurses (38%) [12] and Taiwanese nurses (27.7%).[13] In the Taiwanese study the occurrence of depression was significantly and positively correlated to job stress experienced by the nurses ($p<0.001$).

In a multivariate logistic regression, Ohler, Kerr and Forbes[11] also found that job stress was significantly correlated to depression in nurses. The researchers reported that nurses who experienced a higher degree of job stress were 80% more likely to have suffered a major depressive episode in the previous year. A further finding in this study revealed that 75% of the participants also suffered from at least one chronic disease revealing a strong association between depression and other major health issues.

A stressful working environment, such as a hospital, could potentially lead to lateral violence among nurses.[14] Lateral violence is a serious occupational health concern among nurses as evidenced by extensive research and literature available on the topic. The impact of lateral violence has been well studied and documented over the past three decades.[15-22] Griffin and Clark[23] state that lateral violence is a form of bullying grounded in the theoretical framework of the oppression theory. The bullying behaviors occur among members of an oppressed group as a result of feeling powerless and having a perceived lack of control in their workplace. Griffin[15] identified the ten most common forms of lateral violence among nurses as "non-verbal innuendo, verbal affront, undermining activities, withholding information, sabotage, infighting, scape-goating, backstabbing, failure to respect privacy, and broken confidences".[15(p258)] Nurse-to-nurse lateral violence leads to negative workplace relationships and disrupts team performance, creating an environment where poor patient outcomes, burnout and high staff turnover rates are prevalent.[23]

Work-related stressors have been indicated as a potential cause of lateral violence.[24] According to the Effort Reward Imbalance model (ERI) developed by Siegrist, work stress develops when an imbalance exists between the effort individuals put into their jobs and the rewards they receive in return.[25] The ERI model has been widely used in occupational health settings based on its predictive power for adverse health and well-being outcomes. The model claims that both high efforts with low rewards could lead to negative emotions in the exposed employees. Vegchel, van Jonge, de Bosma & Schaufeli[26] state that, according to the ERI model, occupational rewards mostly consist of money, esteem and job security or career opportunities. A survey conducted by Reineck & Furino[27] indicated that registered nurses had a very high regard for the intrinsic rewards of their profession but that they identified workplace relationships and stress issues as some of the most important contributors to their frustration and exhaustion. Hauge, Skogstad & Einarsen[28] state that work-related stress further increases the potential for lateral violence as it creates a negative environment for both the target and the perpetrator.

Mindfulness based programs have proven to be a promising intervention in reducing stress experienced by nurses.[29] Mindfulness was originally defined by Jon Kabat-Zinn in 1979 as "paying attention on purpose, in the present moment, and nonjudgmentally, to the unfolding of experience moment to

moment".[30(p145)] The Mindfulness Based Stress Reduction (MBSR) program is an educationally based program that focuses on training in the contemplative practice of mindfulness. It is an eight-week program where participants meet weekly for two-and-a-half hours and join a one-day long retreat for six hours.[5] The program incorporates a combination of mindfulness meditation, body awareness and yoga to help increase mindfulness in participants. The practice is meant to facilitate relaxation in the body and calming of the mind by focusing on present-moment awareness. The program has proven to be effective in reducing stress, improving quality of life and increasing self-compassion in healthcare professionals.[5]

Researchers have demonstrated that mindfulness interventions can effectively reduce stress, anxiety and depression in both clinical and non-clinical populations.[31,32] In a meta-analysis of seven studies conducted with healthy participants from the general public, the reviewers reported a significant reduction in stress when the treatment and control groups were compared.[33] However, there have been limited studies to date that focused specifically on the effectiveness of mindfulness programs to reduce stress experienced by nurses.

In addition to stress reduction, mindfulness based interventions can also enhance nurses' capacity for focused attention and concentration by increasing present moment awareness.[30] Mindfulness techniques can be applied in everyday situations as well as stressful situations. According to Kabat-Zinn,[34] work-related stress influences people differently based on their viewpoint and their interpretation of the situation. He states that individuals need to be able to see the whole picture, have perspective on the connectivity of all things and not operate on automatic pilot to effectively cope with stress. The goal of mindfulness meditation is to empower individuals to respond to situations consciously rather than automatically.[4]

Prior to the commencement of this systematic review, the Cochrane Library and JBI Database of Systematic Reviews and Implementation Reports were searched. No previous systematic reviews on the topic of reducing stress experienced by nurses through mindfulness programs were identified. Hence, the objective of this systematic review is to evaluate the best research evidence available pertaining to mindfulness-based programs and their effectiveness in reducing perceived stress among nurses.

Keywords

burnout; depression; lateral violence; mindfulness; Mindfulness Based Stress Reduction (MBSR); nurses; stress

Inclusion criteria

Types of participants

This review will consider studies that include Registered Nurses, regardless of their credentials or specialty fields, who are currently employed in adult patient care settings. Studies involving nurses employed in non-adult health service settings will be excluded.

Types of intervention(s)/phenomena of interest

This review will consider studies that evaluate any mindfulness based programs that originate from the original Mindfulness-Based Stress Reduction Program developed by John Kabat Zinn.

The intervention will be compared to standard care, which in most instances is no intervention. Studies examining the effectiveness of mindful meditation alone without a concurrent structured mindfulness based program will be excluded.

Types of outcomes

This review will consider studies pertaining to mindfulness based programs that include the following outcome measure: perceived stress. Studies will be selected that measure stress experienced by nurses as measured by a variety of perceived stress scales, including but not limited to, the Perceived Stress Scale (PSS-14, PSS-10 and PSS-4) and the Depression and Anxiety Stress Scale (DASS-21).

Types of studies

This review will consider any experimental study design including randomized controlled trials, non-randomized controlled trials, quasi-experimental, and before and after studies for inclusion.

Search strategy

The search strategy aims to find both published and unpublished studies. A three-step search strategy will be utilized in this review. An initial limited search of PUBMED and CINAHL will be undertaken followed by an analysis of the text words contained in the title and abstract, and of the index terms used to describe the article. A second search using all identified keywords and index terms will then be undertaken across all included databases. Thirdly, the reference list of all identified reports and articles will be searched for additional studies. Studies published in English will be considered for inclusion in this review. Studies published since 1979 will be considered for inclusion in this review as the first mindfulness based stress reduction program was created in 1979 by John Kabat Zinn.

The databases to be searched include:
PUBMED
CINAHL
PsycINFO
Scopus
The search for unpublished studies will include:
Google Scholar
ProQuest Dissertation and Theses.

Initial keywords to be used will be:

Mindfulness; Nurses; Nursing; Stress; Stress reduction; Mindfulness based programs.

Assessment of methodological quality

Papers selected for retrieval will be assessed by two independent reviewers for methodological quality prior to inclusion in the review using standardized critical appraisal instruments from the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) (Appendix I). Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer.

Data extraction

Data will be extracted from papers included in the review using the standardized data extraction tool from JBI-MAStARI (Appendix II). The data extracted will include specific details about the interventions, populations, study methods and outcomes of significance to the review question and specific objectives. An attempt will be made to contact the authors of the primary studies for any missing information or to clarify unclear data.

Data synthesis

Quantitative data will, where possible, be pooled in statistical meta-analysis using JBI-MAStARI. All results will be subject to double data entry. Effect sizes expressed as odds ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed statistically using the standard Chi-square. Where statistical pooling is not possible the findings will be presented in narrative form including tables and figures to aid in data presentation where appropriate.

Conflicts of interest

The authors have no conflict of interest to declare.

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Appendix I: Appraisal instruments

MAStARI appraisal instrument

JBI Critical Appraisal Checklist for Randomised Control / Pseudo-randomised Trial

Reviewer _____ Date _____

Author _____ Year _____ Record Number _____

	Yes	No	Unclear	Not Applicable
1. Was the assignment to treatment groups truly random?	☐	☐	☐	☐
2. Were participants blinded to treatment allocation?	☐	☐	☐	☐
3. Was allocation to treatment groups concealed from the allocator?	☐	☐	☐	☐
4. Were the outcomes of people who withdrew described and included in the analysis?	☐	☐	☐	☐
5. Were those assessing outcomes blind to the treatment allocation?	☐	☐	☐	☐
6. Were the control and treatment groups comparable at entry?	☐	☐	☐	☐
7. Were groups treated identically other than for the named interventions	☐	☐	☐	☐
8. Were outcomes measured in the same way for all groups?	☐	☐	☐	☐
9. Were outcomes measured in a reliable way?	☐	☐	☐	☐
10. Was appropriate statistical analysis used?	☐	☐	☐	☐
	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info. ☐

Comments (Including reason for exclusion)

Appendix II: Data extraction instruments

MAStARI data extraction instrument

JBI Data Extraction Form for Experimental / Observational Studies

Reviewer _____ Date _____

Author _____ Year _____

Journal _____ Record Number _____

Study Method

RCT ☐ Quasi-RCT ☐ Longitudinal ☐

Retrospective ☐ Observational ☐ Other ☐

Participants

Setting

Population

Sample size

Group A _____ Group B _____

Interventions

Intervention A

Intervention B

Authors Conclusions:

Reviewers Conclusions: