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The Effectiveness of Mindfulness-Based Stress Reduction Therapy on Stress Among Staff Nurses

Liji Krishnan

Department of Mental Health Nursing, Krupanidhi College of Nursing, Bangalore - 560035, Karnataka, India; nursing.kric@krupanidhi.edu.in

Abstract

Background: Occupational stress among nurses can lead to poor patient care, staff burnout, absenteeism and increased staff turnover. Interventions focused on mindfulness-based stress reduction therapy will increase the nurse's psychological well-being. **Aim**: To evaluate the extent of stress experienced and to analyse the effect of Mindfulness-Based Stress Reduction (MBSR) therapy on the stress levels of the nursing staff. **Method**: A quantitative research approach was utilised in this study, implementing a single-group pre- and post-test design. A sample of 60 staff nurses was picked through non-probability purposive sampling from a hospital in Bangalore. Data collection included the use of a structured questionnaire to gather demographic information and the perceived stress scale to evaluate stress levels. The MBSR therapy was administered over 15 days, and post-test data were collected on the 16th day. **Results**: The majority of participants were female (63.33%), and most belonged to the 21–25 years age group (63.33%). There was a marked reduction in moderate stress levels, decreasing from 86.6% in the pre-test to 0% in the post-test, with mean stress scores significantly lower in the post-test (34.4 ± 4.7) compared to the pre-test (72.7 ± 9.8) ($p < 0.05$). Chi-square analysis showed a significant association between pre-test stress levels and both duration of working hours ($p = 0.0005$) and work experience ($p = 0.018$) among staff nurses. **Conclusion**: Job stress has a detrimental effect on nurses' physical and mental health, lowers their level of energy and productivity, and has a poor influence on patient outcomes. MBSR can be strongly advised in a professional context as an effective stress reduction strategy.

Major Findings: Stress among staff nurses reduced markedly after the Mindfulness-Based Stress Reduction (MBSR) therapy, with moderate stress eliminated in the post-test. Nurses reported much lower stress levels after the intervention, clearly indicating that MBSR helped improve their overall psychological well-being. The study also revealed that longer working hours and greater work experience were linked to higher stress levels, emphasising the role of workplace demands in nurse stress.

Keywords: Mindfulness-Based Stress Reduction Therapy, Nurses, Stress

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1. Introduction

Stress can be defined as any change that leads to physical, emotional or psychological strain[1]. Stress will hurt people's health, wellness and work satisfaction, leading to absenteeism and increased turnover, which may harm the standard of patient care. Stress is a natural and inevitable part of life that affects everyone at some point. It is the body's response to external or internal demands, challenges or changes that require adaptation[2]. Stress can originate from a multitude of factors, including job-related demands, interpersonal connections, financial troubles, health worries and even positive occurrences like marriage or a new job opportunity. While a certain level of stress can be advantageous by serving as a driving force and equipping individuals to confront difficulties.

An excessive or enduring state of stress can negatively impact one's physical, emotional, and mental health[3].

Occupational stress results from a disconnect between work demands and one's ability to manage them[4]. Nursing is recognised as a profession characterised by elevated levels of stress[5]. It pertains to how stress-inducing factors known as "stressors" within a work environment can lead to physiological, behavioural and psychological manifestations of stress. The death of the patients and excessive workload were identified as major contributors to stress. A cross-sectional study on stress among staff nurses reported approximately 59.3% of nurses encounter a moderate level of stress, while around 36.8% experience severe stress and 26% experiences more stress. The staff nurses who work in a casualty and emergency department have more stress. Nurses in younger age were more stressed while coping with the loss of patients[6].

There are numerous effective techniques to handle stress. The most effective stress management strategies contain a blend of stress relief that treats stress physiologically and psychologically. It helps in the creation of resiliency and coping skills[7].

Mindfulness-Based Stress Reduction (MBSR) has gained significant attention and recognition for its potential positive effects on various aspects of mental well-being. MBSR is a healing approach which leads individuals in recurring practices such as meditation and yoga to alleviate stress[8]. These MBSR programs typically span eight weeks, with each session lasting around two to three hours, depending on the specific program[9]. In these sessions, a certified instructor imparts mindfulness techniques that participants practice collectively all together. Throughout MBSR gatherings, individuals endeavour towards heightened knowledge of the current instant[10]. To enhance mindfulness, participants seek to lower their overall stress levels, reduce emotional reactivity and attain a greater sense of inner tranquility[11,12]. Therefore, this study was conducted based on previous literature to explore the effects of mindfulness interventions on stress among nurses. The aim was to evaluate the extent of stress experienced and to analyse the effect of MBSR therapy on the stress levels.

2. Materials and Methods

2.1 Design

The study followed a quasi-experimental design with a single-group pretest–post-test structure[13]. Participants' stress levels were measured both before and after MBSR therapy. A control group could not be included, as the limited setting and available sample made it challenging to divide participants into separate comparison groups.

2.2 Population and Sample

The study population consisted of staff nurses employed at a hospital in Bangalore. Participants between 21 and 40 years of age who experienced mild to moderate stress levels during screening and were willing to participate were included in the study. Nurses who had previously undergone any form of stress management intervention were excluded. A total of 60 staff nurses were selected using purposive sampling[14], of whom were selected to enable efficient data collection within the available time and resources. The sample size was calculated using G*Power software (version 3.1), considering an effect size of 0.45, a power of 80%, and a significance level of 0.05.

2.3 Ethical Consideration

Ethical approval for the study was obtained from the Institutional Ethics Committee and the concerned hospital administration (IEC No. PGN-197). The staff nurses were provided with detailed information about the purpose of the study and the intervention. They were also informed that their participation was voluntary and that they could withdraw from the study at any time.

2.4 Intervention

The present study was carried out by a researcher who underwent a month of MBSR training. The primary MBSR activities included body scanning, meditations, mindful movements and mindful tasks, which involved participants focusing on the sensations in various parts of their body. The purpose of this exercise is to observe the breathing. The participants were instructed to repeat this exercise as many times as well as switch observation to body sensations, physical activity and stretches. The sample group was split into two groups consisting of 30 participants in each group. Group1 attended morning sessions and group 2 attended evening sessions. The same instructor led the participants in both groups. MBSR was administered for a duration of 1hour for a period of 2 weeks. Duration and session were constant for both groups. The researcher kept track of the intervention group participants' attendance during the two-week

sessions. A participant is considered to be a dropout if they missed out on more than two sessions.

2.5 Data Collection

2.5.1 Instrument Description of the Tool

Section 1: The researcher prepared a structured questionnaire to assess the demographic data of the participants, which included age, sex, religion, qualification, number of working days, working experience, family expenditures and health issues. The structured questionnaire was validated by the subject experts in the same field of psychology and nursing.

Section 2: This study used the updated Perceived Stress Scale (PSS-10) to assess the stress levels of the participants. The scale consists of 10 questions that measure how frequently individuals experience feelings and thoughts related to stress[15]. Each item is scored on a 5-point Likert scale from 0 to 4, where 0 = *Never*, 1 = *Almost Never*, 2 = *Sometimes*, 3 = *Fairly Often*, and 4 = *Very Often*. The scores from all items are added together to produce a total stress score, with higher scores indicating higher levels of perceived stress. The interpretation of the total score is categorised as follows: 0–13 indicates low stress, 14–26 indicates moderate stress, and 27–40 indicates high stress. The PSS-10 is widely recognised as a reliable tool and has shown strong internal consistency in multiple studies, with reported Cronbach's alpha values ranging from 0.74 to 0.91.

Table 1. Description of baseline characteristics of nursing staff, N = 60

Variable	Category	Frequency	Percentage (%)
Age (years)	21–25	38	63.0
	26–29	12	20.0
	30–35	10	17.0
Gender	Male	22	37.0
	Female	38	63.0
Marital status	Single	26	43.0
	Married	28	47.0
	Divorced	06	10.0
Educational qualification	Diploma	29	48.0
	Degree	29	48.0
	Postgraduate	02	4.0
Working hours per day	6–8 hours	20	33.3
	8–10 hours	32	53.3
	10–12 hours	08	13.4
Working experience (years)	< 1 year	15	25.0
	1–5 years	28	46.6
	5–10 years	13	21.7
	> 10 years	04	6.7

3. Results

Statistical package of social science version 2.6.26 was used to enter and analyse the obtained details, and the data was analysed with a significance level set at 5% ($p < 0.05$). Both descriptive and inferential analyses were conducted. The effectiveness of the intervention was assessed using paired t-tests to compare pre-test and post-test scores for stress level.

Section 1: Description of baseline characteristics of nursing staff

Table 1 shows that the majority of staff nurses were between 21 and 25 years of age (63%), female (63%) and married (47%), with most holding either a diploma or degree qualification (48% each). More than half of the participants worked 8–10 hours per day (53.3%), and the largest proportion had 1–5 years of working experience (46.6%).

Section 2: Comparison of the level stress score among staff nurses before and after intervention

The analysis showed that the percentage of pre-test stress scores of staff nurses with moderate stress was 86.6 on pre-test and was reduced to 0 on post-test, as shown in Figure 1 and Table 2. The nurses had a score of (72.7 ± 9.8) on pre-test and reduced to (34.4 ± 4.7).

Paired t-test analysis showed a significant difference between pre-test and post- test stress score ($p = 0.0006$), indicating the effectiveness of MBSR on stress reduction among staff nurses (Table 3).

Section 4: Correlation of pre-test stress levels with demographic variables

The chi-square analysis in Table 4 demonstrated a significant association between pre-test stress levels and both working hours and work experience, revealing that stress was notably higher among participants working 6–8 hours per day and those with 1–5 years of experience ($\chi^2 = 19.7$, $p = 0.0005$; $\chi^2 = 10.006$, $p = 0.0018$).

Table 2. Comparison of the level stress score among staff nurses before and after MBSR, N = 60

Grading of stress score	Pre-test Frequency	Pre-test Percentage (%)	Post-test Frequency	Post-test Percentage (%)
None / Low stress	0	0.0	13	21.6
Mild stress	08	13.4	47	78.3
Moderate stress	52	86.6	0	0.0
Severe stress	0	0.0	0	0.0

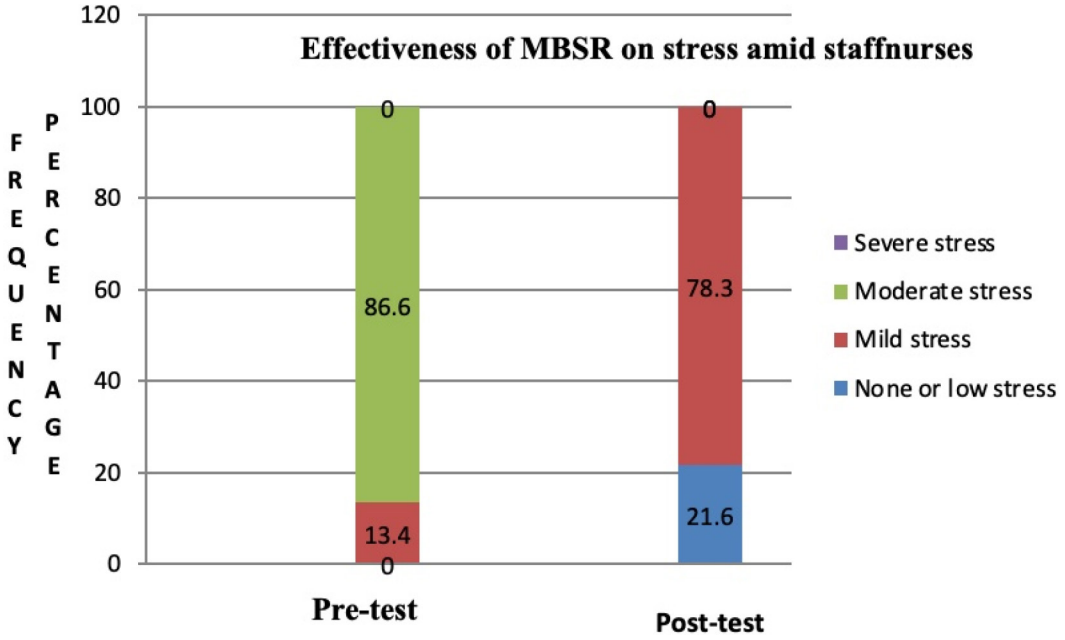


Figure 1. Comparison of the level of stress score among staff nurses before and after intervention.

Table 3. Impact of MBSR on stress levels among nurses, N=60

Variable	*Pre-test* *Mean* ± SD	*Post-test* *Mean* ± *SD*	*t* value	*p* value
Stress score	72.7 ± 9.8	34.4 ± 4.7	3.5	0.0006

4. Discussion

MBSR therapy is a popular approach to stress management for overall well-being[16]. It was initially created by Jon Kabat-Zinnlate 1970s and has since gained recognition for

Table 4. Correlation of pre-test stress levels with working hours and years of professional experience, N = 60

Variable	Category	Stress < Median	Stress > Median	Total	df	χ^2	*p-value*	Inference
Working hours per day	6–8 hours	14	06	20	2	19.70	0.0005	Significant
	8–10 hours	10	22	32				
	10–12 hours	02	06	08				
Working experience	< 1 year	05	10	15	3	10.006	0.0018	Significant
	1–5 years	12	16	28				
	5–10 years	10	03	14				
	> 10 years	04	00	04				

its effectiveness in various settings, including healthcare professions like nursing[17].

The findings of the present study revealed that the majority of staff nurses (86.6%) experienced moderate levels of stress, while 13.7% reported mild stress during the pre-test assessment. These results indicate that occupational stress continues to be a major concern among nursing professionals, likely influenced by demanding workloads, long shifts, and the emotional intensity of patient care. Similar trends were observed in a recent study from India, where 83% of nurses reported moderate stress levels, highlighting that clinical pressure and limited staffing resources significantly contribute to their stress[18].

The present study identified a significant association between pre-test stress levels and both the number of working hours per day and the duration of work experience among staff nurses. These findings suggest that nurses who work longer shifts and those with fewer years of experience are more likely to face higher levels of stress, possibly due to limited coping mechanisms, heavier workloads, and the challenge of adjusting to demanding clinical responsibilities. Similar outcomes were observed in a recent study from India, which demonstrated that extended working hours were strongly linked with increased stress levels among nurses working in critical care units[19].

The findings of the present study clearly show that the MBSR program had a meaningful and positive impact on reducing stress among nurses. The significant reduction in mean stress scores from 72.7 ± 9.8 before the intervention to 34.4 ± 4.7 after the intervention demonstrates the effectiveness of MBSR. This change suggests that practising mindfulness helps nurses gain better emotional control, balance their thoughts, and manage stressful situations more calmly. The results also reflect the reality that nurses often face high workloads, emotional pressure, and challenging clinical environments, making effective stress-management strategies essential. These findings are consistent with recent studies showing that mindfulness-based interventions can greatly reduce psychological distress and improve resilience among healthcare professionals. A randomised controlled trial in China in 2024 similarly found that nurses who attended an 8-week MBSR program showed a significant decrease in stress and burnout compared to those who did not participate[20].

Hence, this finding recommended need for MBSR to explore the work-life balance among staff nurses and the need for fixation of working hours to a maximum of 10 hours/day for quality nursing care.

5. Limitations

The study was conducted in a single hospital and involved only a two-week intervention period; therefore, the long-term effects of the MBSR program could not be assessed.

6. Implication for Nursing Practice

According to the study's findings, MBSR was an effective method for helping nurses working in hospitals manage their stress levels and improve their mental and physical health. Additionally, the approach may increase nurses' job satisfaction. The findings have potential implications for nursing practice and education, while more study is required. The value of mindfulness should be acknowledged by nursing educators, and it should be incorporated into the nursing curriculum.

7. Future Research

MBSR programs have gained significant popularity as a way to help individuals manage stress, anxiety, and various psychological and physical conditions. Research could explore the benefits of MBSR in specific populations such as children and adolescents, older adults and individuals with neurodevelopmental disorders and trauma-related conditions. MBSR could be enhanced as mindfulness practices are adaptable to cater to the unique needs of participants.

8. Conclusion

Job-related stress among nurses can put both their physical and mental well-being at risk, leading to a decrease in energy and work performance. It affects the delivery of adequate nursing care and adversely affects patient outcomes. Hence, it is crucial to explore the sources of stress and develop effective strategies for its management. Consequently, implementing MBSR programs has proven to be an effective approach in reducing the stress levels experienced by nurses.

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