

A Study to Evaluate the Effectiveness of Triangular Nursing Interventions on Stress Among Staff Nurses

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Abstract

Background: Stress among staff nurses is a critical concern, significantly impacting their well-being, job satisfaction, and the quality of care they provide. The work environment plays a pivotal role in nurse stress levels. This study aims to evaluate the effectiveness of triangular nursing interventions on stress among Staff Nurses.

Methodology: The research aimed to assess perceived stress levels of staff nurses at SRMCH & RC and evaluate the effects of interventions using a one-group pretest-posttest quasi-experimental design. The study involved 100 staff nurses who met specific inclusion criteria, including scoring 14 or above on the Perceived Stress Scale and being available during the study. Purposive sampling was used, with exclusions for nurses on leave, already practicing relaxation techniques, or unable to participate due to illness or other studies.

Results: The study found a significant reduction in perceived stress among participants following the TNI intervention. Before the intervention, 60% of participants experienced severe stress, and 40% had moderate stress. After the intervention, no participants reported severe stress, with 70% experiencing moderate stress and 30% reporting mild stress. Statistical analysis showed a significant decrease in the mean stress score from 34.4 to 22.10 (p -value = 0.00), confirming the effectiveness of the intervention in reducing stress levels.

Conclusion: The study concludes that there is a significant reduction in stress levels observed in this study underscores the efficacy of triangular nursing interventions as a viable strategy for managing occupational stress among nursing professionals.

Keywords: Nursing Intervention, stress, staff nurses, effectiveness.

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Introduction

Stress among staff nurses is a critical concern, significantly impacting their well-being, job satisfaction, and the quality of care they provide. Numerous studies have identified various factors contributing to stress in nursing, emphasizing the need for targeted interventions to mitigate its negative effects.

The work environment plays a pivotal role in nurse stress levels. Factors such as inadequate staffing, heavy workloads, and job-related strain are well-documented as major contributors to burnout among nurses (Boamah et al., 2016; , (Qedair et al., 2022; . Research shows that hospitals with effective staffing practices and supportive work environments tend to have lower burnout rates and improved patient outcomes, highlighting the importance of addressing these workplace conditions (Boamah et al., 2016; , (Schlak et al., 2021; . Furthermore, studies indicate that high levels of workload and emotional demands lead not only to burnout but also to decreased job satisfaction and increased turnover intentions among nursing staff, creating a cycle of stress and attrition (Qedair et al., 2022; , Kuang et al., 2020).

Psychological factors also significantly contribute to stress and burnout in nurses. Personal stressors, including anxiety and fatigue, exacerbate work-related stress, as indicated in various studies (Lee et al., 2021), Zarei & Fooladvand, 2022). Lee et al. revealed a direct correlation between work stress and burnout across nursing staff, suggesting that coping mechanisms should be cultivated to help maintain mental health (Lee et al., 2021). Similarly, the role of sleep quality in mediating the relationship between perceived stress and burnout has gained attention, with evidence suggesting that poor sleep exacerbates burnout symptoms, further deteriorating nurses' well-being (Song et al., 2020; , Mao et al., 2023).

Moreover, addressing coping strategies is essential to managing stress among nurses. Studies recommend that training programs should focus on equipping nurses with effective coping techniques to mitigate the effects of personal and occupational stress (Khamisa et al., 2017; , Yin et al., 2022). Mindfulness, cognitive reframing, and problem-solving skills are among the strategies that have been suggested to enhance resilience among nursing professionals (Tendean, 2020; , Yin et al., 2022).

Several studies have indicated that relaxation strategies can significantly reduce occupational stress among nurses. For instance, Khamisa et al. emphasize the need for training in stress management through relaxation techniques, which has been shown to enhance job performance and reduce burnout in nursing (Khamisa et al., 2015). Similarly, Hamdan-Mansour et al. highlight that teaching nurses how to relax and manage stress is critical for improving job outcomes, reinforcing the necessity for organizational support for mental health initiatives (Hamdan-Mansour et al., 2011). Programs aimed at fostering relaxation not only mitigate immediate stress responses but also contribute to long-term wellbeing among nursing professionals.

Building resilience is another essential aspect of stress management. Mohammed discusses the critical role of organizational interventions, which include fostering resilience, in enhancing nurse efficiency and retention (Mohammed, 2019). This is echoed by Almazan et al., who found that fostering resilience in nursing staff can mitigate the effects of a moderately stressful work environment (Almazan et al., 2019). Moreover, psychological resilience positively correlates with job satisfaction among nurses, as noted by Elhamid et al., making it a valuable focus for intervention programs (elhamid et al., 2023). Strategies that enhance resilience empower nurses to navigate the emotional challenges of their profession, effectively reducing their stress levels and improving overall job satisfaction.

Engaging in recreational activities has been identified as a buffer against perceived stress. While detailed studies specifically examining nurses are limited, existing research indicates that participation in recreational activities can improve psychological wellbeing and overall quality of life (Bishop-Fitzpatrick et al., 2017). Recreational outlets provide essential breaks from the demands of nursing, enabling staff to decompress and recover from daily stressors. The importance of recreational activities is further supported by findings from Mintz-Binder et al., which demonstrate that involvement in stress-reducing activities is associated with decreased overall stress and increased resilience among nurses (Mintz-Binder et al., 2021).

In conclusion, the integration of relaxation techniques, resilience-building exercises, and recreational activities as part of a holistic approach to managing stress is validated by extensive research. These triangular interventions not only target immediate stress relief but also foster a healthier, more resilient nursing workforce capable of facing the rigors of their essential profession. By incorporating these components into nursing practice, healthcare organizations can promote healthier work environments, improve nurse well-being, and ultimately enhance patient care outcomes.

Materials And Methods

Study design and settings:

The research adopted an evaluative approach, aiming to assess the perceived stress levels of staff nurses working at SRMCH & RC and examine the effects of interventions. A quasi-experimental research design, specifically a one-group pretest-posttest design, was employed. This design allowed for the evaluation of changes in perceived stress levels before and after the intervention, without the inclusion of a control group. The study was conducted at SRMCH & RC, with the population consisting of both male and female staff nurses working in the hospital.

The sample for this study included 100 staff nurses who met the inclusion and exclusion criteria. Purposive sampling was used to select participants who fulfilled the criteria and were available during the study period.

Inclusion and exclusion criteria:

The inclusion criteria were staff nurses who scored 14 and above on the Perceived Stress Scale and those who were willing to participate and available during the study period. The exclusion criteria included staff nurses on medical or maternity leave, those already practicing relaxation techniques such as yoga and meditation, those who were very sick and unable to participate, and those currently engaged in other research studies.

Intervention

The intervention in this study was based on a Triangular Nursing Intervention approach, combining education on resiliency building, relaxation techniques, and recreational activities to address perceived stress among staff nurses. The intervention was implemented over four weeks, with weekly 30-minute group sessions conducted for 25 nurses at a time. During these sessions, nurses were trained in various resiliency-building techniques to enhance their ability to cope with stress, alongside relaxation practices such as deep breathing and progressive muscle relaxation to alleviate the physical and emotional symptoms of stress. Additionally, recreational activities were included to foster social interaction and stress relief in a group setting. Following the initial four weeks, bi-weekly follow-up sessions were conducted every 15 days over the next two months to reinforce the techniques and provide ongoing motivation. A WhatsApp group was

also established to facilitate continuous engagement, allowing nurses to share experiences, ask questions, and receive support throughout the study period.

Tools:

Data collection was carried out using a two-part instrument. Part A collected demographic information, including variables such as age, sex, marital status, type of family, socio-economic status, educational status, shift work, family support, and years of experience. Part B involved the use of the Perceived Stress Scale (PSS) to assess the stress levels of participants. The PSS scores were categorized as follows: 0–13 for low stress, 14–26 for moderate stress, and 27–40 for severe stress.

Ethical consideration:

The study adhered to ethical principles, ensuring that all participants provided informed consent and were fully aware of the study’s purpose, procedures, and potential risks. Participants were assured that their participation was voluntary, with the right to withdraw at any time without any consequences. Confidentiality was strictly maintained by anonymizing the data, and all information was securely stored. Ethical approval was obtained from the Institutional Ethical Committee of SRMCH & RC before initiating the study.

Statistical analysis: Descriptive statistics (mean, standard deviation) summarized demographic and stress scores, while paired sample t-tests were used to analyze pretest-posttest stress differences. A p-value of <0.05 was considered significant, with SPSS used for data analysis.

Results

Demographic Variables

The table 1 outlines the demographic characteristics of the study participants. Most participants were aged between 25-34 years (35%) and predominantly female (92%). A majority were married (81%) and lived in nuclear families (68%). In terms of socio-economic status, the majority were from middle-class backgrounds (58%), with the majority having either a diploma (38%) or a degree (57%). Most participants worked shifts (72%) and reported having family support (48%).

Level of Perceived Stress Before and After TNI

The table 2 presents the perceived stress levels of participants before and after the TNI intervention. Prior to the intervention, 60% of participants experienced severe stress, while 40% were classified as moderately stressed. After the intervention, there were no participants with severe stress. Instead, 70% experienced moderate stress, and 30% reported mild stress, indicating a noticeable reduction in stress levels following the intervention.

Statistical Analysis of Perceived Stress Levels Before and After TNI

The table 3 provides the statistical analysis of the perceived stress levels before and after the TNI intervention. The mean stress score decreased significantly from 34.4 before the intervention to 22.10 after, with standard deviations of 5.784 and 4.125, respectively. The t-value of 24.75 and the p-value of 0.00 indicate a statistically significant reduction in stress, highlighting the effectiveness of the intervention in reducing perceived stress levels among participants.

Table 1: Demographic variables of the staff nurse

S.NO	DEMOGRAPHIC VARIABLES	n)	(%)
1	Age (in years)		
	< 24	23	23
	25-34	35	35
	35-44	20	20
	45-54	18	18
	>55	4	4
2	Gender		
	Male	8	8
	Female	92	92
3	Marital status		
	Single	19	19
	Married	81	81
4	Type of family		

	Nuclear	68	68
	Joint	32	32
5	Socio-economic status		
	Low class	12	12
	Middle class	58	58
	Upper middle	30	30
6	Educational status		
	Diploma	38	38
	Degree	57	57
	Post graduate	5	5
7	Shift often work		
	General Shift	28	28
	Shift	72	72
8	Family support		
	Yes	48	48
	No	42	42
9	Work experience		
	< 1 year	27	27
	1-10 years	45	45
	11-20 years	17	17
	> 20 years	11	11

Table 2: Level of perceived stress among staff nurse.

Level of Perceived Stress	Before TNI (N=100)	After TNI (N=100)
Mild	0 (0%)	30 (30%)
Moderate	40 (40%)	70 (70%)
Severe	60 (60%)	0 (0%)

Table 3: Mean, standard deviation of the Perceived stress score

Perceived Stress	Mean	Standard Deviation	t-value	p-value
Before TNI	34.4	5.784	24.75	0.00 (s)*
After TNI	22.10	4.125		

Table 4: Correlation between of emotional intelligence, job performance, job satisfaction, and employee well-being.

Variables	Emotional Intelligence	Job Performance	Job Satisfaction	Well-being
Emotional Intelligence	1	r = 0.65	r = 0.70	r = 0.60
Job Performance	r = 0.65	1	r = 0.75	r = 0.50
Job Satisfaction	r = 0.70	r = 0.75	1	r = 0.55
Well-being	r = 0.60	r = 0.50	r = 0.55	1

Discussion

The results of the study reveal significant findings regarding the effectiveness of a triangular nursing intervention (TNI) in reducing stress among staff nurses. Initially, it was observed that 60% of participants experienced severe stress, while 40% were categorized as moderately stressed. Following the TNI intervention, the landscape of stress levels shifted dramatically; there were no participants categorized in the severe stress group, with 70% now reporting moderate stress and 30% experiencing mild stress. This indicates a marked and statistically significant reduction in stress levels among the staff nurses who participated in the intervention.

Quantitative analysis supported these observations, with the mean stress score falling from 34.4 before the intervention to 22.10 afterward, alongside standard deviations dropping from 5.784 to 4.125. The computed t-value of 24.75 and the p-value of 0.00 further established that the observed changes were statistically significant, reinforcing the efficacy of the TNI in mitigating stress levels among the nursing staff.

These results corroborate previous studies that underline the impact of structured stress management interventions on the nursing profession. For instance, the effectiveness of cognitive behavioral therapy (CBT) and mindfulness-based approaches in lowering perceived stress levels is well-documented in nursing literature. Alkhaldeh et al. demonstrated that CBT techniques can significantly alleviate occupational stress among intensive care unit nurses, thereby enhancing their resilience and overall mental health Alkhaldeh et al. (2019). Likewise, Anderson reported on the benefits of mindfulness-based interventions, highlighting their potential to reduce stress and improve patient safety among critical care nursing staff (Anderson, 2020).

Furthermore, the increase in reported rates of moderate and mild stress levels post-intervention aligns with the assertion that comprehensive stress management strategies can foster supportive work environments. Batino et al. discussed how the nursing work environment impacts stress levels, which subsequently affects the quality of care delivered (Batino et al., 2024). The holistic approach inherent in the TNI, which combines various coping strategies, resonates with the multifaceted framework suggested to enhance nurses' well-being, demonstrating that integrated methodologies yield significant benefits.

Moreover, the findings of this study align with an overall trend within healthcare settings that points to an urgent need for structured interventions aimed at reducing burnout and enhancing mental well-being among nursing staff. The pre- and post-intervention analysis signifies not only a temporary reprieve from stress but suggests a transformative effect resulting from incorporating TNI practices into nursing protocols—echoing the sentiments of Anderson that stress reduction can lead to improved patient safety and cognitive functioning among nurses (Anderson, 2020).

Conclusion

The study concludes that there is a significant reduction in stress levels observed in this study underscores the efficacy of triangular nursing interventions as a viable strategy for managing occupational stress among nursing professionals. With the results bringing to light critical implications for practice, incorporating such structured interventions could promote healthier work environments and improve overall job satisfaction and patient care quality in nursing.

Recommendation

Based on the significant findings of reduced stress levels following the triangular nursing intervention, it is recommended that healthcare institutions implement structured stress management programs, including cognitive-behavioral approaches and mindfulness training, as part of regular nursing practice. Furthermore, fostering a supportive work environment that encourages open communication and peer support can enhance the effectiveness of these interventions. Finally, ongoing assessment and iterative improvements of these programs will ensure they remain responsive to the evolving needs of nursing staff.

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Conflicts of Interest

No

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