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Original Research Paper

Nursing

EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AND PRACTICE REGARDING EMERGENCY MANAGEMENT OF BURNS AMONG STAFF NURSES IN SELECTED HOSPITALS IN BENGALURU, SOUTH INDIA

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ABSTRACT

Objective: To evaluate the effectiveness of structured teaching programme on knowledge and practice regarding emergency management of burns among staff nurses in selected hospitals in Bangalore, South India. **Methods:** One group pre-test post-test design was used to evaluate the effectiveness of structured teaching programme. Study group consists of 60 staff nurses from different hospitals. The association of selected socio personal variables with their pretest knowledge was also studied. **Results:** The mean pre-test score was 16.5±2.17 which was significantly improved to 25.9±2.48 following post-test. The knowledge level was significantly associated with level of education, area of working and attendance of continuing educational programmes. **Conclusion:** Structured teaching programmes help in knowledge enhancement, result in better practice and there by contributing to the wellbeing of patients.

KEYWORDS : Staff nurses- Burn management- Knowledge-practice- structured intervention programme

INTRODUCTION

The management of burns forms a crucial part of nursing education and holds significant importance in nursing practice. Once employed in clinical settings, nurses apply their knowledge and skills, often being the first to provide first aid and initial management for burn injuries. It was essential to routinely assess their knowledge and skills and offer necessary updates through continuing education. A study by Lam et al. (2018) conducted among 353 registered nurses revealed that only a small proportion of respondents followed the correct procedures. The objective was to assess their knowledge of first aid and initial care for burns and mass burn injuries. The study found that only 15.3% of participants answered more than 50% of the items correctly, with an average of 39.7% correct answers. Regarding mass burn injuries, 53.6% of nurses recognized oral fluid resuscitation as an appropriate method, while 44.6% indicated pre-transport intubation for suspected inhalation injuries. However, only 5.4% of participants answered correctly on burn triage. The study also noted that work experience and place of work did not influence knowledge levels, whereas nurses who had attended training courses demonstrated significantly higher knowledge.

Another study by Mohammed et al. (2021), conducted among nurses in Egypt, confirmed the lack of adequate knowledge regarding burns and injury management. The study concluded that the majority of the nurses studied (82.5%) had unsatisfactory knowledge, and all (100%) had unsatisfactory practices and a negative attitude towards burn injury management. The study emphasized the need for continuous education and updates on evidence-based nursing practices for burn patients. Similarly, a study by Dawood et al. (2024) reported that 5% of nurses had a poor level of knowledge, 50% had moderate knowledge, and 45% had a good level of knowledge regarding burn management. The study observed that knowledge was associated with education level but not with years of experience. These studies underscored the need for educational programs to improve nurses' knowledge and skills in burn management.

Methodology

The objectives of the study were to study the effectiveness of structured teaching programme on the knowledge and practice and to study the association of levels of pre-test knowledge with selected socio demographic variables. The study group was staff nurses who have completed G.N.M/B.Sc. nursing, and, M.Sc. nursing and working in selected hospitals in Bangalore. Purposive sampling was used to select the study group. . This study design was quasi experimental, pre experimental, with one group pre-test and post-test design. Sample size was determined based on the results of a pilot study conducted in the same population. The mean pretest score was 10.5±7.8 which was increased to 12.9±4.5 during the post-test.The sample size obtained was 53.Anticipating 10% dropout final sample size was 60. For knowledge assessment a structured questionnaire was used. The pre-test was followed by the administration of structured teaching programme on the same day. Post test was conducted after seven days using the same structured questionnaire. The average time taken for completion of the questionnaire was 20 minutes. The knowledge score was classified as follows: inadequate when the total score obtained was below 50%,as moderate when the total score was between 50% and 75% and as adequate when the total scores was 75% and above. Quantitative variables were expressed as frequency and percentage and quantitative variables were expressed as mean±SD. Paired t test was used to study the effectiveness of the intervention and Chi square test was used study the association between level of knowledge and selected socio demographic variables.

RESULTS

The data were analysed using appropriate statistical methods and the findings were presented in the following section.

Table: 1 Socio Demographic Characteristics

Variables	Categories	No	%
Age	24-30	7	11.7
	30-35	23	38.3
	35-40	19	31.7
	40-45	11	18.3
Gender	Male	17	28.3
	Female	43	71.7
Professional qualification	ANM	34	56.7
	B.Sc. Nursing	15	25.0
	M.sc Nursing	11	18.3
Area of working	Burns ward	44	73.3
	ICU	16	26.7
Years of experience	<1 year	11	18.3
	1 year	16	26.7
	1-3 years	21	35.0
	3-5 years	12	20.0
In-service programme attended	Field	14	23.3

	Conference	7	11.7
	Workshop	4	6.7
	Seminar	35	58.3

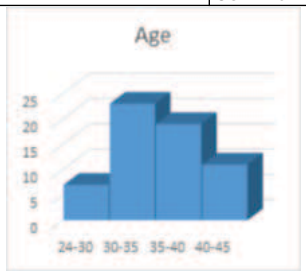

Diagram 1: Age distribution of respondents

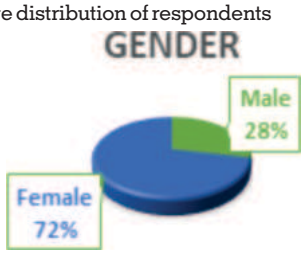

Diagram 2: Gender Distribution of respondents

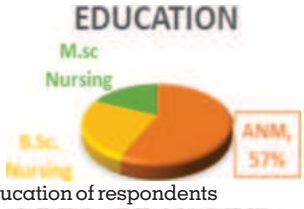

Diagram 3: Education of respondents

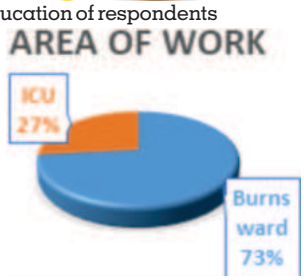

Diagram 4: Area of work of respondents

Diagram 5: Years of experience of respondents

Diagram 6: Inservice programmes attended by the respondents

The majority of participants were aged between 30-35 years (38.3%) and 35-40 years (31.7%). Most of the nurses were female (71.7%) and held an ANM qualification (56.7%), with fewer having B.Sc. Nursing (25.0%) or M.Sc. Nursing (18.3%) qualifications. A significant portion of the participants worked in the burns ward (73.3%), while others were assigned to the ICU (26.7%). The nurses had varying years of experience, with 35.0% having 1-3 years and 26.7% having 1 year of experience. Regarding in-service programs, the majority attended seminars (58.3%), followed by field programs (23.3%), conferences (11.7%), and workshops (6.7%).

Table 2: Change In The Level Of Knowledge And Practice Before And After The Intervention

Level	Score	Pretest Knowledge		Post-test Knowledge	
		No	%	No	%
Inadequate	<50%	31	51.7	6	10.0
Moderate	50-75%	17	28.3	13	21.7
Adequate	>75%	12	20.0	41	68.3
Total		60	100.0	60	100.0

Diagram 7: Change in the level of knowledge and practice following the intervention

In the pretest, a majority of the participants (51.7%) had inadequate knowledge with scores below 50%. About 28.3% of the nurses demonstrated moderate knowledge with scores between 50% and 75%, while only 20.0% had adequate knowledge with scores above 75%. After the intervention, there was a significant improvement in knowledge levels. The percentage of nurses with inadequate knowledge decreased dramatically to 10.0%, and those with moderate knowledge slightly decreased to 21.7%. Most notably, the proportion of nurses with adequate knowledge scores of over 75% rose substantially to 68.3%. This indicates a marked improvement in knowledge following the structured teaching program.

Table 3 Effect Of Intervention On The Knowledge And Practice Among Staff Nurses

Knowledge Domain	Pretest	Post test	t	p
Introduction, definition, causes, signs	8.32±1.42	12.45±1.87	13.7	0.001
Emergency management of burns	6.1±1.56	9.38±1.13	13.4	0.001
Prevention and complication of burns	2.03±0.84	4.06±0.79	14.9	0.001
Overall score	16.5±2.17	25.9±2.48	23.7	0.001

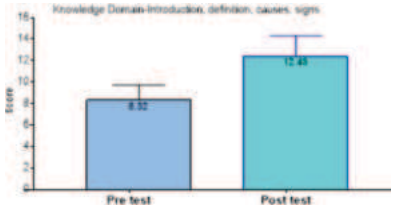

Diagram 8: Effect of the intervention on introduction, definition, causes and signs

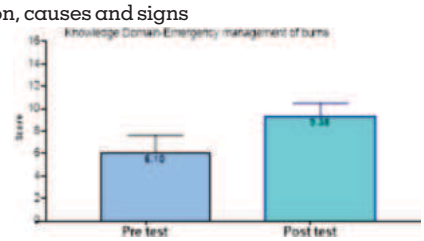

Diagram 9: Effect of the intervention on emergency management of burns

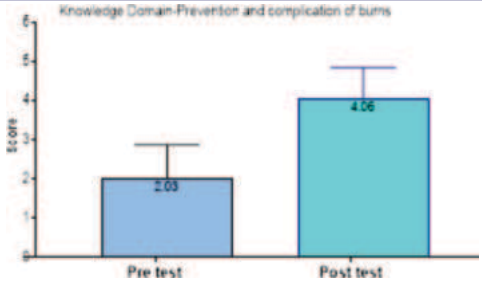

Diagram 10: Effect of the intervention on prevention and complication of burns

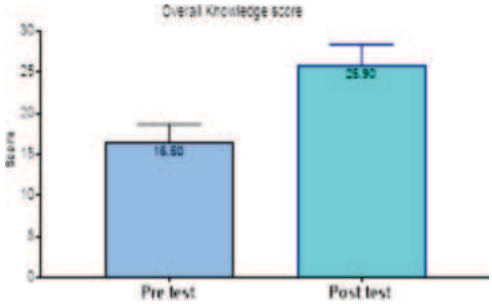

Diagram 11: Effect of the intervention on overall knowledge

The table 3 highlights a significant improvement in knowledge scores across various domains related to the emergency management of burns among staff nurses after a structured teaching program. In the domain of introduction, definition, causes, and signs of burns, there was a significant increase in scores from the pretest to the post-test, with a p-value of 0.001, indicating a meaningful improvement. The domain of emergency management of burns also showed a significant enhancement in knowledge, with a p-value of 0.001. Similarly, knowledge scores regarding the prevention and complications of burns increased significantly, as evidenced by a p-value of 0.001. Overall, the total knowledge score saw a substantial rise following the intervention, with a p-value of 0.001. These findings demonstrate that the structured teaching program was highly effective in enhancing the nurses' knowledge in all aspects of burn management.

Table 4: Association Of Level Of Pretest Knowledge With Selected Socio Demographic Variables

Variables	Categories	Adequate/ moderate		Inadequate		Chi square	Significance
		No	%	No	%		
Age	<35	15	50.0	15	50.0	2.7	0.261
	35-40	11	57.9	8	42.1		
	>40	3	27.3	8	72.7		
Gender	Male	8	47.1	9	52.9	0.015	0.901
	Female	21	48.8	22	51.2		
Education	GNM/ANM	23	67.6	11	32.4	11.7	0.001
	B.Sc./M.Sc.	6	23.1	20	76.9		
Area of Working	Burns ward	17	38.6	27	61.4	8.2	0.013
	ICU	12	75.0	4	25.0		
Years of experience	≤1 year	15	55.6	12	44.4	1.1	0.311
	> 1year	14	42.4	19	57.6		
Inservice programme attended	Field	3	21.4	11	78.6	5.3	0.021
	Conference/ seminar/workshop	26	56.5	20	43.5		

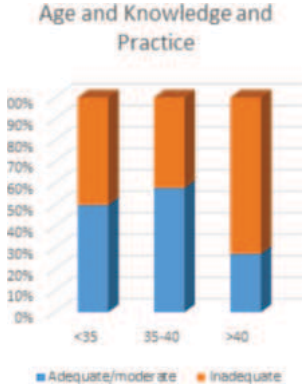

Diagram 12: Association between age with knowledge and practice

Diagram 13: Association of gender with knowledge and practice

Diagram 14: Association of Education with knowledge and practice

Diagram 15: Association of area of work knowledge and practice

Diagram 16: Association of years of experience with knowledge and practice

Diagram 17: Association of in-service programmes attended and knowledge and practice

The table 4 presents the association between various demographic and professional variables and the knowledge levels (adequate/moderate vs. inadequate) of staff nurses regarding the emergency management of burns. Among the age groups, 50.0% of nurses under 35 and 57.9% of those aged 35-40 had adequate or moderate knowledge, whereas only 27.3% of nurses over 40 had adequate or moderate knowledge. However, the association between age and knowledge level was not statistically significant). For gender, 47.1% of male nurses and 48.8% of female nurses had adequate or moderate knowledge, with no significant difference observed. Education level showed a significant association with knowledge level; 67.6% of nurses with a GNM/ANM qualification had adequate or moderate knowledge compared to only 23.1% of those with B.Sc. /M.Sc. qualifications. The area of working was also significantly associated with knowledge levels, with 75.0% of ICU nurses having adequate or moderate knowledge compared to 38.6% of those working in the burns ward. Years of experience did not show a significant association, with 55.6% of nurses with one year or less experience and 42.4% with more than one year of experience having adequate or moderate knowledge. Lastly, attending in-service programs was significantly associated with knowledge levels; 56.5% of nurses who attended conferences, seminars, or workshops had adequate or moderate knowledge compared to 21.4% who only attended field programs.

DISCUSSION

The intervention, a structured teaching program on the emergency management of burns, was highly effective in enhancing the knowledge of staff nurses. Post-test results showed a significant increase in knowledge scores across all domains, with the proportion of nurses achieving adequate knowledge rising from 20.0% in the pretest to 68.3% in the post-test. The marked improvement in scores, across various knowledge domains, demonstrates the intervention's effectiveness in improving the nurses' understanding and preparedness in managing burn emergencies. The results also show that certain demographic and professional factors are significantly associated with the knowledge levels of staff nurses regarding the emergency management of burns. Education level was a significant factor, with 67.6% of nurses holding GNM/ANM qualifications having adequate or moderate knowledge compared to only 23.1% of those with B.Sc. /M.Sc. qualifications. The area of working also showed a significant association, as 75.0% of ICU nurses had adequate or moderate knowledge compared to 38.6% of nurses working in the burns ward ($p = 0.013$). Additionally, attending in-service programs like conferences, seminars, or workshops was linked to higher knowledge levels, with 56.5% showing adequate or moderate knowledge versus 21.4% for those who only attended field programs. However, no significant associations were found between knowledge levels and age, gender, or years of experience. Overall, education, area of work, and type of in-service training attended were key factors influencing the knowledge of nurses on burn management.

The findings of this study demonstrate the effectiveness of a structured teaching program in significantly improving the knowledge of staff nurses regarding the emergency management of burns. The substantial increase in post-test knowledge scores, particularly the rise from 20.0% to 68.3% in nurses achieving adequate knowledge, suggests that such educational interventions are crucial in enhancing nurses' competencies in burn care management. These results align with previous studies that have highlighted the importance of continuous education and training in improving healthcare professionals' knowledge and skills. For instance, a study by Gupta et al. (2019) found that a structured training program significantly improved the emergency management skills of nurses in a tertiary care setting [1]. Similarly, research by Johnson et al. (2018) demonstrated that targeted educational interventions effectively enhanced nurses' preparedness for burn care emergencies [2]. The observed improvements across various knowledge domains further underscore the program's comprehensive impact on the participants' overall understanding and clinical preparedness.

Furthermore, this study identifies significant associations between demographic and professional factors and nurses' knowledge levels in burn management. The higher knowledge levels among nurses with GNM/ANM qualifications compared to those with B.Sc./M.Sc. degrees may reflect the practical focus of diploma programs, which is corroborated by findings from Singh et al. (2020), who reported that nurses with more practical training exhibited better emergency management skills [3]. The significant association between the area of work and knowledge levels, particularly among ICU nurses, suggests that exposure to critical care environments may enhance understanding and application of burn management principles, as supported by findings from Patel et al. (2021) [4]. Additionally, the positive impact of attending in-service programs on knowledge levels is consistent with the work of Kumar et al. (2017), who found that continuous professional development activities, such as workshops and seminars, are vital in keeping healthcare providers updated on best practices [5]. However, the lack of significant associations between knowledge levels and factors such as age, gender, or years of experience indicates that knowledge acquisition may be more influenced by targeted educational initiatives and the specific professional environment than by demographic characteristics. These insights reinforce the need for ongoing education and tailored training programs to address the diverse learning needs of nurses across different settings.

Continuing education for staff nurses in burn management is crucial to ensure they are equipped with the latest knowledge and skills necessary for effective patient care. It helps nurses stay updated on the most recent advances in burn treatment protocols and enhances their ability to respond to emergencies, ultimately improving patient outcomes and reducing complications. Additionally, ongoing training fosters a culture of lifelong learning and professional development, which is essential for maintaining high standards of nursing practice. Moreover it enhances their current knowledge and practice regarding management of burn cases. An intervention study was conducted by Hazrati et al (2020), conducted among staff nurses in burning wards of an Iranian hospital. . Presentation of nursing services was good in terms of the primary care (80.5%) and during hospitalization (83.4%); and it was weak in terms of the secondary care (42.5%).After intervention, these values were significantly improved to reach 90.2%, 92.9% and 78.3% respectively. Sahoo and Bai (2020) conducted a study among staff nurses demonstrates the effect of self-instructional module on knowledge of staff nurses regarding management of burn injury in surgical department. The study shows significant improvement in various domains of knowledge as well as in overall knowledge. The overall pretest score was $22.56 \pm .34$ which was significantly increased to 33.3 ± 3.4. Kamei, Rongmei and Kumar (2022) demonstrated the improvement in knowledge score among staff nurses regarding first aid management and emergency care of burn. In this study the pretest score was 12.76 ± 1.935 and it improved to 27.68 ± 3.766 i.e. post test score. This difference in scores was statistically significant also. A similar finding was obtained from the study by Kadhim and Hamza (2023).In this study a control group was also used. The participant staff nurse were divided into two groups and one group receive the intervention. In this group, mean pretest score was 0.41 ± 0.13 before intervention and was significantly improved during post-test to a level of 0.95 ± 0.05.This study also shows that there is no association of knowledge with number of training courses attended, age, years of experience in nursing and years of experience in

burns unit. A recent study also demonstrates the positive impact of trauma informed care educational programme on nurse's knowledge and practice among nurses working in paediatric burn unit (Gamal Badway et al, 2023).The mean knowledge score was 7.7±2.5 which was increased to 10.4±0.98 immediately after intervention and was 10.2± 1.2 at follow up after second month. Total practice scores were 23.9±3.5 before intervention, 33.9±2.1 immediately after intervention and 34.8±1.9 at the end of second month following intervention.

CONCLUSION

Staff nurses working in wards and intensive care units exhibited varying levels of knowledge regarding the emergency management of burns. In particular, nurses with an ANM qualification, those working in ICUs, and those who had attended continuing education programs demonstrated stronger knowledge. The results of the intervention clearly highlight its positive impact across all areas of burn management knowledge. This study recommends that continuing education on burn management be conducted regularly to improve both knowledge and practice. The findings can guide hospital administrators in planning and implementing educational programs for staff nurses, ensuring they provide effective care for burn patients and help prevent complications. Ongoing education is essential for nurses to stay current with the latest burn treatment protocols and emergency response techniques, thereby enhancing patient outcomes. Furthermore, continuous training fosters a culture of lifelong learning and professional growth, which is vital for maintaining high standards of nursing care.

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