

Evaluate the Impact of a First Aid Module on the Knowledge and Skills Related to First Aid Management Among Nursing Students at Gian Sagar College of Nursing, Ramnagar, Rajpura, Punjab

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Abstract

Introduction: First aid refers to the immediate and temporary care provided to individuals who are injured, ill, or wounded before professional medical assistance becomes available. Since accidents can occur unexpectedly, having fundamental first aid knowledge is invaluable. It enables individuals to deliver prompt, lifesaving assistance and prevent complications until expert care arrives. Training nursing students in first aid is particularly important, as it equips them to preserve life, prevent further harm, and promote recovery in emergency situations. **Aim:** The study aimed to assess the effectiveness of a structured first aid training module in improving nursing students' knowledge and practical skills related to first aid management. The goal was to enable students to respond promptly during emergencies, especially within the "golden hour," and to empower them to educate the public on first aid practices. **Methodology:** After obtaining ethical clearance, the study was conducted at Gian Sagar College of Nursing among 65 first-semester nursing students selected through purposive sampling. Data were collected using a self-developed multiple-choice questionnaire to assess knowledge and an OSCE checklist to evaluate skills. Tool validity was confirmed through expert review, and reliability was ensured using the test-retest method. A pre-test was followed by implementation of the training module, and a post-test was conducted seven days later. Data were analyzed using descriptive and inferential statistics. **Results:** Significant improvements were observed in both knowledge (pre-test mean = 12.85; post-test mean = 17.35; $p = 0.001$) and skills (pre-test mean = 19.71; post-test mean = 27.57; $p = 0.001$) following the intervention. **Conclusion:** The first aid training module effectively enhanced nursing students' knowledge and skills.

Structured first aid education is essential for strengthening competencies and improving the quality of patient care.

Keywords: First aid, nursing students, knowledge and skills, training module, emergency care

INTRODUCTION

First aid refers to immediate assistance provided to individuals who are sick, injured, or wounded before professional medical treatment becomes available. Because accidents and injuries can occur unpredictably, having basic knowledge of first aid is extremely valuable. This enables a person to offer timely and lifesaving support to those in need during emergencies. The main objective of first aid training is to equip individuals with the knowledge and

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practical skills required to reduce the severity of injuries or illnesses. The first aider is often the initial responder at the scene of an emergency, and in some cases, may be the only person available to help. Therefore, it is crucial for them to stay composed, think clearly, and make sound decisions, even in emotionally charged and stressful situations [1–4].

In everyday life, we often see that when people are injured or fall ill, they are rushed to hospitals or clinics for treatment. However, reaching medical professionals takes time, and during this critical period, providing prompt and proper initial care can not only support recovery but also save lives. In many cases, minor injuries or ailments can be effectively managed with basic first aid, providing the individual with necessary training and awareness [5–7].

This study seeks to enhance knowledge and develop skills among learners through a structured first aid training module. First aid is not limited to assisting victims of major accidents; it also includes comforting an injured person or stabilizing someone until further assistance arrives. In some situations, appropriate first aid can prevent complications or eliminate the need for immediate medical interventions [8, 9].

The fundamental goals of first aid are to sustain and protect life, prevent the worsening of injuries and illnesses, and promote recovery. Globally, the white cross on a green background serves as a universally recognized symbol for first aid [10].

OBJECTIVES

1. To assess pretest knowledge and skill scores regarding first aid management among nursing students.
2. To administer the first aid modules among nursing students.
3. To assess posttest knowledge and skill scores regarding first aid management among nursing students.
4. To evaluate the effectiveness of the first aid module in first aid management by comparing pretest and posttest knowledge and skill scores.

MATERIALS AND METHODS

- *Research approach:* A quantitative approach was employed to assess the effectiveness of the intervention.
- *Research design:* This study utilized a pre-experimental, one-group pretest-posttest design, which allowed a comparison of participants' knowledge and skills before and after the implementation of the first aid module.
- *Research setting:* This study was conducted at the Gian Sagar College of Nursing, located in Ramnagar, Rajpura, Punjab.
- *Target population:* The target population included all nursing students enrolled at the Gian Sagar College of Nursing, Ramnagar, Rajpura, Punjab.

Inclusion Criteria

Participants were included in the study if they

- were willing to participate in the research.
- were present during the data collection period.

Exclusion Criteria

Participants were excluded from the study if they

- declined to participate.
- were absent during the data collection period.

Sample Size

A total of 65 nursing students were selected as the study sample.

Sampling Technique

Participants were selected using a purposive sampling technique, ensuring that they met the inclusion criteria and could provide relevant data for the study.

Development and Description of the Tool

The research instrument consisted of three sections designed to collect data on participants' demographics, knowledge, and skills related to first aid management.

Section A. Demographic Variables

This section gathered baseline information about the participants, including age, sex, and whether they had previously attended any first aid training program. These characteristics helped to understand the background of the respondents and interpret the results more effectively.

Section B. Structured Knowledge Questionnaire

This section contained multiple-choice questions aimed at assessing participants' theoretical knowledge of first aid practices before and after the intervention.

Section C. Objective Structured Clinical Examination (OSCE)

This section evaluates the practical skills of nursing students in performing first aid procedures using a standardized checklist.

SECTION A. DEMOGRAPHIC VARIABLES

The demographic profiles of the participants are shown in Table 1. The majority of the nursing students (95.4%) were aged between 17 and 20 years, while a small proportion (4.6%) were aged between 21 and 24 years. In terms of gender distribution, female students constituted 76.9% of the sample, whereas male students represented 23.1%. None of the participants had attended a first aid training module prior to the intervention; however, following the training, all students (100%) had completed the module, indicating full participation in the post-training program (Figures 1–4).

Table 1. Demographic profile of the study subjects.

Variables	Opt.	Percentage	Frequency
Age in years	Above 25 years	0.0%	0
	25 years	0.0%	0
	21–24 years	4.6%	3
	17–20 years	95.4%	62
Gender	Male	23.1%	15
	Female	76.9%	50
Previously attended any first aid training module (pre)	Yes	0.0%	0
	No	100.0%	65
Previously attended any first aid training module (post)	Yes	100.0%	65
	No	0.0%	0

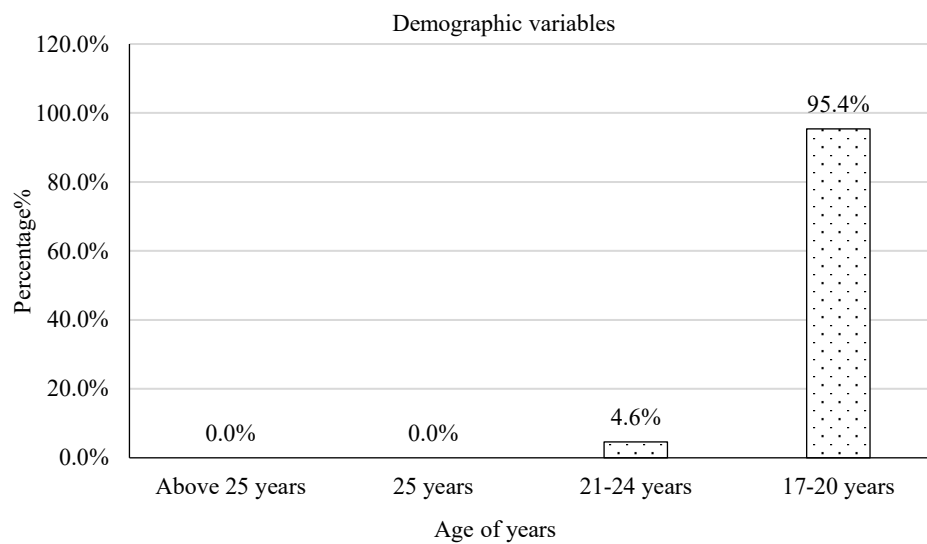


Figure 1. Diagram showing the percentage distribution according to their age in years.

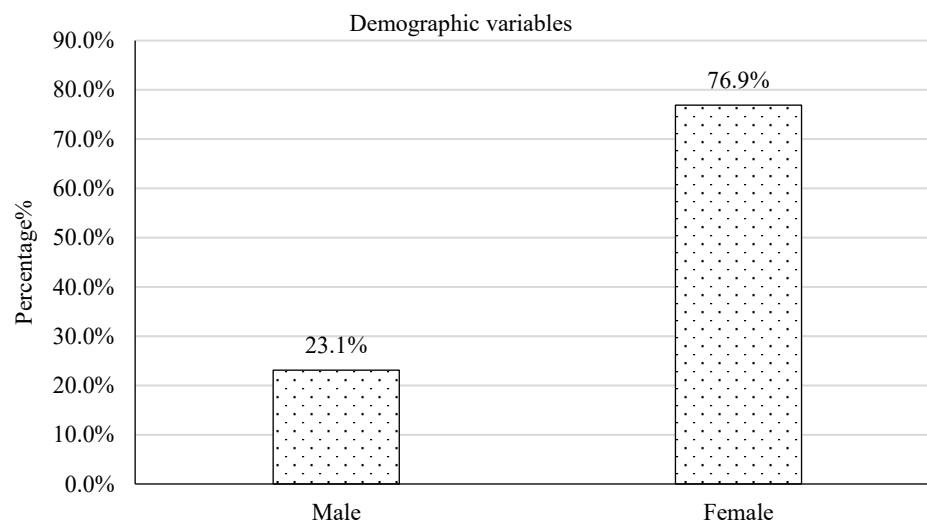


Figure 2. Diagram showing the percentage distribution according to their gender.

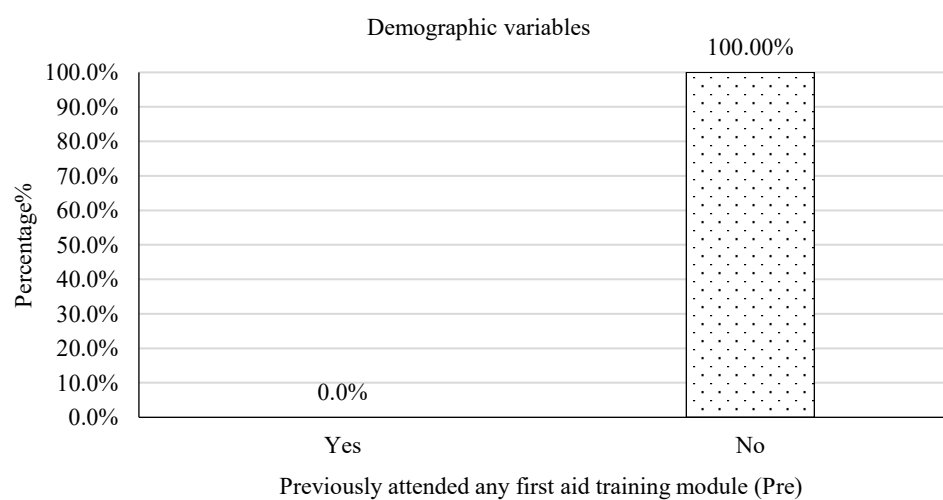


Figure 3. Diagram showing the percentage distribution according to whether they have previously attended any first aid training module (pre).

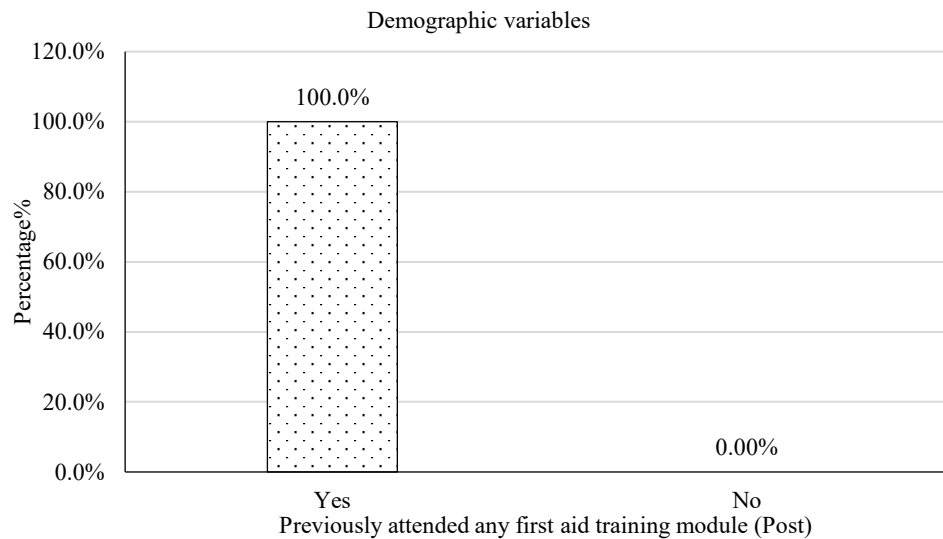


Figure 4. Diagram showing the percentage distribution according to whether they have previously attended any first aid training module (post).

SECTION B. MAIN ANALYSIS AND INTERPRETATION OF DATA

The pretest assessment of the nursing students' knowledge of first aid is shown in Table 2. Before the training intervention, the majority of the participants (86.2%) demonstrated average knowledge, with scores ranging from 10 to 18. A small proportion (12.3%) had poor knowledge, scoring between 0 and 9, while only 1.5% of students achieved good knowledge, with scores between 19 and 27. The pretest scores ranged from a minimum of 0 to a maximum of 27, highlighting the baseline level of understanding among students prior to the training module (Table 2 and Figure 5).

Table 2. Frequency and percentage distribution of pretest level of knowledge.

The criterion measure of pretest knowledge score	
Score level (N= 65)	Pretest F (%)
Poor knowledge (0–9)	8 (12.3%)
Average knowledge (10–18)	56 (86.2%)
Good knowledge (19–27)	1 (1.5%)

Maximum score=27, minimum score=0.

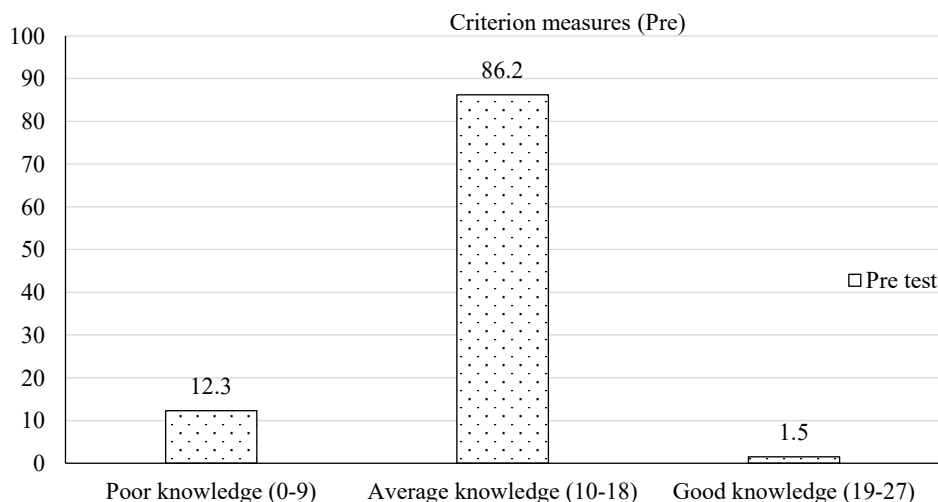


Figure 5. Diagram showing the percentage distribution of pretest knowledge.

Table 3. Descriptive statistics of the pretest level of knowledge.

Descriptive statistics	Mean	SD	Median score	Maximum	Minimum	Range	Mean%
Pretest knowledge	12.85	2.835	13	22	6	16	47.59

Maximum=27, minimum=0.

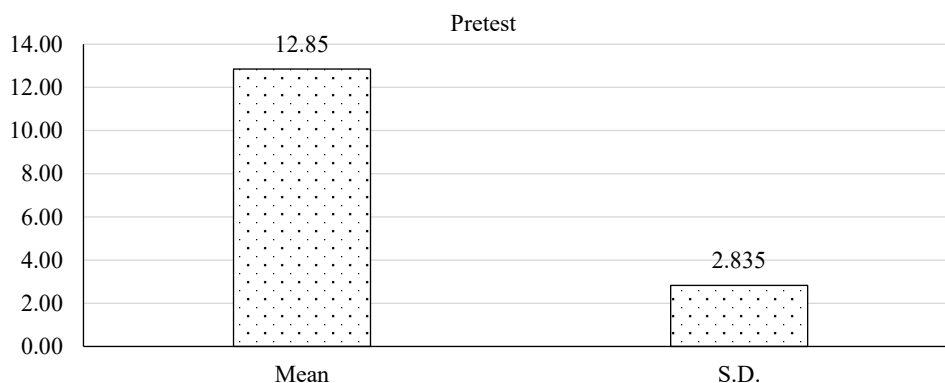


Figure 6. Diagram representing descriptive statistics of the pretest level of knowledge.

Descriptive statistics for the pretest knowledge scores of nursing students are presented in Table 3. The mean pretest knowledge score was 12.85 with a standard deviation of 2.835, indicating moderate variability. The median score was 13, with scores ranging from a minimum of six to a maximum of 22, resulting in a range of 16. The mean percentage score was 47.59%, reflecting that, on average, students had less than half of the total possible knowledge before the training session (Table 3 and Figures 6 and 7).

The posttest assessment of the nursing students’ knowledge of first aid is presented in Table 4. Following the training intervention, none of the participants scored in the poor knowledge range (0–9). The majority of students (61.5%) demonstrated average knowledge, scoring between 10 and 18, while a significant proportion (38.5%) achieved good knowledge, with scores ranging from 19 to 27. The posttest scores ranged from a minimum of 0 to a maximum of 27, indicating notable improvement in knowledge after the training module (Table 4 and Figure 8).

Descriptive statistics for the posttest knowledge scores of nursing students are presented in Table 5. The mean posttest knowledge score increased to 17.35 with a standard deviation of 2.218, indicating moderate improvement and less variability compared to the pretest scores. The median score was 17, with scores ranging from a minimum of 12 to a maximum of 22, resulting in a score range of 10. The mean percentage score rose to 64.26%, demonstrating a significant improvement in knowledge following the first aid training module (Table 5, and Figure 9 and 10).

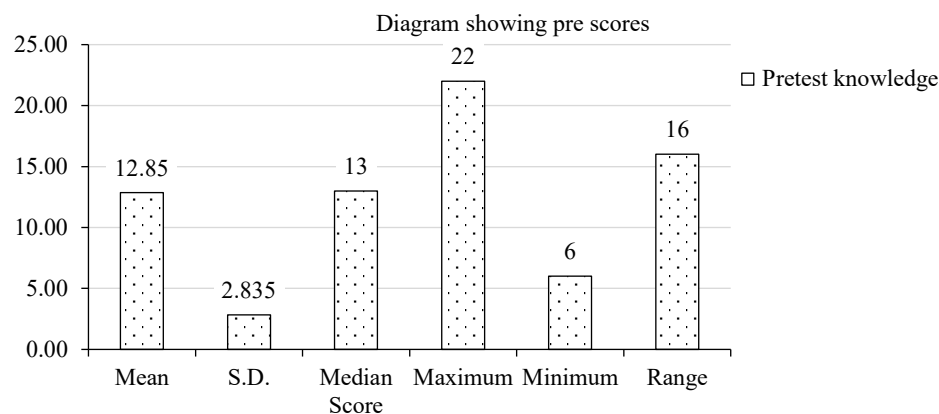


Figure 7. Bar diagram representing descriptive statistics of the pretest level of knowledge.

Table 4. Frequency and percentage distribution of posttest level of knowledge.

The criterion measure of posttest knowledge score	
Score level (N=65)	Posttest F (%)
Poor knowledge (0–9)	0 (0%)
Average knowledge (10–18)	40 (61.5%)
Good knowledge (19–27)	25 (38.5%)

Maximum score=27, minimum score=0.

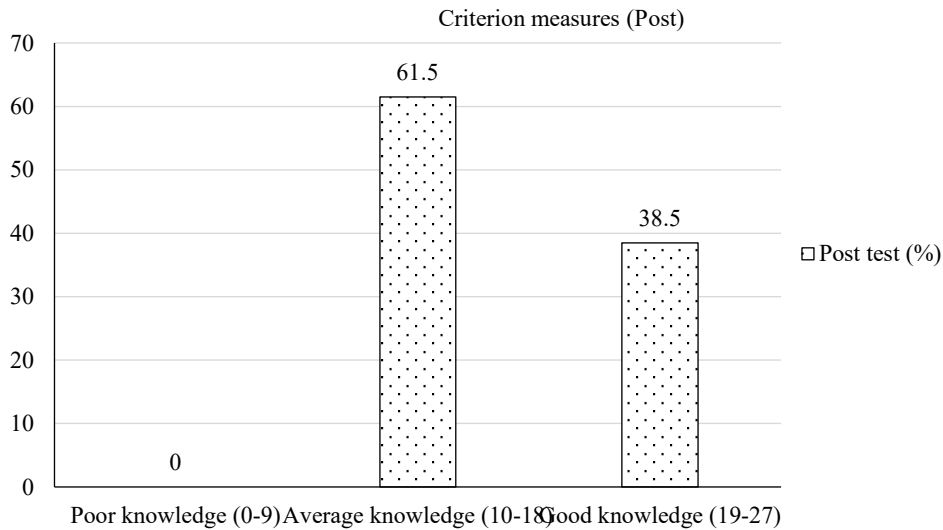


Figure 8. Diagram representing the percentage distribution of posttest level of knowledge.

Table 5. Descriptive statistics of posttest level of knowledge (N=65).

Descriptive statistics	Mean	SD	Median score	Maximum	Minimum	Range	Mean%
Posttest knowledge	17.35	2.218	17	22	12	10	64.26

Maximum=27, minimum=0.

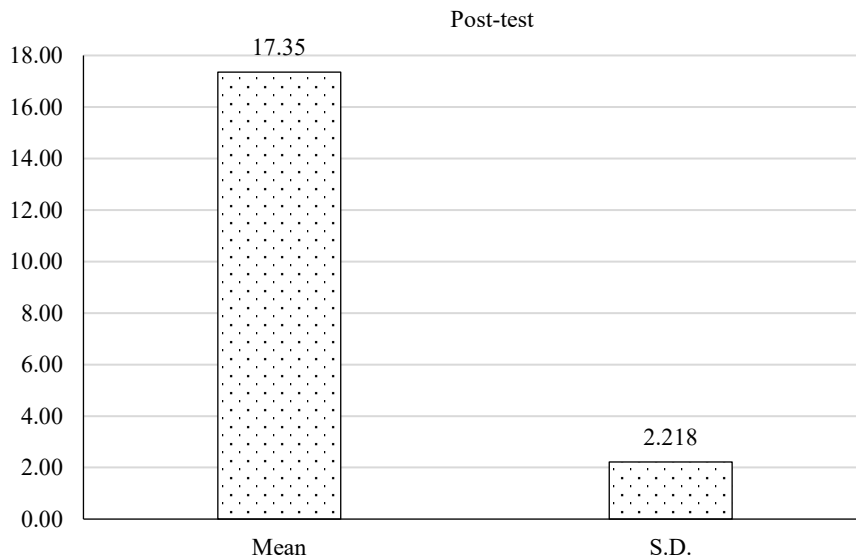


Figure 9. Diagram representing descriptive statistics of posttest level of knowledge.

Table 6 presents a comparison of the frequency and percentage distribution of the pretest and posttest knowledge levels among the participants. Before the intervention, the majority of respondents (86.2%)

had an average level of knowledge, while only 1.5% demonstrated good knowledge and 12.3% had poor knowledge. After the intervention, there was a marked improvement in the knowledge levels. None of the participants remained in the poor knowledge category; 61.5% had an average level of knowledge, and 38.5% achieved a good level of knowledge. This indicates a significant improvement in participants’ knowledge following the educational intervention (Table 6 and Figure 11).

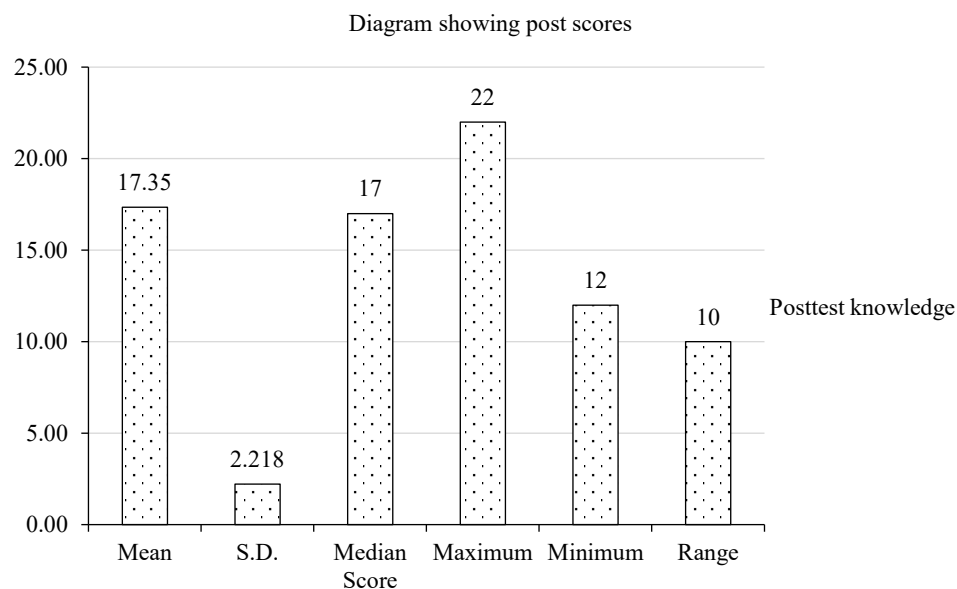


Figure 10. Bar diagram representing descriptive statistics of posttest level of knowledge.

Table 6. Comparison of frequency and percentage distribution of pretest and posttest levels of knowledge.

Criteria Measure of knowledge score		
Score level (N= 65)	Pretest F (%)	Posttest F (%)
Poor knowledge (0-9)	8 (12.3%)	0 (0%)
Average knowledge (10–18)	56 (86.2%)	40 (61.5%)
Good knowledge (19–27)	1 (1.5%)	25 (38.5%)

Maximum score=27, minimum score=0

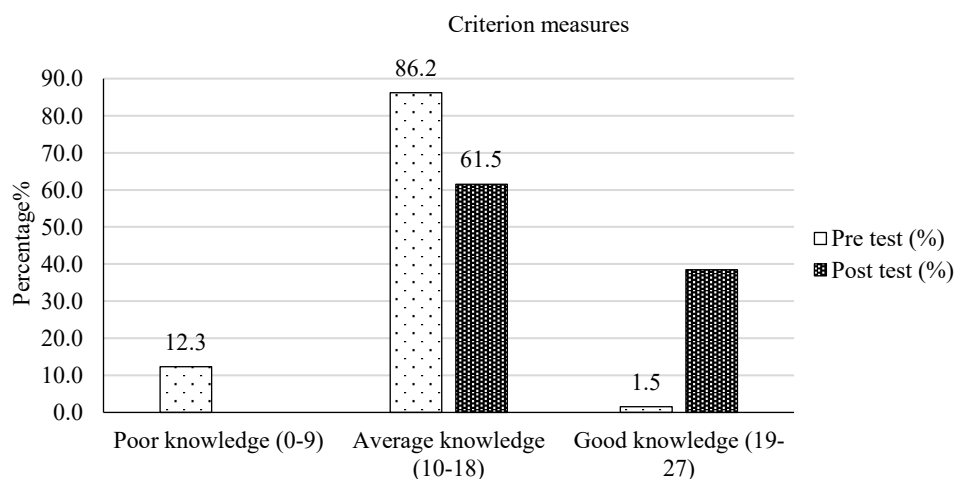


Figure 11. The diagram represents the comparison of the percentage distribution of pretest and posttest levels of knowledge.

Table 7 illustrates a comparison of the descriptive statistics of the pretest and posttest knowledge scores among the participants. The mean pretest knowledge score was 12.85 ± 2.835 , corresponding to a mean percentage of 47.59%, with scores ranging from 6 to 22. Following the intervention, the mean posttest knowledge score increased to 17.35 ± 2.218 , corresponding to 64.26%, with scores ranging from 12 to 22. The calculated mean difference of 4.50 indicates a substantial improvement in knowledge after the intervention. The paired t-test value of 11.164 was greater than the table value of 2.00 at a level of significance of 0.05, with a p-value of <0.001 , confirming that the increase in knowledge scores was statistically significant. Thus, it can be concluded that the educational intervention was effective in enhancing participants' knowledge (Tables 7 and Figures 12–14).

Table 7. Comparison of descriptive statistics of pretest and posttest scores of knowledge (N=65).

Paired T-test	Mean±SD	Mean%	Range	Mean diff.	Paired T-test	P-value	Table value at 0.05
Pretest knowledge	12.85±2.835	47.59	6–22	4.500	11.164 *Sig	<0.001	2.00
Posttest knowledge	17.35±2.218	64.26	12–22				

** Significance level 0.05, maximum=27, minimum=0.

Table 8 depicts the comparison of descriptive statistics of pretest and posttest knowledge scores, illustrating the effectiveness of the educational intervention through individual score gain. The mean pretest knowledge score was 12.85, which increased to 17.35 in the posttest, showing a mean difference of 4.51. In terms of percentage, the mean pretest knowledge score was 47.58%, which improved to 64.27% after the intervention, reflecting an overall increase of 16.70%. This notable gain in mean knowledge scores demonstrates the positive effect of the intervention program on the participants' knowledge levels (Table 8 and Figure 15).

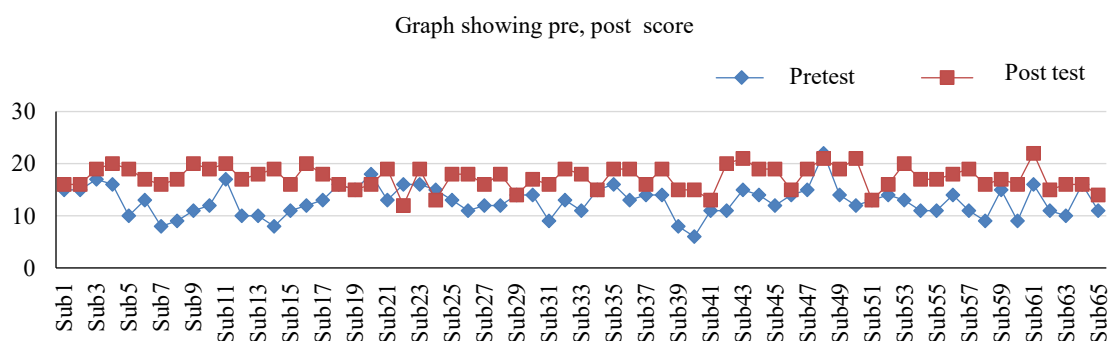


Figure 12. Line diagram showing individual scores.

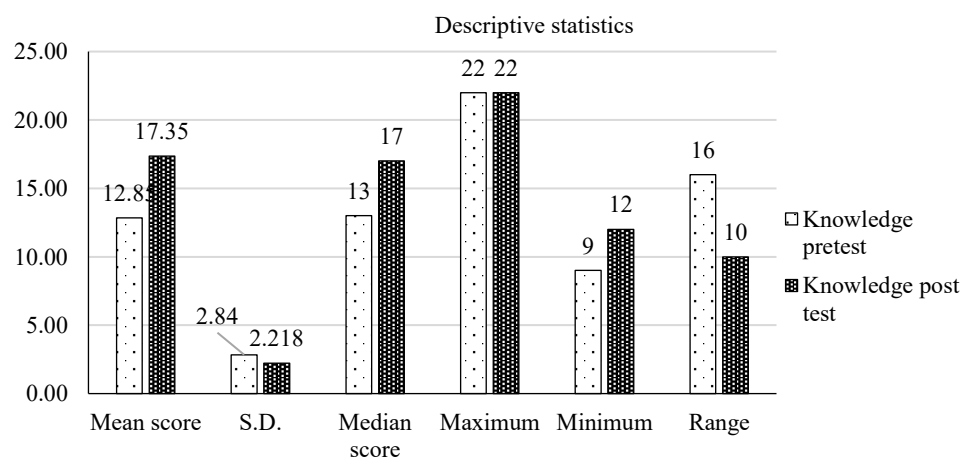


Figure 13. A bar diagram represents the comparison of descriptive statistics of pretest and posttest knowledge scores.

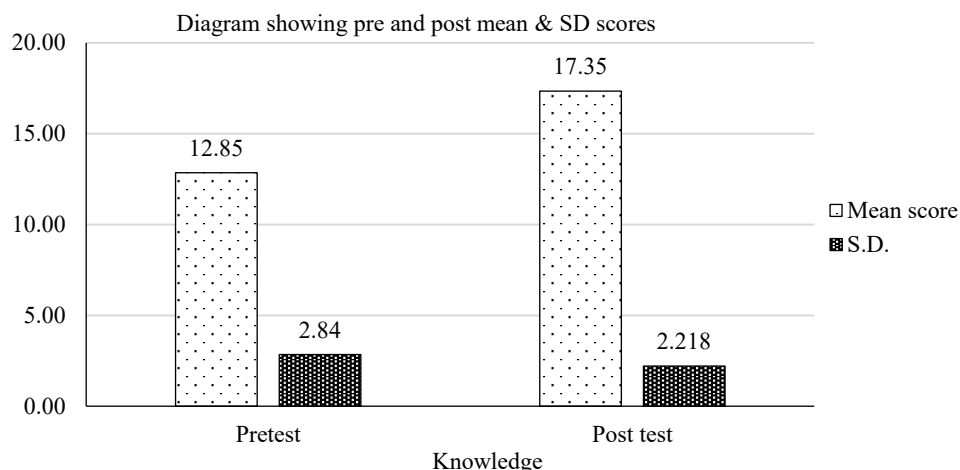


Figure 14. Bar diagram representing the mean and SD of pretest and posttest knowledge scores.

Table 8. Comparison of descriptive statistics of pretest and posttest scores of knowledge.

Diagram showing individual score gain (effectiveness)						
Mean%	Pretest knowledge	Posttest knowledge	Difference	Pretest knowledge score %	Posttest knowledge score %	Difference%
Average	12.85	17.35	4.51	47.58	64.27	16.70

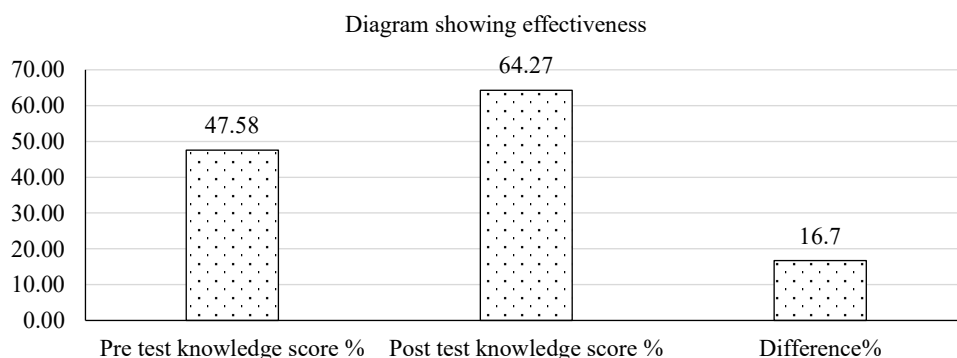


Figure 15. The bar diagram represents the comparison of pretest and posttest levels of knowledge, representing effectiveness.

Table 9 presents the item-wise analysis comparing the pretest and posttest knowledge levels of the participants. The findings revealed an overall improvement in the percentage of correct responses across most items after educational intervention. For instance, the proportion of correct answers increased for items such as Question 1 (from 15.4% to 67.7%), Question 9 (from 41.5% to 78.5%), and Question 15 (from 53.8% to 93.8%). Several items, such as Questions 3, 7, 14, and 18, showed very high posttest scores, exceeding 90%, indicating strong knowledge retention in these areas. However, a few items, such as Questions 19, 24, and 27, exhibited little or no improvement, suggesting areas that may require further reinforcement in future educational sessions. Overall, the item-wise comparison highlighted a marked enhancement in participants’ knowledge following the intervention (Table 9 and Figure 16).

SECTION C. SKILL RESULT

Table 10 illustrates the frequency and percentage distribution of the pretest skill scores among the study participants. The findings indicated that the majority of respondents (87.7%) possessed an average level of skill prior to the intervention. Only 7.7% demonstrated good skills, while 4.6% of participants fell into the poor skill category. These results suggest that most participants had a moderate level of skill before the implementation of the training program, indicating a need for further improvement through skill-enhancement activities (Table 10 and Figure 17).

Table 9. Item-wise analysis represents the comparison of the pretest and posttest levels of knowledge.

Item-wise analysis	Pre-correct (%)	Post-correct (%)	Pre-correct (F)	Post-correct (F)
Q. no. 1	15.4%	67.7%	10	44
Q. no. 2	47.7%	69.2%	31	45
Q. no. 3	81.5%	100.0%	53	65
Q. no. 4	38.5%	63.1%	25	41
Q. no. 5	49.2%	69.2%	32	45
Q. no. 6	78.5%	87.7%	51	57
Q. no. 7	81.5%	93.8%	53	61
Q. no. 8	73.8%	89.2%	48	58
Q. no. 9	41.5%	78.5%	27	51
Q. no. 10	13.8%	40.0%	9	26
Q. no. 11	44.6%	55.4%	29	36
Q. no. 12	10.8%	41.5%	7	27
Q. no. 13	58.5%	73.8%	38	48
Q. no. 14	81.5%	95.4%	53	62
Q. no. 15	53.8%	93.8%	35	61
Q. no. 16	16.9%	21.5%	11	14
Q. no. 17	40.0%	80.0%	26	52
Q. no. 18	81.5%	95.4%	53	62
Q. no. 19	26.2%	18.5%	17	12
Q. no. 20	24.6%	24.6%	16	16
Q. no. 21	55.4%	66.2%	36	43
Q. no. 22	83.1%	93.8%	54	61
Q. no. 23	35.4%	66.2%	23	43
Q. no. 24	27.7%	23.1%	18	15
Q. no. 25	83.1%	86.2%	54	56
Q. no. 26	27.7%	32.3%	18	21
Q. no. 27	12.3%	9.2%	8	6

Item wise analysis (PRE/POST scores)

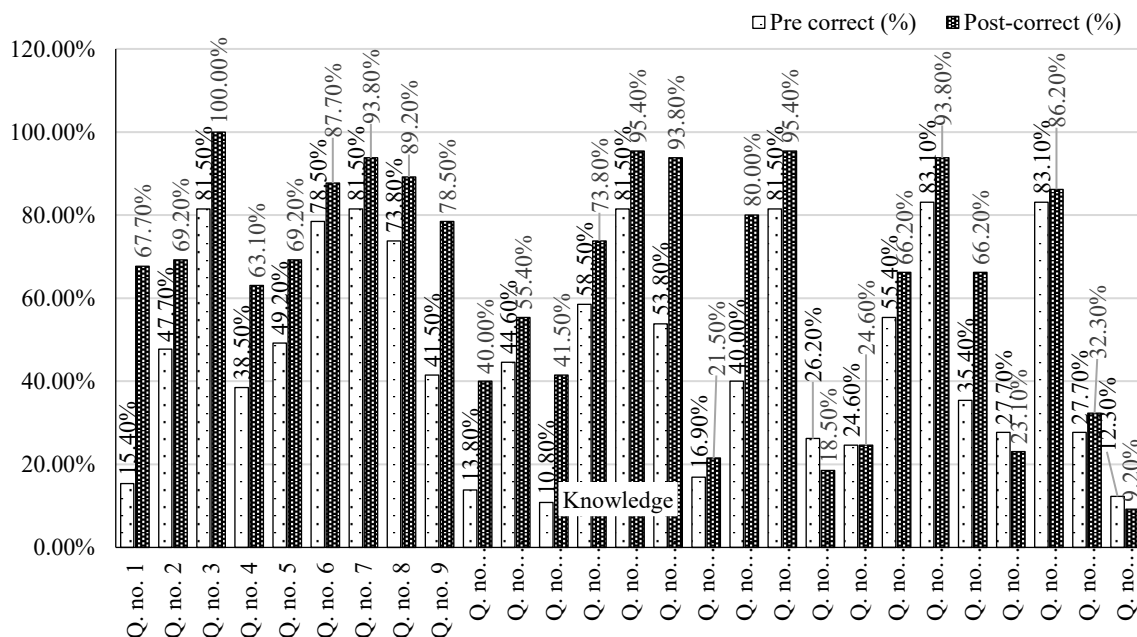


Figure 16. Bar diagram representing item-wise analysis representing the comparison of pretest and posttest levels of knowledge.

Table 10. Frequency and percentage distribution of pretest level of skill score of study subjects.

The criterion measure of pretest skill score	
Score level	Pretest (%)
Poor skill (0–12)	3 (4.6%)
Average skill (13–24)	57 (87.7%)
Good skill (25–37)	5 (7.7%)

Maximum Score=37 Minimum Score=0

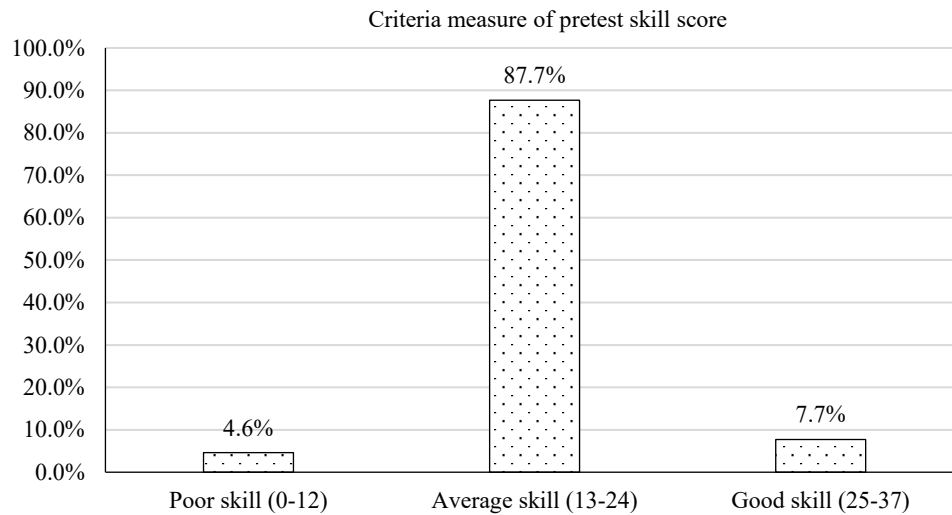


Figure 17. Diagram showing the percentage distribution of pretest skill score.

Table 11. Descriptive statistics of pretest skill scores of study participants.

Descriptive statistics	Mean	SD	Median score	Maximum	Minimum	Range	Mean%
Pretest skill	19.71	3.556	20	27	11	16	53.27

Table 12. Frequency and percentage distribution of posttest level of skill score.

Criteria measure of posttest skill score	
Score level	Posttest F (%)
Poor skill (0–12)	0 (0%)
Average skill (13–24)	10 (15.38%)
Good skill (25–37)	55 (84.62%)

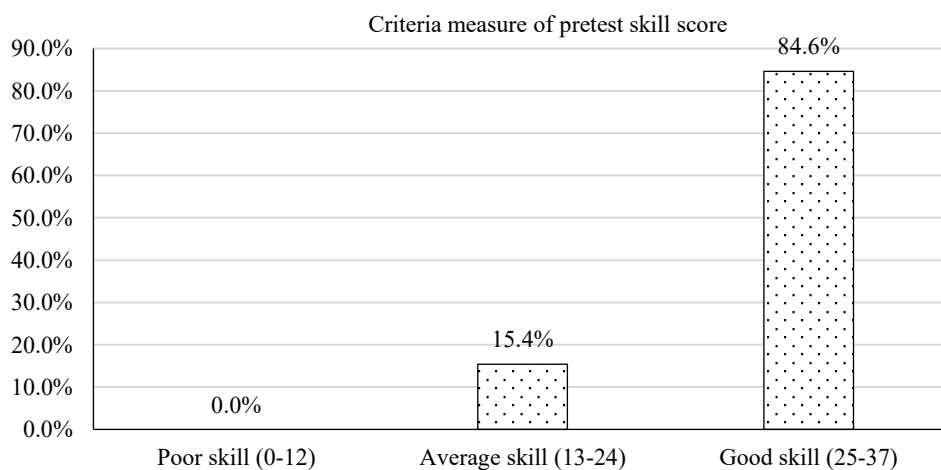


Figure 18. The bar diagram shows the posttest skill score.

Table 13. Descriptive statistics of posttest level of skill

Descriptive statistics	Mean	SD	Median score	Maximum	Minimum	Range	Mean%
Posttest skill	27.57	2.888	28	34	22	12	74.51

Table 14. Comparison of descriptive statistics of pretest and posttest Scores of skills of study subjects.

Paired T-test	Mean±SD	Mean%	Range	Mean diff.	Paired T-test	P-value	Table value at 0.05
Pretest knowledge	19.71±3.556	53.27	11-27	7.86	17.95*Sig	<0.001	2.00
Posttest knowledge	27.57±2.888	74.51	22-34				

**Significant 0.05, maximum =37, minimum=0.

Table 11 presents descriptive statistics of the pretest skill scores of the study participants. The mean pretest skill score was 19.71 with a standard deviation of 3.556; the median score was 20. The scores range from a minimum of 11 to a maximum of 27, resulting in a range of 16. The mean percentage score was 53.27%, indicating that participants demonstrated a moderate level of skill before the intervention. These results suggest that, while most participants possessed some foundational skills, there was considerable scope for improvement through targeted training (Table 11).

Table 12 presents the frequency and percentage distribution of the posttest skill scores among the study participants. The results revealed a marked improvement in skill performance after the intervention. The majority of participants (84.62%) demonstrated a good level of skill in the posttest, while 15.38% exhibited an average level of skill. Notably, none of the participants fell into the poor skill category after the intervention. These findings clearly indicate that the training program was effective in enhancing participants' skill levels (Table 12 and Figure 18).

Table 13 presents the descriptive statistics of the posttest skill scores of the study participants. The mean posttest skill score was 27.57 with a standard deviation of 2.888; the median score was 28. The scores ranged from 22 to 34, yielding a range of 12. The mean percentage score was 74.51%, indicating substantial improvement in skill performance following the intervention. These findings suggest that the training program was highly effective in enhancing the practical skill levels of participants (Table 13).

Table 14 presents a comparison of the descriptive statistics of pretest and posttest skill scores. The mean pretest skill score of 19.71±3.556 (mean percentage 53.27%) increased to 27.57±2.888 (mean percentage 74.51%) after the intervention, showing a mean difference of 7.86. The calculated paired t-value of 17.95 was higher than the table value of 2.00 at a significance level of 0.05, with a p-value of <0.001, confirming that the difference between pretest and posttest scores was statistically significant. Hence, the results indicate that the intervention program was effective in significantly improving participants' skill levels (Table 14).

CONCLUSIONS

Based on the study findings, it was concluded that the first aid training module significantly improved the knowledge and practical skills of nursing students in managing emergencies. The program effectively equipped them with the essential competencies required to provide timely and appropriate first aid, thereby contributing to an enhanced quality of patient care and better health outcomes.

Recommendations

- A similar study can be done with a control group.
- A longitudinal study can be conducted using a posttest after one month, six months, and one year to see the retention of knowledge.
- Similar studies should focus on a larger sample size and include different nursing institutions to validate the generalizability of the findings.

- A comparative study can be conducted between two different teaching methods.
- A cluster sampling technique should be considered for research that includes different groups of nursing students.

Financial Support and Sponsorship

No

Conflict of Interest

There is no conflict of interest.

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