



EFFECT OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AND PRACTICE REGARDING SURGICAL ASEPSIS AMONG NURSING STUDENTS

Ms. Amanda Kharsamai¹, Prof (Dr) Manashi Sengupta²

M.Sc Nursing Student, Dean, Faculty of Nursing, Assam down town University

Medical Surgical Nursing

Faculty of Nursing, Assam down town University, Guwahati, India

ABSTRACT:

Introduction: Asepsis is freedom from infection or prevention of contact with micro-organisms. Surgical asepsis is a set of specific practices and procedures performed under carefully controlled conditions, with the goal of minimizing contamination by pathogens. It employs to maximize and maintain asepsis and protects the patients from infection preventing the spread of pathogens. [1] **Objectives:** 1) To assess the level of pre-test knowledge regarding surgical asepsis among 3rd year B.Sc Nursing students. 2) To find out the effectiveness of structured teaching programme on knowledge regarding surgical asepsis among 3rd year B.Sc Nursing students. 3) To assess the level of pre-test practice regarding surgical asepsis among 3rd year B.Sc Nursing students. 4) To find out the effectiveness of structured teaching programme on practice regarding surgical asepsis among 3rd year B.Sc Nursing students. 5) To find out the correlation between knowledge and practice regarding surgical asepsis among 3rd year B. Sc. Nursing students. 6) To determine the association of pre-test knowledge score and practice score with selected demographic variables. **Materials and Method:** The research approach and design adopted for this study is quantitative pre-experimental one group pre-test post-test design. The study was conducted at Faculty of Nursing, AdtU among 3rd year B. Sc Nursing students. 57 nos. of 3rd year B. Sc. Nursing students were selected by using non-probability purposive sampling technique. The tools used were socio-demographic proforma to collect baseline data and Self-structured knowledge questionnaire (total no. of items were 20) and an observational checklist to assess knowledge and practice regarding surgical asepsis. Descriptive and Inferential statistics were used to analyse data. The frequency and percentage were calculated to assess the knowledge and practice of the students. **Results:** Results revealed that 46 (80.70%) had average knowledge and 11 (19.30%) had good knowledge whereas in the post test after the Structured teaching Programme, 52 (91.23%) had good knowledge and 5 (8.77%) had average knowledge regarding surgical asepsis. 54 (94.74%) had moderate practice, 2 (3.51%) had poor practice and 1 (1.75%) had good practice and in the post test after the Structured teaching Programme, 54 (94.74%) had good practice and 3 (5.26%) had moderate practice regarding the two aspects of surgical asepsis. The pre-test mean score of knowledge among the 3rd year B.Sc Nursing students was 12.85±1.94 and the post test mean score of knowledge was 16.59±1.54 using paired 't' test ($t = 15.867$ at $p < 0.001$, $t = 21.731$ at $p < 0.001$). **Conclusion:** Structured teaching programme was found to be effective in improving the students' knowledge which ultimately improves their practice in surgical asepsis.

Keywords: Effectiveness, Structured teaching programme, surgical asepsis, 3rd year B.Sc. Nursing students

INTRODUCTION

The goal of aseptic technique is to protect the patient by preventing or minimizing postoperative infection through creating conditions and following procedures to prevent the introduction of microbial contamination into the sterile fields, sterile equipment and the operative site. The nurse as a member of the health care team leads the rest of the team in practicing prevention strategies to protect the patient from infection. Some of the most basic strategies resulting in positive patient outcomes include; the practice and promotion of hand hygiene, consistent use of aseptic techniques, cleaning and disinfection practices. [2] Surgical aseptic procedures are used to keep objects or areas sterile or completely free from micro-organisms. Surgical asepsis is a 'Sterile Technique'. [3] Over the years, approaches to teaching and assessing aseptic techniques have changed greatly in every part of the world and India is no exception, which had broadened the changes in nursing education. The effectiveness of infection control practices depends on nursing student's conscientiousness and consistency in using effective aseptic technique. It is human nature to forget key procedural steps, or when hurried, to take short cuts that break aseptic procedures. However, failure to comply with basic procedures places the client at risk for an infection that can seriously impair recovery or lead to death. Regular audits of aseptic techniques and education are needed to improve care. [4]

Pachori, (2018) conducted a descriptive study to assess the knowledge regarding aseptic techniques among 3rd year GNM students of Manikaka Topawala Institute, the findings showed that there was a significant association between age in years, attained training programs, gender, and source of health information about aseptic techniques.[1]

OBJECTIVES OF THE STUDY

1. To assess the level of pre-test knowledge regarding surgical asepsis among 3rd year B.Sc Nursing students.
2. To find out the effectiveness of structured teaching programme on knowledge regarding surgical asepsis among 3rd year B.Sc Nursing students.
3. To assess the level of pre-test practice regarding surgical asepsis among 3rd year B.Sc Nursing students.
4. To find out the effectiveness of structured teaching programme on practice regarding surgical asepsis among 3rd year B.Sc Nursing students.
5. To find out the correlation between knowledge and practice regarding surgical asepsis among 3rd year B. Sc. Nursing students.
6. To determine the association of pre-test knowledge score and practice score with selected demographic variables

MATERIAL AND METHOD

A pre-experimental one-group pre-test post-test design was used for the study. 57 nos. of 3rd year B.Sc. Nursing students studying in Faculty of Nursing, Assam down town University were taken as the sample for the study from 20th February 2023 to 18th March 2023. Formal consent and permission from the authorities of Assam down town University was taken prior to the data collection procedure. The tools used for the study was a demographic proforma, a Structured knowledge questionnaire (Total no. of items were 20 questions) and a practice checklist of surgical hand-scrubbing and open gloving. Differential and Inferential statistics were used to analyse the data. The frequency and percentage were calculated to assess the knowledge and practice of the students.

RESULTS AND DISCUSSION

Section A: Description of the demographic variables of the students

Table 1: Distribution of demographic variables of 3rd year B.Sc. Nursing students.

Sl. No.	Demographic Variables	Frequency (f)	Percentage (%)
1.	Age in years		
	19 -20	19	33.3
	21-22	33	57.9
	23-24	5	8.8
2.	Gender		
	Male	10	17.5
	Female	47	82.5
3.	Previous Knowledge		
	Nursing curriculum	57	100.0
	Previous exposure to OT	-	-
	Media	-	-
	Patient care activities in the hospital	-	-

The table 1 shows the frequency and percentage distribution of demographic variables 3rd year B.Sc. Nursing students. The table shows that with regard to age, 19(33.3%) were aged 19 to 20 years, 33 (57.9%) were aged 21 to 22 years and 5(8.8%) were aged 23-24 years. Considering the gender, 47(82.5%) were female and 10(17.5%) were male. Regarding the previous knowledge all 57(100%) had previous knowledge through nursing curriculum.

Section B

Description of knowledge and practice regarding surgical asepsis

Table 2: Frequency and percentage distribution of pretest and post test level of knowledge regarding surgical asepsis among 3rd year B.Sc. Nursing students.

Level of Knowledge	Pretest		Post Test	
	No.	%	No.	%
Poor (≤ 7)	-	-	-	-
Average (8 – 14)	46	80.70	5	8.77
Good (15 – 20)	11	19.30	52	91.23

The table 2 shows the frequency and percentage distribution of level of knowledge regarding surgical asepsis among 3rd year B.Sc. Nursing students in the pretest 46(80.70%) had average knowledge and 11(19.30%) had good knowledge whereas in the post after the STP, 52(91.23%) had good knowledge and 5(8.77%) had average knowledge.

Table 3: Frequency and percentage distribution of pretest and post test level of practice regarding surgical asepsis among 3rd year B.Sc. Nursing students.

Practice Domains	Level of Practice	Pretest		Post Test	
		f	%	f	%
Surgical Hand Scrubbing	Poor Practice ($\leq 50\%$)	2	3.51	-	-
	Moderate Practice (51 – 75%)	55	96.49	1	1.75
	Good Practice ($>75\%$)	-	-	56	98.25
Open Gloving	Poor Practice ($\leq 50\%$)	14	24.56	-	-
	Moderate Practice (51 – 75%)	37	64.91	11	19.30
	Good Practice ($>75\%$)	6	10.53	46	80.70
Overall Practice	Poor Practice ($\leq 50\%$)	2	3.51	-	-
	Moderate Practice (51 – 75%)	54	94.74	3	5.26
	Good Practice ($>75\%$)	1	1.75	54	94.74

The table 3 depicts the overall level of practice in the pretest to be, 54(94.74%) had moderate practice, 2(3.51%) had poor practice and 1(1.75%) good practice and in the post test after the intervention of STP, 54(94.74%) had good practice and 3(5.26%) had moderate practice.

Section C

Effect of structured teaching programme on knowledge and practice regarding surgical asepsis.

Knowledge	Mean	S.D.	Mean Difference Score	't' test value	df	'p' value	Inference		
Pretest	12.85	1.94	3.73	15.867	56	0.0001	S***		
Post Test	16.59	1.54							
Practice	Pre test		Post test		Mean Difference Score	't' test value	df	'p' value	Inference
	Mean	S.D	Mean	S.D					
Surgical Hand Scrubbing	10.92	1.04	14.24	1.03	3.32	21.731	56	0.0001	S***

Open Gloving	8.56	1.28	11.66	1.38	3.10	16.477		0.0001	S***
Overall Practice	19.49	1.79	25.91	1.92	6.42	25.282		0.0001	S***

*** $p < 0.001$, S – Significant

The table 4 shows that the mean score of knowledge among 3rd year B.Sc. Nursing students was 12.85 ± 1.94 and the post test mean score of knowledge was 16.59 ± 1.54 . The mean difference score was 3.73. The calculated paired 't' test value of $t = 15.867$ was found to be statistically significant at $p < 0.001$ level. The mean score of overall practice on surgical asepsis among 3rd year B.Sc. Nursing students was 19.49 ± 1.79 and the post test mean score of practice was 25.91 ± 1.92 . The mean difference score was 6.42. The calculated paired 't' test value of $t = 25.282$ was found to be statistically significant at $p < 0.001$ level. These findings clearly infer that administration of Structured Teaching Programme on practice regarding surgical asepsis among 3rd year B.Sc. Nursing students was found to be effective in improving their level of knowledge and practice in the post test.

Section D

Correlation between pre-test and post-test knowledge and practice regarding surgical asepsis.

Test	Variables	Mean	S.D.	'r' value	df	'p' value	Inference
Pretest	Knowledge	12.85	1.94	0.423	56	0.001	S***
	Practice	19.49	1.79				
Post Test	Knowledge	16.59	1.54	0.511	56	0.0001	S***
	Practice	25.91	1.92				

*** $p \leq 0.001$, S – Significant

The table 5 shows that the calculated Karl Pearson's Correlation Value of $r = 0.511$ shows a substantial positive correlation between knowledge and practice scores which infers that there was a significantly positive correlation between knowledge and practice regarding surgical asepsis and that the administration of STP on knowledge and practice regarding surgical asepsis among 3rd year B.Sc. Nursing students was found to be effective in improving the level of knowledge in the post test which ultimately improves their post test level of practice.

Section E

Association of pretest level of knowledge and practice regarding surgical asepsis among 3rd year B.Sc. Nursing students with their selected demographic variables.

Demographic variables	χ^2 value	df	'p' value	Inference
Knowledge				
Age	0.229	2	0.891	N.S
19-20				
21-22				
23-24				
Gender	0.004	1	0.951	N.S
Male				
Female				
Practice				
Age	0.814	4	0.936	N.S
19-20				
21-22				
23-24				
Gender	1.698	2	0.428	N.S
Male				
Female				

NS – Not Significant

The table 6 shows that the demographic variables had not shown statistically significant association with pretest level of knowledge and practice regarding surgical asepsis among 3rd year B.Sc. Nursing students with their selected demographic variables and therefore the research hypothesis was rejected.

- 1) The mean pre-test and post-test knowledge scores of the respondents was 12.85 ± 1.94 and 16.59 ± 1.54 respectively.
- 2) The mean pre-test practice scores on surgical hand scrubbing was 10.92 ± 1.04 and pre-test mean score on open gloving was 8.56 ± 1.28 whereas the post-test scores were 14.24 ± 1.03 on surgical hand scrubbing and 11.66 ± 1.38 on open gloving.
- 3) The administration of Structured Teaching Programme on knowledge and practice regarding surgical asepsis was found to be statistically significant at $p < 0.001$ level.
- 4) There was a significantly positive correlation between knowledge and practice with $p < 0.001$ level.
- 5) The demographic variables had not shown statistic significant association with the pre-test and post-test levels of knowledge and practice.

The present study was designed to assess the knowledge and practice regarding surgical asepsis. The research design adopted for the study was One group Pre-test Post-test design. Non- probability purposive sampling technique was used to select 57 students for the study. The data collected were analysed statistically and discussed based on the objectives.

The first objective of the study was to assess the level of pre-test knowledge regarding surgical asepsis among 3rd year B.Sc Nursing students.

The findings of the present study revealed that in the pre-test, 46 (80.70%) had average knowledge and 11 (19.30%) had good knowledge whereas in the post test after the Structured teaching Programme, 52 (91.23%) had good knowledge and 5 (8.77%) had average knowledge regarding surgical asepsis.

The present study is supported by a study conducted by Pankaj D L, Sunita T, Simi E P, Hamid M (2019) to assess the effectiveness of planned teaching programme on knowledge regarding the importance of aseptic techniques in terms of pre-test. The study was conducted at Krishna Hospital, Karad on 60 junior staff nurses who were selected by simple random sampling. The results shows pre-test mean score was 7.83 with SD of 0.784 and post-test mean score of 13.9 and SD of 0.543. The mean difference was 6.117 and calculated 't' value was 51.183 which is statistically significant at level of $p < 0.001$. The study concluded that planned teaching programmed was effective in improving knowledge regarding the importance of aseptic techniques. [5]

The second objective was to find out the effectiveness of structured teaching programme on knowledge regarding surgical asepsis among 3rd year B.Sc Nursing students.

The pre-test mean score of knowledge among the 3rd year B.Sc Nursing students was 12.85 ± 1.94 and the post test mean score of knowledge was 16.59 ± 1.54 . The mean difference score was 3.73. The calculated paired 't' test value of $t = 15.867$ was found to be statistically significant at $p < 0.001$ level. This clearly infers that the administration of Structured Teaching Programme on knowledge regarding surgical asepsis was found to be effective in increasing the level of knowledge among 3rd year B.Sc Nursing students.

A similar study was conducted by Kalyani V, Rajini, (2016) to assess the effectiveness of structured teaching program on level of knowledge regarding infection control practices among staff nurse working in critical care units of Shir Mahant Indiresch Multispeciality Hospital, Dehradun. The overall pre test and post test mean knowledge was found to be 31.46 and 43.56% respectively indicating the enhancement knowledge as 12% paired 't' test shows statistical significance at 5% level ($p < 0.05$) shows there is a strong association between the pre and post test level of knowledge of experimental group that establishes the impact of structured teaching programme on infection control practices among staff nurses. [6]

The third objective was to assess the level of pre-test practice regarding surgical asepsis among 3rd year B.Sc Nursing students.

In the present study the findings revealed that 54 (94.74%) had moderate practice, 2 (3.51%) had poor practice and 1 (1.75%) had good practice and in the post test after the Structured teaching Programme, 54 (94.74%) had good practice and 3 (5.26%) had moderate practice regarding the two aspects of surgical asepsis.

The present study is supported by a study conducted by Jayanthi V, Indira A, Latha P (2019) to assess the practice regarding surgical asepsis among working nurses in Narayana General Hospital, Nellore, Andhra Pradesh. Convenience sampling method was used and 100 staff nurses were selected. The results showed that the level of practice among staff nurses were, 10 (10%) of them had good practice, 80 (80%) of them had moderate practice and 10 (10%) had poor practice. The study concluded that there is an immense need to implement an educational programme for all staff nurses regarding surgical asepsis. [7]

The fourth objective was to find out the effectiveness of structured teaching programme on practice regarding surgical asepsis among 3rd year B.Sc Nursing students.

The pre test mean score of practice on surgical hand scrubbing among 3rd year B.Sc. Nursing Students was 10.92 ± 1.04 and the pre test mean score of practice on open gloving among 3rd year B.Sc. Nursing Students was 8.56 ± 1.28 . The mean score of overall practice on surgical asepsis among 3rd year B.Sc. Nursing Students was 19.49 ± 1.79 . The post test mean score of practice on surgical hand scrubbing was 14.24 ± 1.03 . The mean difference score was 3.32. The calculated paired 't' test value of $t = 21.731$ was found to be statistically significant at $p < 0.001$ level. The post test mean score of practice on open gloving was 11.66 ± 1.38 . The

mean difference score was 3.10. The calculated paired 't' test value of $t=16.477$ was found to be statistically significant at $p<0.001$ level. The post test mean score of overall practice on surgical asepsis among 3rd year B.Sc. Nursing Students was 25.91 ± 1.92 . The mean difference score was 6.42. The calculated paired 't' test value of $t=25.282$ was found to be statistically significant at $p<0.001$ level which clearly infers that the administration of Structured Teaching Programme on practice regarding surgical asepsis was found to be effective in increasing the level of practice among 3rd year B.Sc Nursing students.

The present study is supported by a study conducted by Audah H R, Hassan H S (2022) to evaluate the effectiveness of an interventional program on nurses' practices about aseptic techniques in operating room at Al-Diwaniya Teaching Hospital. A quasi experimental design was used and the sampling technique was purposive sample technique comprising of 60 nurses who had been working in the OT. The nurses were divided into two groups, study and control group. The study showed highly significant differences between pre-test and post-test of study group at $p<0.01$ for overall total nurses' practices concerning aseptic techniques in operating room. this means there are high level of improvement in nurses' practice for study group between pre-test and post-test interventional program about aseptic techniques in operating room. [8]

The fifth objective was to find out the correlation between knowledge and practice regarding surgical asepsis among 3rd year B. Sc. Nursing students.

In the present study the pretest mean score of knowledge was 12.85 ± 1.94 and the pretest mean score of practice was 19.49 ± 1.79 . The post test mean score of knowledge was 16.59 ± 1.54 and the post test mean score of practice was 25.91 ± 1.92 . The calculated Karl Pearson's Correlation Value of $r = 0.423, 0.511$ which shows a substantial positive correlation between knowledge and practice scores.

The present study is supported by a study conducted by Adewunmi M C, Salawu R A (2021) to study the outcome of nurse-led intervention on knowledge and practice of aseptic technique among surgical nurses in two teaching hospitals in Lagos state, Nigeria. Quasi experimental design was used and a sample size of 129 was selected by simple random technique. The pre-intervention mean scores level of knowledge in both the groups were 27.009 (54.02%) and 26.511 (53.02%). The pre-interventional mean level of practice in both groups was 7.432 (53.09%) and 7.507 (53.62%), which signified that the practice level in both groups was below average. The post interventional level of knowledge in both the groups were 43.8.7 (87.61%) and 26.461 (52.92%). The difference observed in the mean scores of the participants in the experimental and control groups could be as a result of the intervention given to the experimental group. [9]

The sixth objective was to determine the association of pre-test knowledge score and practice score with selected demographic variables

The demographic variables age, gender and source of previous knowledge has not shown statistically significant association with the pre-test level of knowledge and practice regarding surgical asepsis among 3rd year B.Sc. Nursing students. The present study is supported by a study conducted by Priyanka, Tamil S, Rachna M (2019) to assess the knowledge and practices of staff nurses regarding aseptic technique during normal vaginal delivery at selected government hospitals of Haryana. The non-experimental descriptive design was used. Non-probability convenience sampling technique was utilized where 60 staff nurses were selected. The demographic variables of the study were age, marital status, professional qualification, total clinical experience and experience in midwifery. The association of assessed knowledge with the demographic variable value of age was $\chi^2 = 1.540$ at p value 0.463 which was not significant, thus showing no association between knowledge and age. [10]

CONCLUSION

The present study was conducted to assess the effectiveness of structured teaching programme on knowledge and practice regarding surgical asepsis among 3rd year B. Sc. Nursing students in a selected Nursing college, Guwahati, Assam. The findings revealed that the administration of structured teaching programme on knowledge and practice regarding surgical asepsis among 3rd year B.Sc Nursing Students was found to be effective in improving their level of knowledge and practice in the post test. If we include the knowledge and practice of surgical asepsis as a crucial factor in the Nursing Curriculum as well as among the staff especially emphasizing its practice and maintenance will help in the improvement of health and prevention of infection.

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