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Effectiveness Of Structured Teaching Program On Knowledge Regarding Selected Surgical Instruments Among Third Semester B.Sc Nursing Students In Selected Nursing Institutions : A Quasi Experimental Study.

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ABSTRACT

Introduction: *A surgical instrument is a medical device used for performing specific actions or achieving desired effects during a surgery or operation, such as modifying biological tissue or providing access for viewing it. Over time, many kinds of surgical instruments and tools have been invented. Some are designed for general use in various surgeries, while others are meant for specific specialties or procedures. Surgical instruments enable surgeons to open soft tissue, remove bone, dissect, isolate lesions, and treat or remove abnormal structures.*

Methodology: *The study evaluated the knowledge of selected surgical instruments among third-semester B.Sc. Nursing students using a quasi-experimental one-group pre-test and post- test design. Study is conducted in selected nursing institutions, the study involved 60 students chosen through non-probability purposive sampling. A self-administered questionnaire consisting of demographic data and 30 knowledge-based questions was used for data collection.*

Results: *In the pre-test, 28 (46.67%) students had good knowledge, 26 (43.33%) had average knowledge, and 6 (10%) had poor knowledge. The mean score was 11.11±3.58. After the structured teaching program, post-test results showed 49 (81.67%) had good knowledge, 5 (8.33%) had very good knowledge, and 6 (10%) had excellent knowledge. The post-test mean score increased to 22±2.27. The calculated t-value (19.55) exceeded the tabulated value (2.00) at the 0.05 level of significance.*

Conclusion: *The study concluded that the structured teaching program significantly improved students' knowledge regarding surgical instruments. The statistical results support the effectiveness of the intervention. Hence, the research hypothesis (H_1) was accepted, and the null hypothesis (H_0) was rejected.*

INTRODUCTION

Surgery is a branch of medicine that is concerned with the treatment of injuries, diseases, and other disorders by manual and instrumental. Surgery involves the management of acute injuries and illnesses as differentiated from chronic, slowly progressing diseases, except when patients with the latter type of disease must be operated upon.

A surgical instrument is a medical device for performing specific actions or carrying out desired effects during a surgery or operation, such as modifying biological tissue, or to provide access for viewing it. Over time, many kinds of surgical instruments and tools have been invented. Some surgical instruments are designed for general use in all sorts of surgeries, while others are designed for only certain specialties or specific procedures. Classification of surgical instruments helps surgeons to understand the functions and purposes of the instruments. With the goal optimizing surgical results and performing more difficult operations, more instruments continue to be invented in the modern era. Surgical instruments are tools that allow surgeons to open the soft tissue, remove the bone, dissect, and isolate the lesion, and remove or obliterate the abnormal structures as a treatment.

BACKGROUND OF THE STUDY :

Every year worldwide, approximately more than 310 million operations are performed, I among them more than 200 million patients underwent major surgery. In 2022, there were approximately 294 million surgical procedure units worldwide. By 2030, the market volume was forecast to increase to nearly 373 million units.

A cross-sectional study was conducted to assess HCWs instrument processing practice and associated factors in health centers of Addis Ababa, Ethiopia in January, 2017. Simple random sampling technique was employed to select 328 HCWs. Data was collected using structured questioner and checklist. Univariate analysis, binary and multivariate logistic regression was computed. Adjusted odds ratio (AOR) with corresponding 95% confidence interval (CI) was used to quantify the strength of association and p-value ≤ 0.05 was used to declare statistical significance. Less than half 46.3% (95%CI: 40.9, 51.5) of HCWs are knowledgeable on instrument processing and 220(67.1%) (95%CI: 61.9, 71.6) of HCWs had safe IPP. High risk perception towards transmitting an infection while working (AOR: 5.35; 95%CI: 2.44, 11.73), being knowledgeable on instrument processing (AOR: 2.81; 95%CI:
1.50, 5.27), and having positive attitude towards infection prevention (AOR: 2.39; 95%CI: 1.19, 4.84) were the most important variables associated with safe IPP. In general, HCWs instrument processing practice was not safe enough. Moreover, significant number of HCWs lacks adequate instrument processing knowledge. Hence, enhancing HCWs awareness on IPP should be undertaken along with urgent improvement in routine monitoring of autoclaves.

NEED OF STUDY

A study was done to assess the attitude and associated factors towards instrument processing among nurses. A total of 335 nurses were participated in the study and the response rate was 99.11%. This study showed that the level of good knowledge and attitude towards Instrument processing among nurses working at Asella referral and teaching hospital was 61.8%, and 65.4% respectively. The Multivariable logistic regression analysis showed that; average monthly income, working experience, awareness on Instrument processing methods, availability of guideline on instrument processing and department currently serving were factors significantly associated with knowledge towards instrument processing. Gender, awareness on instrument processing, department currently serving and knowledge towards instrument processing were factors significantly associated with attitude towards instrument processing. The level of good knowledge and positive attitude towards instrument processing among nurses was low. Health educational programs, training, and demonstrations on instrument processing are essential to solve these problems.

Surgery is one of the treatment modality which is used widely and surgical instruments is major part of any surgery. There is scarcity of review found on surgical instruments. Nurse's must be aware about the category and care of all surgical instruments.

ETHICAL ASPECTS

Permission was obtained by the concerned authorities before conducting the study. Consent letter was obtained by individual samples after explaining them the research process. confidentiality regarding the samples information was maintained by using code numbers by the investigator. The title was approved by institutional ethic committee.

CONCEPTUAL FRAMEWORK

In this study Imogene king attainment theory was used to reach learning goals.

REVIEW OF LITERATURE

In the present study the literature reviewed has been organized into the following categories:

1. **Literature related to surgery.**
2. **Literature related to surgical instruments.**
3. **Literature related to knowledge on surgical aspects including instruments.**
4. **Literature related to effectiveness of structured teaching program.**

METHODOLOGY OBJECTIVES OF THE STUDY

Primary objectives

To assess the effectiveness of structure teaching program on knowledge regarding selected surgical instruments among third semester B.Sc nursing students in selected nursing institutions.

Secondary objectives

To associate the post-test knowledge score regarding selected surgical instruments among third semester B.Sc nursing students with their selected demographic variables.

HYPOTHESIS

Will be tested at 0.05 level if significance.

H0: There is no significant difference between pre test post test knowledge score regarding selected surgical instruments among third semester B.Sc nursing students.

H1: There is significant difference between pretest post test knowledge score regarding selected surgical instruments among third semester B.Sc nursing students.

OTHER HYPOTHESIS

H01: There is no significant difference between post test knowledge score regarding selected surgical instruments among third semester B.Sc nursing students with their selected demographic variables.

H2: There is significant difference between post test knowledge score regarding selected surgical instruments among third semester B.Sc nursing students with their selected demographic variables.

RESEARCH APPROCH

In this study quantitative research approach is used.

RESEARCH DESIGN

The research design selected for present study was quasi-experimental one group pre test post test .

SETTING OF THE STUDY

The present study was conducted in nursing institution after obtaining permission from concerned authority one for pilot study one for main study.

VARIABLES UNDER STUDY

Independent variables

The independent variable in the study was Structured teaching program

Dependent variable

The dependent variable in the study was Knowledge regarding selected surgical instrument

POPULATION

Target population

In this study the target population include third semester B.Sc nursing students in selected nursing institutions.

Accessible population

In this study the accessible population include third semester B.Sc nursing students in selected nursing institutions who fulfilling the inclusion criteria.

SAMPLE SIZE

60 samples from Third semester B.Sc nursing students in selected institutions.

VALIDITY AND RELABILITY

The correlation coefficient 'r' of the questionnaire was 0.899and reliability was 0.9468, which is more than 0.8 and hence the questionnaire was found to be reliable.

DISCRIPTION OF THE TOOLS

Section-I:- Semi structured questionnaire on demographic Variable.

It includes total 5 demographic variables like Age, gender, Area of Residence, any family member working as a health care provider, if yes than specify.

Section II:- Self- administered structured questionnaire on knowledge regarding selected surgical instruments.

The self-administered questionnaire consisted of 30 questions on knowledge regarding selected surgical instruments. Total score was 30. Each correct answer carries 1 mark and a zero for the wrong answer.

PILOT STUDY:

Pilot study was done on 10 % of population. It was feasible in term of man money and resources.

RESULT

Table -1: Table showing Percentage wise distribution of third semester B.Sc nursing students according to their demographic characteristics.

n=60

Sr. no	Demographic variables		Frequency (f)	Percentage (%)
1.	Age (in year)	18-20 yrs	47	78.3
		21-23 yrs	12	20.0
		≥24 yrs	1	1.70
2.	Gender	Male	5	8.30
		Female	55	91.70
3.	Area of residence	Rural	14	23.30
		Urban	41	68.30
		Semi Urban	5	8.30
4.	Family member working as a health care provider	Yes	14	23.30
		No	46	76.70
n=14				
5.	Type of health care provider	Doctor	1	7.10
		Nurse	10	71.40
		Paramedical Worker	3	21.40
		Other	0	0

Table -2: Table showing of pre test and post test knowledge score regarding selected surgical instruments among third semester B.Sc nursing students.

n=60

Level of knowledge Score	Score Range	Pre test		Post test	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Poor	0-20%(0-6)	6	10	0	0
Average	21-40% (7-12)	26	43.33	0	0
Good	41-60% (13-18)	28	46.67	5	8.33
Very Good	61-80% (19-24)	0	0	49	81.67

Excellent	81-100% (25-30)	0	0	6	10
Minimum score		4		17	
Maximum score		16		28	
Mean knowledge score		11.11±3.58		22±2.27	
Mean % Knowledge Score		37.0±11.96		73.33±7.59	

Table -3: Table showing Significance of effectiveness of structured teaching program on knowledge score regarding selected surgical instruments among third semester B.Sc nursing students.
n=60

Overall	Mean	SD	Mean Difference	Calculate t-value	df	Table value	p-value	Level of significance
Pre Test	11.11	3.58	10.88±4.31	19.55	59	2.00	0.0001	S,p<0.05
Post Test	22	2.27						

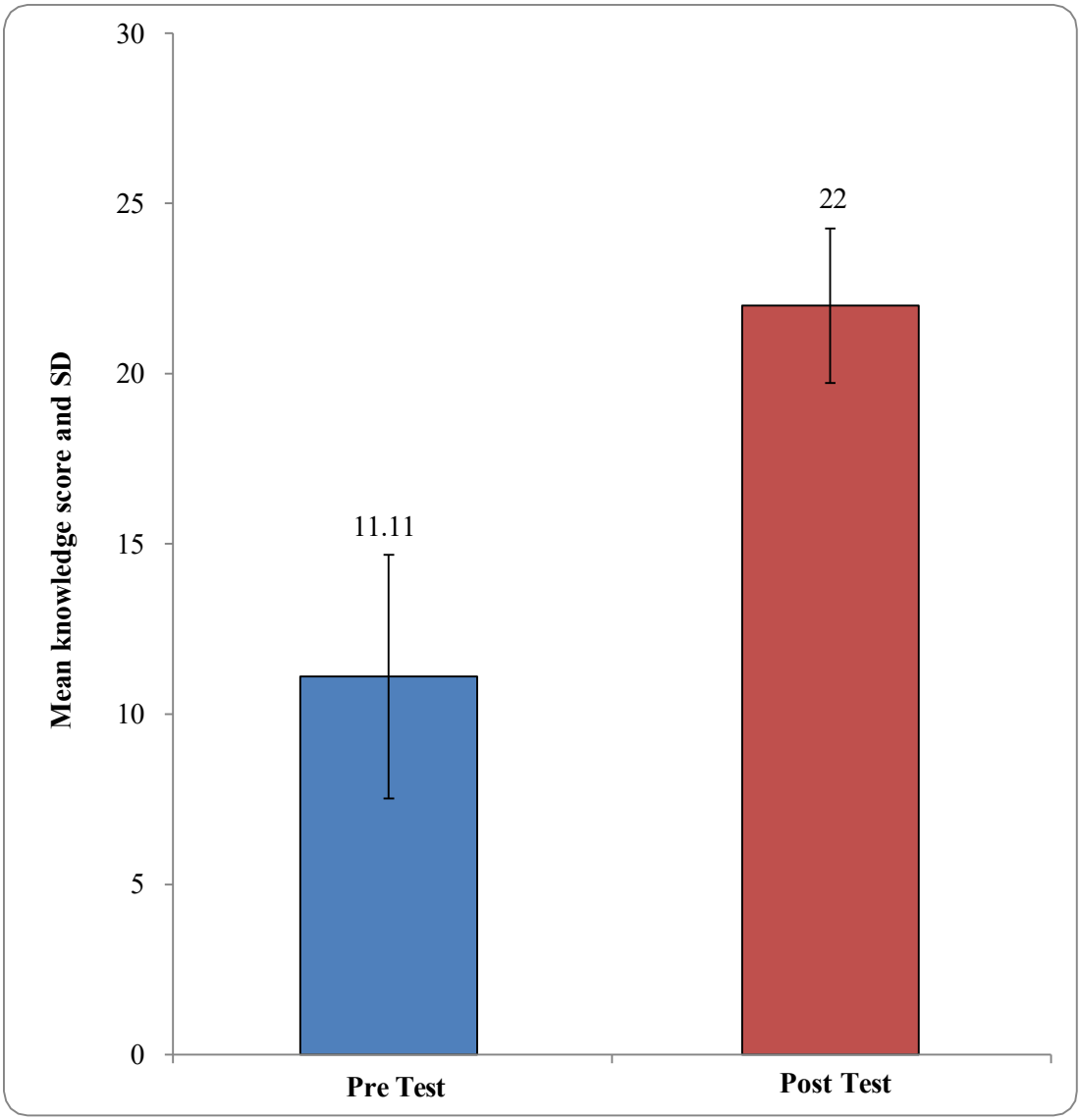

Figure No.1: Bar diagram representing Significance of difference between knowledge score in pre and post test of third semester B.Sc nursing students.

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Table - 4: Table showing association of Post Test Knowledge Score regarding selected surgical instruments among third semester B.Sc nursing students in relation to Demographic Variables.
n=60

Demographic Variable	Calculated T-value	Calculated F-value	df	Table value	p-value	Level of significances
Age in years	-----	25.94	2,57	3.15	0.0001	S.p<0.05
Gender	0.61	~~	58	2.00	0.54	NS,p>0.05
Area of residence	~~	6.69	2,57	3.15	0.002	S,p<0.05
Family member working as a health care provider	~~	3.16	58	2	0.002	S,p<0.05
Type of family member working as a health care provider	~~	0.65	2,11	3.98	0.54	NS,p>0.05

S - Significance **NS - Not Significance**

DISCUSSION

A quasi-experimental study with control group, pre- and post-intervention assessment was conducted. Analysis shows that most students in both the experimental and comparison groups were between the ages of 18-20 years, with 89.10% and 75%, respectively. Both the groups consisted primarily of females (85.90 and 73.40 percent, respectively). The percentage of nursing students who read for pleasure was lower than 50% in both the comparison (34.4%) and experimental (29.70%) groups. The median household income of the experimental group was 51.9 thousand rupees (708.56 USD), while that of the comparison group was 29.7 thousand (356.68 USD). In the comparison group, only 46.90% of the nursing students live at home, whereas 53.10% of the experimental group lives in a hostel. Sixty-nine percent of the nursing students both in comparison and experimental groups have not completed OT placement.

Above study shows that majority of nursing students belongs to age group 18-20 years and majority were female. Similarly in present study also majority 47(78.30%) of the third semester B.Sc nursing students were in the age group of 18-20 years. Majority 55(91.70%) of third semester B.Sc nursing students were female.

A similar study was conducted by using pre-experimental one group pre-test post-test design was conducted on Faculty of Nursing 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. 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 program,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 program, 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).Above study show that Structure teaching program was found to be effective in improving the students knowledge which ultimately improves their practice in surgical asepsis, as post test was increased. Similarly in present study pre test mean knowledge score was 11.11 and mean post test knowledge score was increased to 22, after providing structured teaching program. Which show that structured teaching program on surgical instruments was effective.

Above study shows that structured teaching program was effective as post test knowledge was increased and in present study also majority 28(46.67 %) of the third semester B.Sc nursing students had good level of knowledge score in pre test , Mean knowledge score in pre test was 11.11±3.58 and mean percentage of knowledge score in pre test was 37.05±11.96. While majority 49(81.67%) of third semester B.Sc nursing students had good level of knowledge score in post test, Mean knowledge score in post test was 22±2.27 and mean percentage of knowledge score in post test was 73.33±7.59. Analysis also revels that pre test mean is 11.11, standard derivation was 3.58 and post test mean was 22, standard derivation was 2.27 . Post test mean difference is 10.88±4.31, df is 59. The tabulated value is 2.00. The calculated 't' value i.e. 19.55 which is much higher than the tabulated value. P value is 0.0001 which is highly significant at 5% level of significance. Thus

showing the effectiveness of structured teaching program.
Analysis reveals that, there is a significance of association was found between knowledge with age, area of residence, family member working as a health care provider and no significant association was found between knowledge with gender, type of family member working as a health care provider.
No similar study was found on association of knowledge with selected demographic variables.

CONCLUSION

The study also revealed that there is association was found between knowledge with age, area of residence, family members working as a health care provider and no significant association was found between knowledge with gender, type of family member working as a health care provider. The study concluded that structured teaching program on knowledge regarding selected surgical instruments among third semester B.Sc nursing students in selected nursing institutions was found to be effective as a teaching strategy. Hence, based on the above cited findings, it was concluded undoubtedly that the written prepared material by the investigator in the form of structured teaching program helped the nursing students to increase knowledge with post test knowledge score regarding selected surgical instruments.

RECOMMENDATIONS

1. Similar studies can be replicated on a larger population for generalization of findings.
2. Descriptive study may be conducted to assess the knowledge and practice regarding selected surgical instruments among the staff nurses.
3. Similar studies can be carried out to evaluate the effectiveness of video assisted teaching program on knowledge regarding selected surgical instruments.
4. Study may be conducted on other aspects of surgery.
5. Comparative study may be conducted on knowledge and practice regarding surgical instruments on staff nurses working in government hospital and private hospital.

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