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Article *in* International Journal of Engineering Research and Applications · September 2021

DOI: 10.9790/9622-1109015561

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RESEARCH ARTICLE OPEN ACCESS

A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Needle Stick Injury among 1st Year B.Sc Nursing Students of Syed Mantaqi Memorial College of Nursing and Medical Technology Awantipora Kashmir

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ABSTRACT:
Introduction: Each day thousands of health workers around the world suffer accidental occupational injuries. These injuries can result in a variety of serious and chronic illness. Needle stick injury are wounds caused by sharps such as hypodermic needles, blood collection needles, IV cannulas or needles used to connect parts of intravenous delivery system.
Methods: A non-experimental research design was carried out on 40 1st year Bsc nursing students of Syed Mantaqi Memorial College of Nursing and Medical Technology, Awantipora, Kashmir. Students who were not willing to participate and those who were absent during data collection were excluded. Pre-test assessment was done in which data was collected by Structured questionnaire to assess the knowledge followed by structured teaching programme and post-test assessment of knowledge was done The results revealed that teaching program was very informative and it would help them to get aware about prevention of needle stick injury. Hence STP was instructionally effective, appropriate and feasible.
Result :the pre-test score shows that 67.50% students had inadequate knowledge, 32.5% had moderate and 0% had adequate knowledge and the post-test shows that 0% students had inadequate knowledge, 42.5% had moderately adequate and 57.5% had adequate knowledge.
Conclusion: structured teaching programme was very informative and it would help students to get aware about prevention of needle stick injury.

Date of Submission: 26-08-2021 Date of Acceptance: 10-09-2021

I. INTRODUCTION:

Each day thousands of health workers around the world suffer accidental occupational injuries. These injuries can result in a variety of serious and chronic illnesses. A needle stick injury is the major cause that is responsible for blood borne infection to the health care workers in the hospital setting.[1]

Nursing students are prone to accidental exposure to blood-borne pathogens and body fluids because of multiple reasons such as nature of their work, specimen handling, lack of experience & skill and lack of awareness about policies and procedures to avoid needle stick injuries. In-turn, needle stick injury may also pose a risk for a patient if the injured health professional carries HBV, HCV or HIV. Percutaneous injury and splashes of fluids

have been recognized as a source of exposure to blood borne pathogens such as Hepatitis B virus (HBV), Hepatitis C virus (HCV) and human immunodeficiency virus (HIV) for health care workers and responsible for a significant proportion of HBV, HCV and HIV infection. The Causes of needle stick injury with percentage include- Unsafe work practice-47%, Recapping-34%, removing of phlebotomy tube holder-13%, failure to dispose sharps properly-35%, disposal system failure-35%, high work load-72% and lack of personal protective equipment-78%.[3]

Effective measures to prevent infections from occupational exposure of health care workers to blood include immunization, eliminating useless injection practice, implementing universal precautions, eliminating needle recapping and disposing of the sharp into a sharp's container immediately after use, provision and use of personal protective equipment and training the workers in identifying the risks and prevention of transmission. A structured teaching on practice in preventing needle stick injury will improve the practices on preventing needle stick injury and thus can reduce the incidence to an extend along with other measures. [7]

II. MATERIAL METHODS:

This experimental study approved by Institutional Ethical committee of (IEC No. RPO 11/2020) by Islamic university of medical technology Awantipora Kashmir was conducted from 25 to November to 01 December 2020 on BSc nursing first year students. The sample size was calculated with power analysis by Cohen's d formula. The calculated sample size was 40.

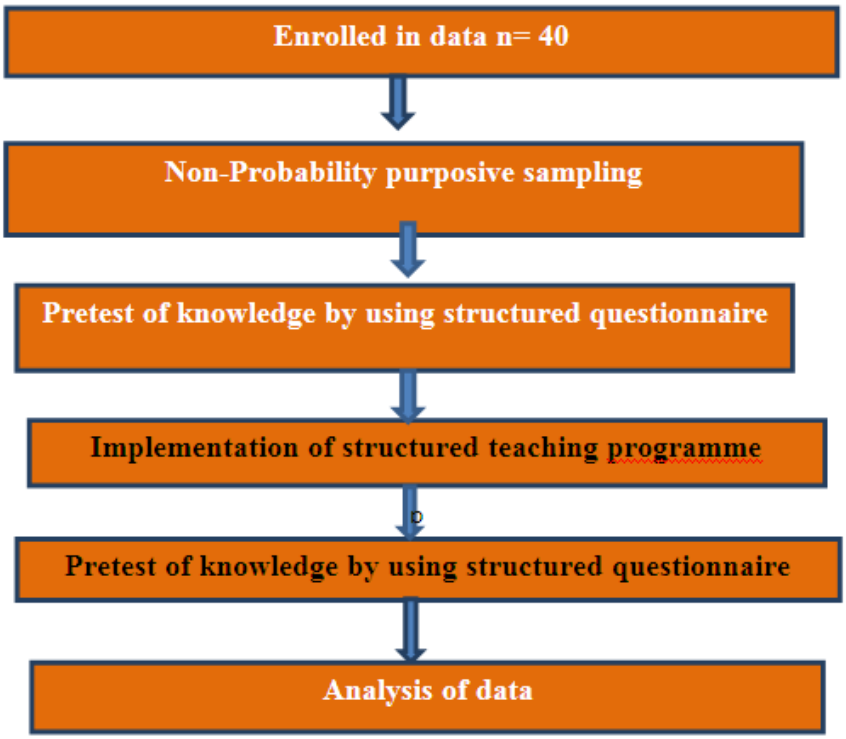

Figure 1. Flowchart of the study

III. RESULT:

Data were entered into Microsoft Excel 2007 and using SPSS (Armonk, NY: IBM Corp) version 20 for analysis. Majority 22 (55%) participants are in age group 18-20 years and 18 (45%) participants are in age group 20-22 years. Majority of the participants 30 (75%) resides in Rural areas where as 10 (25%) resides in Urban areas and all 40 (100%) participants having HSC-II education background. Mass media was the source of information for 3 (7.5%) participants, teachers for 29 (72.5%) participants whereas 8 (20%) participants did not had any source of information. All 40 (100%) participants did not have any history of needle stick injury.

Table 1

s.no.	Demographic variables	F	%
1.	**Age group (years)**		
	a.18-20	22	55
	b.20-22	18	45
	c. 22-24	0	0
	d. 24-26	0	0
2.	**Education**		
	a. HSC-II	40	100
	b. Graduate (Academic)	0	0
3.	**Residence**		
	a. Urban	10	25
	b. Rural	30	75
4.	**Source of information**		
	a.Mass Media	3	7.5
	a) b. Teacher	29	72.5
	b) c. Health Worker	0	0
	c) d. None	8	20
5 .	**History of needle stick injury**		
	a. Yes	0	0
	b. No	40	100

Table 2

Mean, mean %age and SD of pre-test level of knowledge scores of subjects regarding needle stick injury

N=40

PRE-TEST KNOWLEDGE				
Max. score	Min. score	Mean	Mean %age	SD
27	14	20.525	46.65%	3.8

Figure 2

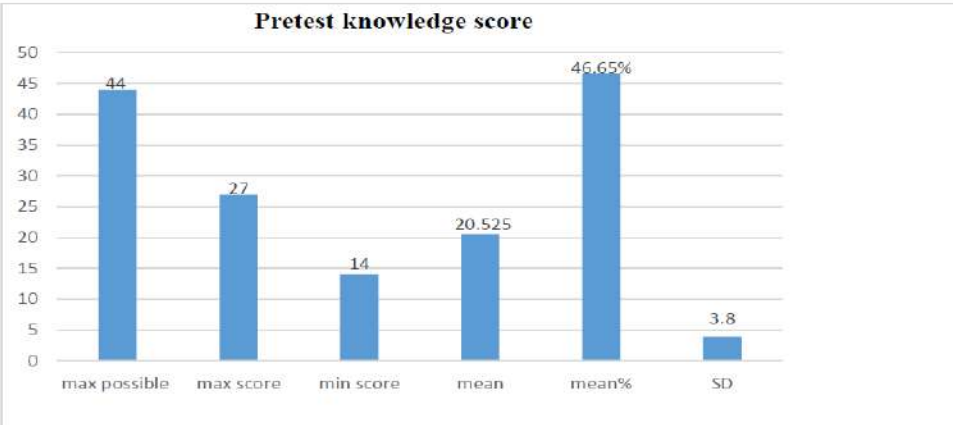

Table 2 and **Fig 6** shows that the mean pre-test score was 20.525 with mean percentage of 46.65% and standard deviation of 3.8. The height score obtained was 27 and lowest obtained score was 14(range=13)

Table 3:

Frequency and mean percentage distribution of pre-test level of knowledge of Subjects regarding needle stick injury

N=40

Pre-test knowledge	Criteria	**f**	%age
Inadequate	≤50%	27	67.50
Moderate	50-75%	13	32.5
Adequate	≥75%	0	0

Table 3 shows that most of the study subjects that I.e. 27(67.5%) had inadequate knowledge in the pre-test, 13(32.5%) had moderate knowledge in the pre-test and 0 (0%) study subjects had adequate knowledge in the pre-test.

Table 4

Mean, mean %age and SD of post-test level of knowledge scores of subjects regarding needle stick injury

N=40

POST-TEST KNOWLEDGE				
Max. Score	**Min. Score**	**Mean**	**Mean %age**	**SD**
39	29	33.48	76.08	2.943

Figure 3

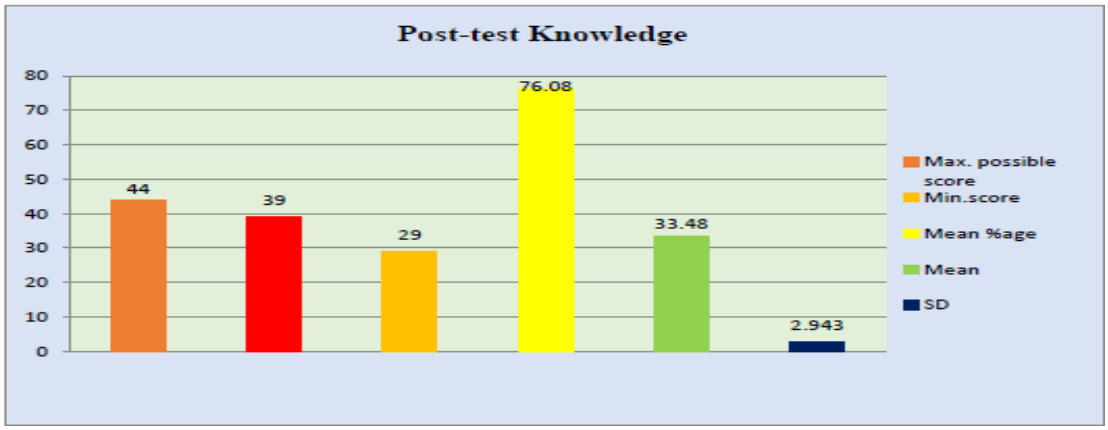

Table 4 and **Fig 3** shows that overall post-test knowledge Mean was 33.48 with SD of 2.943, the mean %age were 76.08. The maximum score was 39 and the minimum score was 29(range =10)

Table 5:

Frequency and mean percentage distribution of post-test level of knowledge of subjects' needle stick injury

N=40

Post-test knowledge	**Criteria**	**f**	%age
Inadequate	≤50%	0	0
Moderate	50-75%	17	42.5
Adequate	≥75%	23	57.5

Table 5 reveals the frequency and percentage distribution of level of knowledge in post-test. After conducting post none of the participants had inadequate knowledge, 23 (57.50%) participants had moderate knowledge and 17 (42.50%) had adequate knowledge

Table 6:
Comparison of pre-test and post-test knowledge of Subjects regarding needle stick injury

N=40

Pre-test score				**Post-test score**				**%age of enhancement**
Range	**Mean**	**Mean %**	**SD**	**Range**	**Mean**	**Mean %**	**SD**	
13	20.52	46.65%	3.869	10	33.48	76.08 %	2.943	29.43%

Figure 4

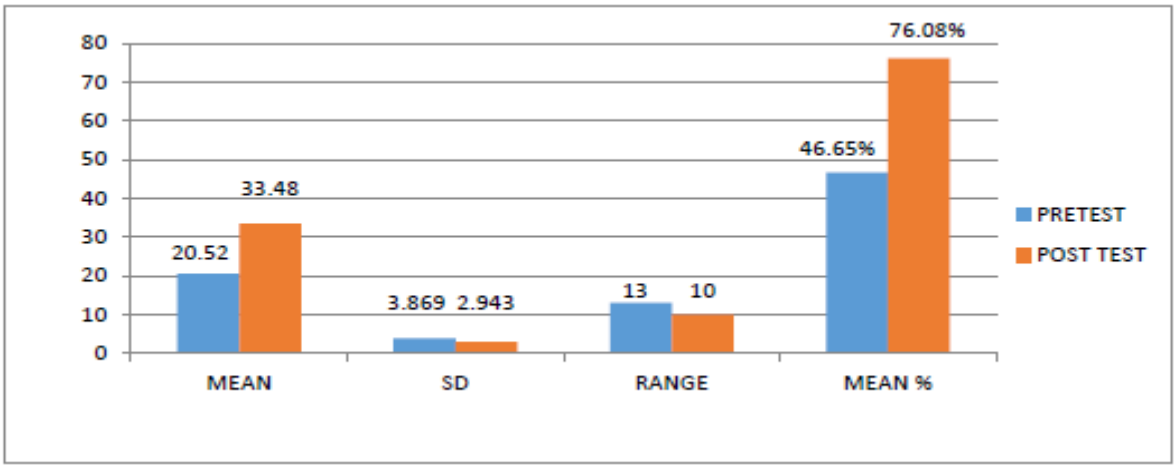

Table 6 and Fig 4 shows enhancement of knowledge after planned teaching programme. The mean score was enhanced to 33.48 from 20.52 in pre-test and the dispersion i.e. SD was reduced to 2.943 from 3.869 in pre-test, the mean %age was enhanced to 76.08% from 46.65% and over all knowledge improvement was 29.43%.

Figure 5

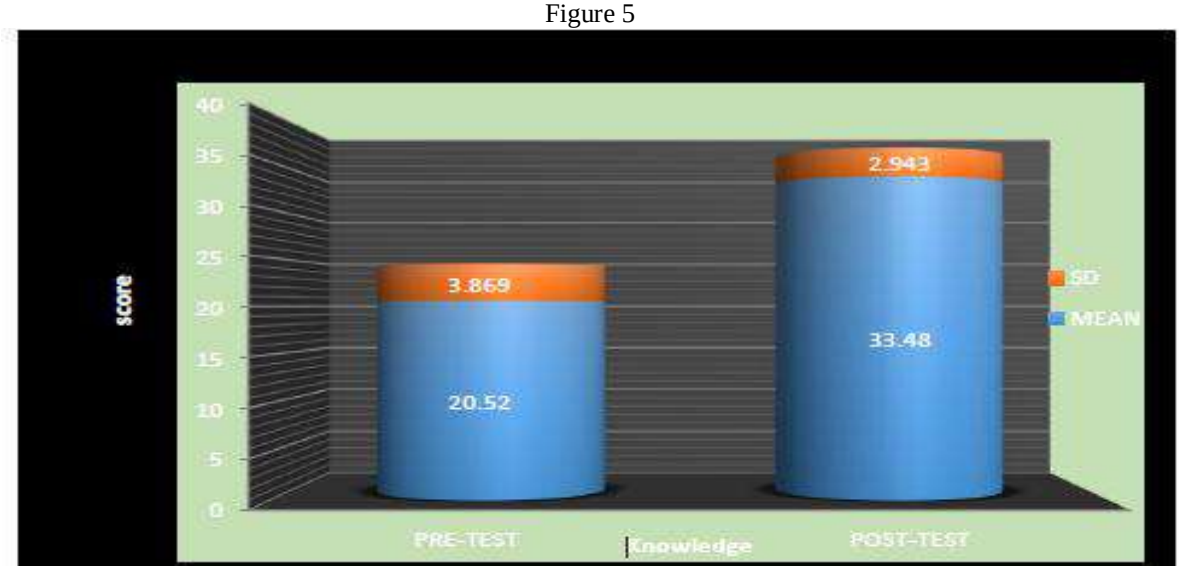

Figure 5: Shows that mean and SD of the post -test knowledge of the study subjects i.e., 33.48 and 2.943 is greater than mean and SD of the pre-test knowledge i.e. 20.52 and 3.869. This shows that the teaching programme was effective.

Table 7
Association of selected demographic variables with pre-test knowledge score

Variables	Opts	ADEQUATE	MODERATE	INADEQUATE	Chi-square ($\chi 2$)	P Value	df	Table Value	Result
Age	18-20	00	7	14	0.014	0.9058	1	3.8415	NS*
	20-22	0	6	13					
	22-24	0	0	0					
	24-26	0	0	0					
Education	HSC II	0	13	27	13				27
	Graduate (Academic)	0	0	0					
Residence	Urban	0	3	7	0.9704	0.3246	1	3.8415	NS*
	Rural	0	10	20					
Source of information	Mass media	0	1	2	0.258	0.879	2	5.9915	NS*
	Teachers	0	10	19					
	Health worker	0	0	0					
	None	0	02	6					
History of needle stick injury	Yes	0	0	0					
	no	0	13	27					

IV. DISCUSSION:

The present study The overall pretest knowledge mean was 20.525 with mean % of 46.65% and standard deviation of 3.869. The highest score obtained was 27 and lowest score obtained was 14. The findings are consistent with the study conducted by **Rajiv Sienna** [2014], to assess knowledge and awareness of needle stick injuries among 150 students of rural dental college, Maharashtra, India. A total of 91.5% exhibited adequate level of awareness, while 08.45% exhibited incorrect level of awareness about management of needle stick injuries. [13]

Findings related to STP of knowledge regarding prevention of needle stick injury among students of 1st year Bsc nursing students of Syed Mantaqi Memorial College of Nursing and Medical Technology, Awantipora Kashmir depicts that improvement mean% 29.43% with t value 27.1124 at $P < 0.05$ level of significance, which shows there is an enhancement of structured teaching program. Based on above results it accept the hypothesis H1 – which states that there is a significant difference between the pretest and posttest knowledge scores.

The findings are consistent with the study was conducted by **Fethin George** in the year, 2019 to assess the effectiveness of structured teaching program on knowledge regarding prevention and management of needle stick injuries among 100 selected nursing students. The pre-test revealed that about 5% had good knowledge score, 44% had poor knowledge, 51% had average knowledge about prevention and management of needle stick injury. Significant score difference was seen between pre-test knowledge score median 7, and post-test knowledge score median 18. Hence the intervention was found to be effective. [22]

V. CONCLUSION

The present study assessed the knowledge of students regarding prevention of needle stick injury. The overall pre-test score shows that 67.50% students had inadequate knowledge, 32.5% had moderate and 0% had adequate knowledge.

Structured teaching program was conducted to enhance the knowledge of students which is essential for their professional performance. The post-test shows that 0% students had inadequate knowledge, 42.5% had moderately adequate and 57.5% had adequate knowledge. The results revealed that teaching program was very informative and it would help them to get aware about prevention of needle stick injury. Hence STP

was instructionally effective, appropriate and feasible.

ACKNOWLEDGMENTS

The researcher's acknowledgments given to all study participants, Syed Mantaqi Memorial College of Nursing and Medical Technology, Awantipora Kashmir. for their support from the beginning to the end of the research process.

Ethical issues
None to be declared.
Conflict of interest
The authors declare no conflict of interest in this study.
Author's contributions
All author were in the conception and design, acquisition of data, analysis and interpretation of data, drafting the article, review of article and find approval.

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