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A study to assess the knowledge regarding management protocol of needle stick injury among basic B.Sc. nursing 5th and 7th semester students of state college of nursing Dehradun, Uttarakhand

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Abstract
Needle stick injury (NSI) is a major occupational hazard among healthcare workers, particularly nursing students who are frequently exposed to needles and sharp instruments during clinical practice. Inadequate knowledge regarding management protocol of NSI increases the risk of transmission of blood-borne infections such as HIV, Hepatitis B, and Hepatitis C. The present study aimed to assess the knowledge regarding management protocol of needle stick injury among Basic B.Sc. Nursing 5th and 7th semester students of a selected nursing college of Dehradun, Uttarakhand. A descriptive research design was adopted for the study. Simple random sampling technique was used to select the samples. Data were collected using a structured questionnaire. The findings revealed that the majority of students had average knowledge, followed by good knowledge, while few students had poor knowledge. The study concludes that regular training and educational programs are essential to improve knowledge and promote safe clinical practices.

Keywords: Needle stick injury, knowledge, nursing students, management protocol

Introduction

A needle stick injury is a serious occupational hazard in health care setting. Needle stick injuries constitute the greatest threat to nursing students during clinical practice because of accidental exposure to any sharp material. Nursing students are more vulnerable to needle stick injury because they are directly connected with the patient care and responsible for medicine administration. Students are particularly at risk due to a lack of experience and handling skills. Health and safety in the workplace are critical components in healthcare institutions. Preventing injuries is the most effective way to protect workers and requires good awareness and perceptions associated with practice on a daily basis. Therefore, the high risk of needle stick injuries among the nursing students during clinical practice will increase the possibility of occupational exposure and nosocomial infection. Standard precautions are essential for nursing students to prevent needle stick injury.

The incidence of needle stick injuries is higher among nursing students with a low level of knowledge on the prevention of needle stick injury, and who have not received the relevant training during their undergraduate study. Inadequate staff, lack of experience, duty overload and fatigue may lead to needle stick injury. This study is to determine the level of knowledge, prevention and guidelines of needle stick injury among the nursing students. The needle stick injuries constitute the greatest threat to the nursing students during clinical practice because of accidental exposure to body fluids and infected blood. Health and safety in the workplace are critical components in healthcare institutions. Unsafe working conditions are among the causes of poor quality of care and burnout. Needle stick injury has become a major issue and most of the researches focus on nurses, doctors and other health care workers but at the same time the nursing students during the clinical duties are also at high risk. The research studies show high incidence of needle stick injuries among the nursing students with more under-reported cases and subjects were not aware of post exposure management. Students are particularly at risk due to a lack of experience and handling skills. Thus, working unit specific safety precautions and basic infection prevention in-service training might improve nurse's safety practice and thereby decrease the on job hazard.

Objectives of the study

Assess the knowledge regarding management protocol of needle stick injury among basic B.Sc. nursing 5th & 7th semester students of selected nursing college of Dehradun, Uttarakhand.

Find the association between level of knowledge with selected socio-demographic variables

Materials and Methods

Semester students to assess the knowledge regarding management protocol of needle stick injury. Official permission was taken from the college authorities and 100 students were selected through a purposive sampling technique. The samples were properly informed about the goal of the study, and acceptance was obtained. Inclusion criteria include the students of 5th and 7th semester. Students those who were absent on the day are excluded from the study. Data was collected using demographic data sheet and knowledge level was assessed using structured knowledge questionnaire. Tool consists of 20 questions with multiple choice. The score was classified into 3 categories like Good knowledge (above 80% 16 to 20 score), average knowledge (50-75%, 10 to 15 score) and poor knowledge (below 50%, <10 score). The content validity was obtained from experts and modified accordingly. The Institutional Ethical Committee has given ethical clearance. The data was collected from 100 nursing students and the results were presented as mean, frequencies and percentages. The association between knowledge score and selected demographic variables was assessed by chi-square test.

Table 1: Distribution of nursing students according to level of knowledge. (N=100)

S. No.	Level of knowledge	Knowledge score	Frequency (f)	Percentage (%)
1.	Good (≥80%)	16-20	52	52
2.	Average (50-75%)	10-15	48	48
3.	Poor (<50%)	<10	0	0

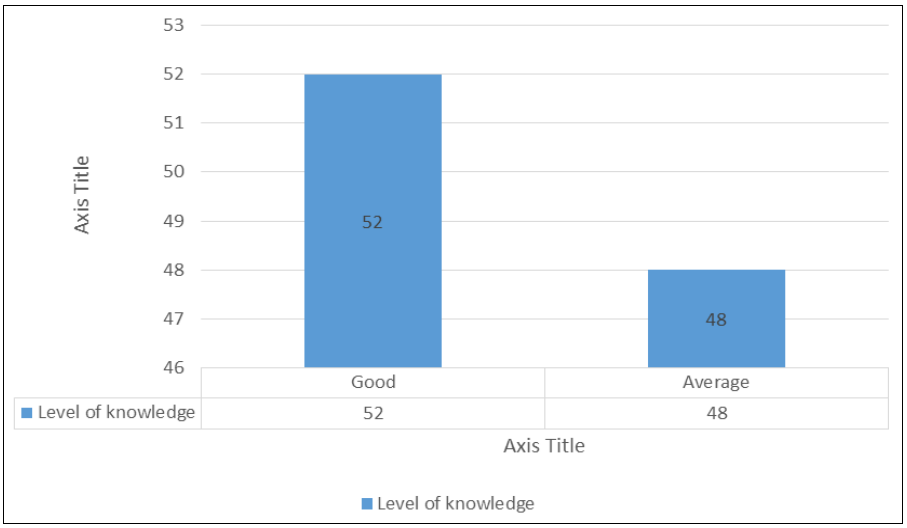

Fig 1: Distribution of nursing students according to level of knowledge. (N=100)

Results

Part 1: description of socio-demographic variables

The majority (54%) of nursing students fall in the age group of 18-22 years and less than half (46%) of participants are from the age group of 23-27 years. (14%) of participants are male and rest (86%) of participants are female. Half (46%) of students are from 5th semester and rest half (54%) are from 7th semester. Most (86%) participants have previous knowledge about needle stick injury in which (59%) teachers, (15%) peer group, (15%) mass - media, (11%) got information from family.

Table 1: Frequency and percentage distribution of nursing students according to their socio-demographic variables (N=100)

S.N	Variables	Frequency (f)	Percentage (%)
1	**Age of participants (in Years)**		
	a) 18-22	54	54
	b) 23-27	46	46
2	**Gender**		
	a) Male	14	14
	b) Female	86	86
3	**Programme**		
	a) 5th semester	46	46
	b) 7th semester	54	54
4	**Anyone in family from medical field**		
	a) Yes	28	28
	b) No	72	72
5	Previously experienced NSI		
	a) Yes	37	37
	b) No	63	63
6	**Previous knowledge about management protocol of NSI**		

	a) Yes	85	85
	b) No	15	15
7	**If yes, Source of information about management protocol of NSI**		
	a) Family /Relatives	11	11
	b) Peer group	15	15
	c) Teacher	59	59
	d) Mass- media	15	15

Part 2: knowledge score of nursing students: The overall mean knowledge score was 15.45, so can be interpreted that only 15.45 nursing students were having knowledge regarding management protocol of needle stick injury.

Table 2: Limited knowledge observed

Criteria	Mean± SD	Mean %
Overall knowledge score	15.45±1.59	77.25

Part 3 Description of associations between demographic variables and level of knowledge among nursing students. (N=100)

Table 3: Association between demographic variables and level of knowledge among nursing students.

S.N	Variables	Good	Average	X2	P- Value	df	Inference
1	**Age of participants**						
	c) 18-22	28	26	0.001	0.974369	1	NS
	d) 23-27	24	22				
2	**Gender**						
	c) Male	5	9	1.7298	0.188435	1	NS
	d) Female	47	39				
3	**Programme**						
	c) 5th semester	27	19	1.5257	0.216752	1	NS
	d) 7th semester	25	29				
4	**Anyone in family from medical field**						
	c) Yes	13	15	0.4836	0.486782	1	NS
	d) No	39	33				
5	**Previously experienced NSI**						
	c) Yes	21	16	0.5324	0.465599	1	NS
	d) No	31	32				
6	**Previous knowledge about management protocol of NSI**						
	c) Yes	46	39	1.0181	0.3129	1	NS
	d) No	6	9				
7	**If yes, Source of information about management protocol of NSI**						
	e) Family /Relatives	6	5	0.6155	0.892873	3	NS
	f) Peer group	8	7				
	g) Teacher	29	30				
	h) Mass- media	9	6				

P value significance= <0.05

Table-3 shows there was no significant association between knowledge and age (P value= 0.974369), Gender (P value=0.18843), Programme (P value= 0.216752), anyone in family from medical field (P value =0.486782), previously experienced NSI (P value= 0.465599), Previous knowledge about management protocol of NSI (P value=0.3129), Source of information about management protocol of needle stick injury (P value=0.892873).

Discussion: The findings of the present study are consistent with previous studies conducted among nursing students and healthcare workers, which reported average knowledge regarding management and prevention of needle stick injury. Studies by Wang *et al*., Al-Qadir *et al*., and Prasuna *et al*. also reported similar findings where inadequate awareness regarding post-exposure prophylaxis and reporting mechanisms was observed among nursing students. Lack of regular training programs and limited emphasis on occupational safety may contribute to this gap. Continuous education and hands-on training can significantly improve knowledge and safe practices among nursing students.

The present study findings revealed that 52% of students had good knowledge and 48% had average knowledge regarding the management protocol of needle stick injury.

The overall mean knowledge score was 15.45 with SD 11.59, indicating that most students had a moderate to good understanding of the topic.

Thus, the study concludes that the majority of nursing students possess an acceptable level of knowledge, which may be influenced by previous exposure, academic semester, and source of information.

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