



“A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AND ATTITUDE REGARDING PREVENTION OF NEEDLE STICK INJURIES AMONG NURSING STUDENTS IN SELECTED NURSING COLLEGE OF DISTRICT HAMIRPUR (H.P)”.

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ABSTRACT – Aim of the study was to assess effectiveness of structured teaching programme on knowledge and attitude regarding prevention of needle stick injuries among nursing students in selected nursing college of district Hamirpur (H.P).

Methodology : A quantitative research approach and pre-experimental research design were adopted to conduct the study. Sample of 60 nursing students of selected nursing college of District Hamirpur (H.P) was selected by using non probability convenience sampling technique. A self structured knowledge questionnaire was used to assess the level of knowledge. Analysis of collected data was done according to the study objectives, and data was analysed using descriptive and inferential statistics.

Result : The study shows that out of 60 nursing students about 50.0% were in the age group of 19-20 years. Regarding professional course 83.3% subjects were from B.Sc. Nursing professional course and 16.7% subjects were in GNM course. Regarding clinical exposure 100% were having clinical exposure. Regarding educational programme related to prevention of needle stick injuries 53.3% subjects were attended the educational programme regarding prevention of needle stick injuries. Regarding history of needle stick injury 21.7% subjects experienced a needle stick injury in past. Regarding previous knowledge 91.7% subjects have previous information regarding prevention of needle stick injury. If yes, sources of knowledge regarding prevention of needle stick injuries majority of 80.36% had knowledge from nursing college teachers. Overall the mean post- test knowledge score was slightly higher than the mean pre-test knowledge score. i.e, mean post test was 35.92% and mean pre-test was 19.07%. the mean post test attitude score was slightly higher than the mean pre-test attitude score. i.e, mean post- test was

11.17 and mean pre-test was 7.65. it was observed that there was significant relationship between post test knowledge and post test attitude score. The result was highly significant, which shows the effectiveness of a structured teaching programme.

Conclusion : Structured teaching programme was an effective strategy in improving the knowledge of nursing students regarding prevention of needle stick injuries.

Key – words: Needle stick injuries , Structured teaching programme, Pre test, Post test.

INTRODUCTION

BACK GROUND OF THE STUDY

“You cannot hit the point of a needle with a fist”

- Armenian proverb

Needle stick injury-“Sleeping threat to health care worker” Health care workers face a wide range of hazards in the health care setting including sharp injuries , harmful exposures to chemicals and hazardous drugs and back injuries and so on. Needle stick injuries are the most common occupational injuries for the health care workers. Not only the health care workers various other occupations are also at increased risk of needle stick injury including law enforcement, tattoo artists, food preparers and agriculture workers.¹

According to WHO (2023) prevention is defined as any intervention or methods intended to lessen the possibility that a person would contract and illness or disorder, as well as to stop or reduce the progression of a disorder lowering the rate of disability. To decrease the burden of disease and their related factors, disease prevention can also be defined as targeted, population and individual based interventions for primary and secondary prevention. Primary prevention prefer the measure which are taken to prevent the onset of any disability or disease. This may include the actions to improve health through changing the impact of social and economic determinants on health; the provision of information on behavioural and medical health risk; consultation and measure to decrease them at personal and community level; providing education; clinical preventive services; post exposures measures for nurses exposed to the injury.

Secondary prevention includes the early detection of the problem or associated factors. It focuses on the improvement of the likelihood of positive health outcomes. This includes initiatives like evidenced based screening for NSIs and prevention of the disability caused by it. It also includes findings out the interventions or method which could be effective when used at an early stage of disease.²

NEED OF THE STUDY

“ Nothing in life is to be feared , it is only to be understood. Now is the time to understand more, so that we may fear less”.

- Marie Curie

A Needle stick injury is a percutaneous piercing wound typically set by a needle point , but possibly also by other sharp instruments or objects. Commonly encountered by people is the handling of needles in the medical setting , such injuries are an occupational hazard in the medical community. Occupational needle stick injuries are mainly focused on the healthcare environment, but law enforcement is at particularly high risk for incidental needle sticks, though this population is commonly overlooked.²¹

Needle stick injuries have been recognized as a source of exposure to blood borne pathogens such as hepatitis B virus hepatitis C virus and human immunodeficiency virus for health care workers. It has been estimated by the Center Disease Control that every year more than three million health care members are exposed to blood and body fluids via sharp and mucocutaneous injuries in the united states alone with an annual estimated 6 million Needle Stick Injuries.²²

Mohamad RYH et al (2023) The retrospective study was conducted at the Mogadishu Somalia Turkey. The data was retrieved from the hospital record of the infection prevention and control department over a six year period between 2017 and 2022. There were a total of 233 needle stick and sharp injury incidents. The highest number of needle stick and sharp injury cases were reported among nurses (52.4%). Followed by cleaners (22.3%), physician (18.5%), and technicians (6.9%) during the six year period. Operation theater were the most frequent place (21.9%). And emergency rooms (16.7%). The most commonly reported instrument that resulted in injuries was a hypodermic needles (81.1%). The study conclusion that 8.6% of healthcare workers sustained a needle stick injuries and sharp injury incident in the past year. According to our findings, health care institutions need to regularly teach healthcare professionals , especially nurses and cleaners about the significance of needle stick injury and sharp injury.²³

PROBLEM STATEMENT

“A Study to assess the effectiveness of structured teaching program on knowledge and attitude regarding prevention of needle stick injuries among nursing students in a selected nursing college of District Hamirpur, Himachal Pradesh.”

OBJECTIVES

1. To assess the pre-test level of knowledge and attitude scores regarding prevention of needle stick injury among nursing students.
2. To assess the post-test level of knowledge and attitude score regarding prevention of needle stick injury among nursing students.
3. To plan of implement structured teaching program in terms of pretest and post test knowledge and attitude scores regarding prevention of needle stick injury among nursing students.
4. To compare pre test and post test level of knowledge and attitude score in experimental group regarding prevention of needle stick injuries with selected socio- demographic variables.
5. To find and determine the association between pre test and post test level of knowledge and attitude score in experimental group regarding prevention of needle stick injuries with selected socio- demographic variables.

HYPOTHESIS

H₁ – There will be significant difference in pre-test and post-test level of knowledge score regarding prevention of needle stick injuries after structured teaching program.

H₂ – There will be significant difference in pre-test and post-test level of attitude score regarding prevention of needle stick injuries after structured teaching program.

H₃ – There will be significant association between post -test level of knowledge score with their selected demographic variables.

H₄ – There will be significant association between post-test level of attitude score with their selected demographic variables.

REVIEW OF LITERATURE

literature review is the process of regarding, evaluating and summarizing scholarly material about a specific topic.

A review of literature on this topic makes the researcher familiar with existing studies and provide information that help to focus on a particular problem and to lay down the foundation for new knowledge.

on the basis of my study, the review of literature is related to:

Section A: Review of literature related to knowledge regarding needle stick injuries.

Section B: Review of literature related to attitude regarding needle stick injuries.

Section C: Review of literature related to prevention regarding needle stick injuries.

Section A: Review of literature related to knowledge regarding needle stick injuries:

Khalid AL et al (2023) A cross- sectional and Descriptive study was conducted among nursing students at a private college in Saudi Arabia were included , of whom 281 participated, for an effective response of 82%. The participant showed good knowledge scores with a mean score of 6.4% (SD=1.4), and result showed that students had positive attitudes (mean=27.1,SD=4.12). students reported a low level of needle stick practices(mean = 14.1, SD = 2.0). the total prevalence of needle stick injuries in the sample was 14.1%. the majority, 65.1%, reported one incidence in the last year, while (24.4%). 15 students reported two incident of needle stick injuries. Recapping was the most prevalent (74.1%), followed by during injection (22.3%). Most students did not write a report (77.4%), and being worried and afraid were the main reasons for non reports (91.2%). The results shows that female students and seniors scored higher level in all needle stick injuries domains(knowledge, attitude and practice). This study conclusion that the students showed good knowledge and positive attitude in NSIs, the student reported a low level of needle stick practice. Raising awareness among nursing students and conducting continuing education related to sharp devices and safety and how to write an incident reporting is highly recommended.

Jayaprada R. et al (2022) A retrospective study conducted amongst HCWs. This study aimed to know the incidence of NSIs and its root cause. This study results a total of 47 NSI were reported during the study period. The incident rate per annum was 0.13. the incidence was high in intensive care unit (47%) and was commonly due to recapping needles (36.2%). Amongst 12 NSI , sources were positive for viral markers (6 for Hepatitis B virus, 5 for HIV, and 1 for Hepatitis C virus. The study conclusion that the annual incidence of NSI in hospital was 0.13 and was high in ICUs. This prompted the institution of training session for HCWs to reduce the NSIs.

Uma Vasant et al (2022) A cross -sectional , questionnaire based study was conducted among health care students of the medical campus in sangli, Maharashtra. Over all the study included 942 participants belonging to medical, dental, nursing. The overall result the prevalence rate of needle

stick and sharp injury was found to be 25.2%. the prevalence was highest in nursing students. The study conclusion that one in four students experience needle stick injury , overall knowledge regarding prevention of needle stick injury was lesser than desired and gaps in knowledge and practice were identified in the present study.

Section B: Review of literature related to attitude regarding needle stick injuries.

Hilla B et al (2021) has conducted a cross sectional study on the prevalence and under reporting of needle stick injury among hospital workers. A total 2205 sample of housekeeping worker (HWs) were selected, out of which only 844 samples were participated. The total of 443 (53%) samples get the needle stick injury at the bedside which is caused by the needle. The higher prevalence (75%) of needle stick injuries were caused among physician who are working in the emergency. 66% of NSI were caused among the workers in surgical unit and 28% of NSI were observed in the worker who did not deal with the needles directly. The study concluded that the NSI are under reported among all the health care workers and preventive measures should improved by reducing the bedside procedures.

Ramya M R et al (2020) An online cross- sectional study was conducted from October to December 2020 among 175 students in a nursing college in Chengalpattu District Tamil Nadu, using a pretested semi- structured questionnaire , adopting universal sampling technique. Data was analyzed using SPSS version 23. Categorical variables were summarized as percentages and chi-square test used for statistical analysis. The results shows that overall prevalence of needle stick injuries among nursing college students was 16%. Final year students were more exposed to the injuries (35.7%). Majority (96.57%) of the students were aware about universal precaution guidelines, 57% of students were aware about the disease transmitted by NSI, 97.71% were aware about safety devices and 67.43% of students were about the post exposure prophylaxis in management of NSIs. Among the students, 71.43% had used gloves regularly, 72% were immunized against Hepatitis B, only 25.71% of students attended integrated counselling testing center and more than half of the students always practiced recapping needle after giving injections. This study conclusions that majority of the students were aware about NSIs, their attitude towards NSIs was agreeable. The practices reported though assessed through online survey was found to be deficient. Periodic education and training need to be done to avoid injuries in future.

Arli S.K et al (2018) conducted a quasi-experimental study to Investigation of the Attitudes towards Needle stick and Sharps Injury among Nursing Students the effects of related training and hospital practices in Turkey. Total sample was 84 students who were divided into experimental (n=42) and control (n=42) groups selected by using non –probability convenience sampling technique and data was collected using a Pretest questionnaire form Attitudes Scale about Healthcare Personnel's Safe Use of Needle stick and Sharp Medical Objects. Result shows that increase in the experimental group students' mean scores after the training they received, this difference was not statistically significant ($p>0.05$). In this study Concluded that injuries can be decreased by being careful and taking precautions about the use of needle stick and sharp medical objects. In addition, theoretical and practical trainings should be designed in order to be protected from needlestick and sharps injuries.

Section C: Review of literature related to prevention regarding needle stick injuries.

Mohamad RYH et al (2023) The retrospective study was conducted at the Mogadishu Somalia Turkey. The data was retrieved from the hospital record of the infection prevention and control department over a six year period between 2017 and 2022. There were a total of 233 needle stick and sharp injury incidents. The highest number of needle stick and sharp injury cases were reported among nurses (52.4%). Followed by cleaners (22.3%), physician (18.5%), and technicians (6.9%) during the six year period. Operation theater were the most frequent place (21.9%). And emergency rooms (16.7%). The most commonly reported instrument that resulted in injuries was a hypodermic needles (81.1%). The study conclusion that 8.6% of healthcare workers sustained a needle stick injuries and sharp injury incident in the past year. According to our findings, health care institutions need to regularly teach healthcare professionals , especially nurses and cleaners about the significance of needle stick injury and sharp injury.

Janjua S.S et al (2022) conducted descriptive cross section study to assess the awareness in Nursing Students regarding prevention of needle stick injuries in Lahore, Pakistan. Total sample was 100 students selected by using non – probability convenience sampling technique and data was collected using a self- structured questionnaire. The study results showed “Did you experience needle stick injury” 49 (64.5%) respond yes and 37 (35.5%) respond no. “ Did you report the NSI Event” 24 (31.6%) respond yes and 52 (68.4%) respond no. “NSI may lead to significant anxiety for the affected person” 33 (43.4%) respond yes and 43 (56.6%) respond no. Do you know about needles safety device 15(19.7%) respond yes and 61 (80.3%) respond no. Study concluded that, lack of awareness is one of the major factors for needle stick injury. Moreover, it was clearly evident that nursing students were careless in handling used and contaminated needles which was the greatest cause of needle stick injury.

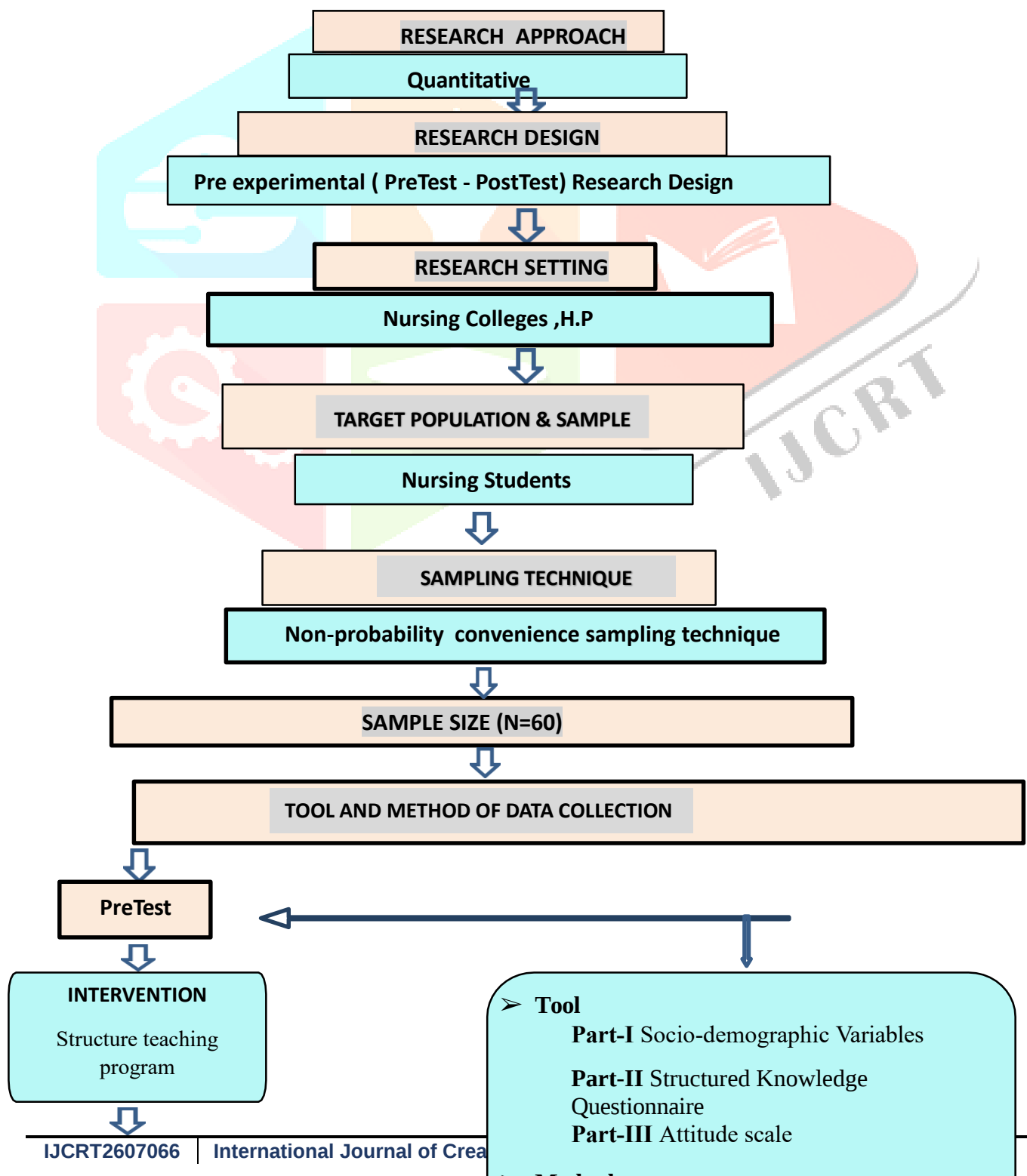
Mohsen D, et al (2019) conducted a descriptive, cross sectional study to assess the knowledge and practice of infection prevention and control guidelines among health care students regarding needle stick and sharp objects injuries. Total sample was 90 students selected by using non–probability convenience sampling technique and data was collected using a self-reporting structured online questionnaire and administered to a number of healthcare students including nursing and Clinical laboratory specialists. Result shows It was found that about half (49%, 52%) of the students had fair knowledge and fair practice regarding needle stick injuries and infection control guidelines respectively. The majority of the students (76.7%) had positive attitudes towards Needle stick injuries and infection control guidelines. This study concluded that knowledge and practice of health care students about the risk associated with needle-stick and sharp objects injuries and use of preventive measures was fair. Special concerns should be given to the role of post exposure prophylaxis, there capping of needles and the importance and mechanism of reporting NSIs. Standing operating procedures should be conveyed regarding needle- stick and sharp objects injuries in all the health facilities.

METHODOLOGY

Research methodology is the most important aspect of the research as it is the framework for conducting the study. It is the significant part of any research which enables the researcher to organize the procedure of collecting reliable data for the problem under study or investigation. This chapter deals with the description of methodology and various steps adopted to collect and organize data for the study. The purpose of this chapter is to communicate to readers what investigations were carried out on to solve the research problem or answer the research question.

According to **Polit and Beck (2004)** research methods are the techniques used by researcher to structure a study to gather and analyze information relevant to research question.

The methodology section includes the research approach, research design, variables, settings, population, sample, sample size, sampling technique, inclusion and exclusion criteria, selection and development tool, description of tool, validity of tool, reliability of tool, pilot study, data collection procedure, ethical consideration and plan for data analysis.



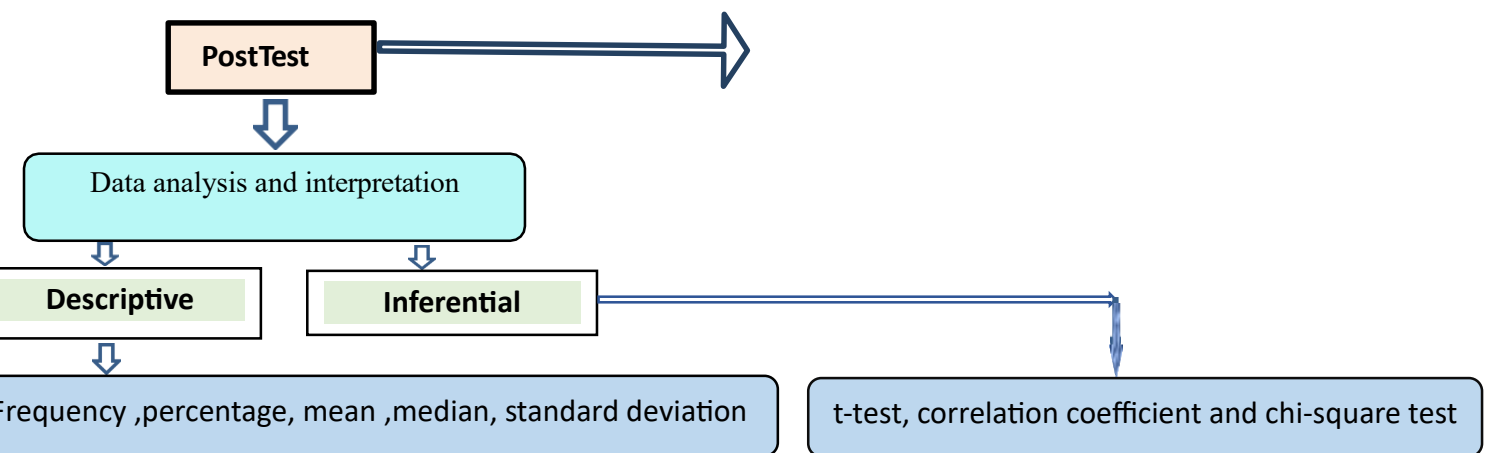


Figure-2 Schematic presentation of methodology

DESCRIPTION OF TOOL

To accomplish the objectives of the study, self structured knowledge questionnaire and likert scale was used to assess the effectiveness of structured teaching programme on knowledge and attitude regarding prevention of needle stick injury among nursing students. It consisted of two tools:-

TOOL 1: it consist of two section:-

➤ PART -1:

Socio demographic variables:

The first part of tool consist of 6 items for obtaining an information about the selected background factors such as age (in years), professional course, clinical experiance, have you any needle stick injury in past , if yes, source of knowledge.

➤ PART – 2:

Self structured knowledge questionnaire:

It consist of self structured knowledge questionnaire which seeks information regarding prevention of needle stick injury. It consist 30 items of multiple-choice questions where total score is 30.

TOOL 2:

Structured attitude scale

A attitude scale is a rating scale that quantitatively assess opinions, attitudes, or behaviours.

- It include structured attitude scale have 13 objective items.

Structured teaching programme:

It consist of systematically formulated structured teaching programme to provide information regarding prevention of needle stick injuries.

SCORING PATTERN

The self structured knowledge questionnaire consisted of 40 questions. In which right answer was documented were as zero marks. The complete range was 0-40.

LEVEL OF KNOWLEDGE	PERCENTAGE	RANGE
Inadequate knowledge	<_ 33%	0-13
Moderate knowledge	34-66%	14-26
Adequate knowledge	>_ 67%	27-40

The self structured attitude scale consisted of 13 statements. In which right answer was documented as correct one mark and wrong were documented zero marks. The complete range was 0-13.

LEVEL OF ATTITUDE SCALE	PERCENTAGE	RANGE
Negative	<_ 29%	0-4
Neutral	30-64%	5-8
Positive	>_ 65%_	9-13

ETHICAL CONSIDERATION

1. A written permission will be obtained from Principal, Neta Ji Subhash College of Nursing, Palampur.
2. Ethical clearance will be taken from ethical clearance committee of Neta Ji Subhash College of Nursing Palampur.
3. Written permission will be taken from Principal of selected nursing college of district Hamirpur.
4. Written informed consent will be taken from each study sample anonymity and confidentiality of each sample will be assured and maintained throughout the study.

DATA ANALYSIS

The analysis was made based on the objectives and hypothesis . both descriptive and inferential statistics were used for the data analysis such as:

ANALYSIS AND INTERPRETATION OF DATA

Analysis and interpretation was done in accordance with the objectives laid down for the study. The purpose of analysis is to reduce the data into an interpretable and meaningful form so that the result can be compared and significance can be identified.

This chapter deals with the analysis and interpretation of data collected. The data was analysed by calculating the score in terms of frequency, percentage , mean, standard deviation, chi- square, and paired T- test.

The data findings have been organized and presented under the following objectives:

1. To assess the pre-test level of knowledge and attitude scores regarding prevention of needle stick injury among nursing students.
2. To assess the post-test level of knowledge and attitude score regarding prevention of needle stick injury among nursing students.
3. To plan of implement structured teaching program in terms of pretest and post test knowledge and attitude scores regarding prevention of needle stick injury among nursing students.
4. To compare pre test and post test level of knowledge and attitude score in experimental group regarding prevention of needle stick injuries with selected socio- demographic variables.
5. To find and determine the association between pre test and post test level of knowledge and attitude score in experimental group regarding prevention of needle stick injuries with selected socio- demographic variables.

ORGANIZATION AND PRESENTATION OF DATA

Data was entered in master sheet , form tabulation and statistical processing in order to analyze and interpreted using descriptive and inferential statistics methods. The analyzed data was organized according to the objectives and presented under the following sections:-

SECTION – I

- Data on socio demographic variables of study participants.

SECTION – II

- Data on pre- test knowledge scores regarding prevention of needle stick injuries among nursing students.
- Data on pre-test attitude scores regarding prevention of needle stick injuries among nursing students.

SECTION – III

- Data on post-test knowledge scores regarding prevention of needle stick injuries among nursing students.
- Data on post-test attitude scores regarding prevention of needle stick injuries among nursing students.

SECTION – IV

- Data on comparison of effectiveness structured teaching program in terms of pre-test and post-test knowledge scores regarding prevention of needle stick injuries among nursing students.
- Data on comparison of effectiveness structured teaching program in terms of pre-test and post-test attitude scores regarding prevention of needle stick injuries among nursing students.

SECTION – V

- Data on association between post test knowledge scores regarding prevention of needle stick injuries among nursing students with their selected socio- demographic variables.
- Data on association between post test attitude scores regarding prevention of needle stick injuries among nursing students with their selected socio- demographic variables

SECTION-I

Description of demographic profile of nursing students

This section describes the demographic characteristics of the sample under study. The data obtained describes the characteristics pertaining <the Age, Professional course, Clinical exposure, Attended education prog., Any needle stick injury in past, Factors influenced, Previous Information, Source of Information.

TABLE 1.: DEMOGRAPHIC PROFILE OF THE SUBJECTS

Variables	Opts	Percentage	Frequency
Age	17-18 Years	31.7%	19
	19-20 Years	50.0%	30
	21-22 Years	18.3%	11
	23 Years and above	0.0%	0
Professional course	BSc. Nursing	83.3%	50
	GNM	16.7%	10
Clinical experience	Yes	100.0%	60
	No	0.0%	0
Any needle stick injury in past	Yes	21.7%	13
	No	78.3%	47
Source of Information	Mass media	1.79%	1
	Peer group	0.00%	0
	Family	3.57%	2
	Hospital staff	14.29%	8
	Nursing college teacher	80.36%	45

TABLE : 1 shows that the frequency and percentage distribution of nursing students with their selected socio demographic variables.

Regarding age group majority of nursing students (50.0%) fall within the age range of 19-20 years. (31.7%) of nursing students were age group of 17-18 years, 18.3% of nursing students were age group of 21-22 years, and with no participants aged 23 years and above.

Regarding professional courses 83.3% subjects were from BSc. Nursing and 16.7% subjects were from GNM (General Nursing and Midwifery) profession. Post BSc. Nursing and MSc. Nursing have no representation in the sample.

Regarding clinical exposure (100.0%) subjects were having clinical exposure.

Regarding education programme related to prevention of needle stick injury 53.3% subjects were attended the education programme related to prevention of needle stick injury and 46.7% subjects were not attended the education programme related to prevention of needle stick injuries.

Regarding history of needle stick injury 21.7% subjects were experienced a needle stick injury in the past and (78.3%) subjects were not encountered such injuries.

Regarding factors influencing knowledge Lack of protection measures is the most common factor influencing knowledge (53.4%) subjects selected. And Heavy workload (22.4%), inattention or hasty work (19.0%), and tiredness (5.2%) are also mentioned as influencing factors were selected by subjects.

Regarding previous knowledge (91.7%) subjects were having previous knowledge regarding prevention of needle stick injury and (8.3%) were not having previous knowledge regarding prevention of needle stick injury.

source of knowledge regarding prevention of needle stick injury majority of (80.36%) had knowledge from nursing college teacher, (3.57%) had knowledge from family, (14.29%) had knowledge from hospital staff. while mass media and peer groups have negligible representation.

SECTION – II

a) PRE-TEST KNOWLEDGE SCORES REGARDING PREVENTION OF NEEDLE STICK INJURIES AMONG NURSING STUDENTS

This section describes the findings related to the frequency, percentage distribution, mean, median, standard deviation, maximum, minimum, and mean percentage of pre-test knowledge scores regarding prevention of needle stick injuries among nursing students obtained through self- structured knowledge questionnaire. The data is represented in the form of frequency percentage distribution according to knowledge scores.

Table 2

Frequency & Percentage distribution of pre-test level of knowledge scores among nursing students.

N=60			
LEVEL OF KNOWLEDGE	SCORE	F	(%)
INADEQUATE KNOWLEDGE	(0-13)	1	(1.7%)
MODERATE KNOWLEDGE.	(14-26)	59	(98.3%)
ADEQUATE KNOWLEDGE.	(27-40)	0	(0%)

Maximum Score=40, Minimum Score=0

Data presented in the **Table 2** shows the pre-test knowledge score was categorized in adequate knowledge, moderate knowledge and adequate knowledge. According to the scores obtained 98.3% of nursing students were having moderate knowledge, 1.7% of nursing students were having inadequate knowledge and none of them in had inadequate knowledge regarding prevention of needle stick injury.

b) Data on Pre test attitude scores regarding prevention of needle stick injuries among nursing students Frequency & Percentage distribution of pre-test level of Attitude.

This section describes the findings related to the frequency, percentage distribution, mean, median, standard deviation, maximum, minimum and mean percentage of pre-test attitude scores regarding prevention of needle stick injuries among nursing students obtained through self -structured attitude scale. The data is represented in the form of frequency distribution according to attitude scores.

Table-2.1

Frequency and percentage distribution of level of pre-test attitude scores regarding prevention of needle stick injuries among nursing students.

LEVEL OF ATTITUDE	SCORE	f	(%)
NEGATIVE	(0-4)	4	(6.7%)
NEUTRAL	(5-8)	40	(66.7%)
POSITIVE	(9-13)	16	(26.7%)
Maximum Score=13		Minimum Score=0	

Data presented in **the table 2.1** depicts the pre-test knowledge score was also categorized in negative attitude, neutral attitude, positive attitude. According to the scores obtained 26.7% of nursing student were having positive attitude, 66.7% of nursing students were have neutral attitude and 6.7% were having negative attitude regarding prevention of needle stick injuries among nursing students.

Table 3

Mean, standard deviation , median, maximum score, minimum score, range, and mean percentage of pre-test level of knowledge score regarding prevention of needle stick injury among nursing students.

N=60							
Descriptive Statistics	Mean	S.D.	Median Score	Maximum	Minimum	Range	Mean%
PRETEST KNOWLEDGE	19.07	2.736	19	26	13	13	47.70
	Maximum=	40	Minimum=	0			

Data presented in **the table 3** depicts the pre-test knowledge scores of the nursing students regarding prevention of needle stick injury. Result shows that mean scores was 19.07 , standard deviation score was 2.736, median score was 19, maximum score was 26, minimum score was 13, range score was 13, and mean percentage score was 47.70.

Table 3.1

Mean, standard deviation, median score, maximum, minimum, range, mean percentage of pre test attitude score regarding prevention of needle stick injuries among nursing student.

Descriptive Statistics	Mean	S.D.	Median Score	Maximum	Minimum	Range	Mean%
PRETEST ATTITUDE	7.65	2.138	8	13	3	10	58.80
	Maximum=	13	Minimum=	0			

Data presented in the **table 3.1** depicts the pre-test attitude scores of the nursing students regarding prevention of needle stick injury. Result shows that mean was 7.65, standard deviation was 2.138, median was 8, maximum was 13, minimum was 3, range was 10 and mean percentage was 58.80.

SECTION-III

a) POST-TEST KNOWLEDGE SCORES REGARDING PREVENTION OF NEEDLE STICK INJURY AMONG NURSING STUDENTS.

This section describes the findings related to the frequency, percentage distribution, mean, median, standard deviation, maximum, minimum, and mean percentage of post-test knowledge scores regarding prevention of needle stick injuries among nursing students obtained through self structured knowledge questionnaire. The data is presented in the form of frequency percentage distribution according to knowledge scores.

Table 4

Frequency & Percentage distribution of post-test level of knowledge scores regarding prevention of needle stick injury among nursing students.

N=60

LEVEL OF KNOWLEDGE	SCORE	F	(%)
INADEQUATE KNOWLEDGE.	(0-13)	0	(0%)
MODERATE KNOWLEDGE.	(14-26)	2	(3.3%)
ADEQUATE KNOWLEDGE	.(27-40)	58	(96.7%)

Maximum Score=40 Minimum Score=0

Data presented in the **table 4** shows that post test knowledge score was categorized in adequate knowledge, moderate knowledge, inadequate knowledge. According to the scores obtained 3.3% of nursing students were having moderate knowledge, 96.7% of nursing students were having adequate knowledge and none of them were having inadequate knowledge regarding prevention of needle stick injuries.

b) DATA ON POST TEST ATTITUDE SCORES REGARDING PREVENTION OF NEEDLE STICK INJURIES AMONG NURSING STUDENTS.

This section describes the findings related to the frequency, percentage distribution, mean, median, standard deviation, maximum, minimum, and mean percentage of post test attitude scores regarding prevention of needle stick injuries among nursing students obtained through self- structured attitude scale. The data is represented in the form of frequency percentage distribution according to attitude scores.

Table 4.1

Frequency & Percentage distribution of post-test level of Attitude scores regarding prevention of needle stick injuries among nursing students.

LEVEL OF ATTITUDE	SCORES	f	(%)
NEGATIVE	(0-4)	0	(0%)
NEUTRAL	(5-8)	2	(3.3%)
POSITIVE	(9-13)	58	(96.7%)
Maximum Score=13		Minimum Score=0	

Data presented in **table 4.1** shows that post test knowledge score was categorized in negative attitude, neutral attitude, positive attitude. According to the scores obtained 3.3% of nursing students were having neutral attitude, 96.7% of students were having positive attitude and none of them were having in negative attitude regarding prevention of needle stick injury among nursing students.

Table 5

Mean, standard deviation, median, maximum, minimum, range mean percentage of post-test level of knowledge scores regarding prevention of needle stick injuries among nursing students.

N=60							
Descriptive Statistics	Mean	S.D.	Median Score	Maximum	Minimum	Range	Mean%
POSTTEST KNOWLEDGE	35.92	2.806	36.5	40	25	15	89.80
	Maximum=	40	Minimum=	0			

Data presented in the **table 5** shows the post-test knowledge scores of the nursing students regarding prevention of needle stick injuries among nursing students shows that mean was 35.92, standard deviation was 2.806, median was 36.6, range was 15 and mean percentage was 89.80.

Table 5.1

Data on comparison of post test attitude scores of mean, standard deviation, median, maximum, minimum score, range score, mean percentage regarding prevention of needle stick injuries among nursing students.

N=60							
Descriptive Statistics	Mean	S.D.	Median Score	Maximum	Minimum	Range	Mean%
POSTTEST ATTITUDE	11.17	1.428	11	13	8	5	85.90
	Maximum=	13	Minimum=	0			

Data presented in **the table 5.1** shows the post-test attitude scores of the nursing students regarding prevention of needle stick injuries shows that mean was 11.17, standard deviation was 1.428, median was 11, maximum score was 13, minimum score was 8, range score was 5, and mean percentage was 85.90.

SECTION – IV

a) DATA ON COMPARISON OF EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM IN TERMS OF PRE-TEST AND POST TEST KNOWLEDGE SCORES REGARDING PREVENTION OF NEEDLE STICK INJURIES AMONG NURSING STUDENTS.

This section describes the significant difference between mean of pre-test and post-test knowledge scores among nursing students. In order to find out the significant difference between knowledge scores among nursing students following hypothesis was tested.

- **H₁:** there will be significant difference between mean pre-test and post-test knowledge scores of nursing students regarding prevention of needle stick injuries.
- **H₀₁ :** There will be no significant difference between mean pre-test and post-test knowledge scores of nursing students regarding prevention of needle stick injuries.

Table 6

comparison of pre-test and post test level of knowledge regarding prevention of needle stick injuries among nursing students.

N=60

LEVEL OF KNOWLEDGE	SCORE	PRETEST f(%)	POST TEST f(%)
INADEQUATE KNOWLEDGE.	(0-13)	1(1.7%)	0(0%)
MODERATE KNOWLEDGE	.(14-26)	59(98.3%)	2(3.3%)
ADEQUATE KNOWLEDGE	.(27-40)	0(0%)	58(96.7%)
Maximum Score=40		Minimum Score=0	

Data presented in **table 6** depicts the frequency and percentage distribution of pre-test and post-test knowledge scores. According to pre-test knowledge scores the 0% nursing students had adequate knowledge, the majority 98.3% had moderate knowledge and nursing 1.7% students had inadequate knowledge regarding prevention of needle stick injuries and in post test the knowledge scores, the majority 96.7% nursing students had adequate knowledge , 3.3% had moderate knowledge and none of nursing students had inadequate knowledge regarding prevention of needle stick injuries among nursing students during their post test.

b) DATA ON COMPARISON OF EFFECTIVENESS STRUCTURED TEACHING PROGRAM IN TERM OF PRE-TEST AND POST-TEST OF ATTITUDE SCORES REGARDING PREVENTION OF NEEDLE STICK INJURIES AMONG NURSING STUDENTS.

This section describes the significant difference between mean of pretest and post test attitude scores among nursing students. In order to find out the significant difference between attitude scores among nursing students following hypothesis was tested.

- **H₂:** there will be significant difference between mean pretest and post test attitude score of nursing students regarding prevention of needle stick injuries.
- **H₀₂:** there will be no significant difference between mean pretest and post test attitude score of nursing students regarding prevention of needle stick injuries.

Table 6.1

Finding related to comparison of pretest and post test attitude score of nursing students regarding prevention of needle stick injuries.

N= 60			
LEVEL OF ATTITUDE	SCORE	PRE TEST f(%)	POST TEST f(%)
NEGATIVE ATTITUDE.	(0-4)	4(6.7%)	0(0%)
NEUTRAL ATTITUDE.	(5-8)	40(66.7%)	2(3.3%)
POSITIVE ATTITUDE.	(9-13)	16(26.7%)	58(96.7%)
Maximum Score=13		Minimum Score=0	

Data represented in the table 6.1 depicts the frequency and percentage distribution of pre-test and post test attitude scores. According to pre-test attitude score the majority 66.7% nursing students had neutral attitude, 26.7% had positive attitude and 6.7% had negative attitude regarding prevention of needle stick injuries among nursing students. The post test majority in 96.7% nursing students had positive attitude, 3.3% had neutral attitude and no one had negative attitude regarding prevention of needle stick injuries among nursing students.

Table-7

Data on comparison of mean pre-test and post-test level of knowledge regarding prevention of needle stick injuries among nursing students.

N =60							
Paired T Test	Mean±S.D.	Mean%	Range	Mean Diff.	Paired T Test	P value	Table Value at 0.05
PRETEST KNOWLEDGE	19.07±2.736	47.70	13-26	16.850	33.277	<0.001	2.00
POSTTEST KNOWLEDGE	35.92±2.806	89.80	25-40		*Sig		
** Significance Level 0.05		Maximum=40 Minimum=0					

Data depicted in **table 7** shows the comparison of mean pre-test and post test knowledge scores regarding prevention of needle stick injuries among nursing students. Here, the mean post test knowledge scores was slightly higher than the mean pretest knowledge score i.e, mean post test was 35.92 and mean pre test was 19.07.

Further, the paired t-test was used to find the significant difference between the mean pre-test and post test knowledge scores. The t- value in knowledge score was 33.277 in the experimental group at $p < 0.001$ level of significance. Result was highly significant in the experimental group.

Hence, the research hypothesis H_1 was accepted and H_{01} was rejected. It was concluded that the mean post test knowledge score was high as compare to mean pre-test knowledge score and that difference is due to the exposure of structured teaching programme regarding prevention of needle stick injuries among nursing students.

Table- 7.1

DATA ON COMPARISON OF MEAN PRE-TEST AND POST-TEST ATTITUDE SCORES OF NURSING STUDENTS REGARDING PREVENTION OF NEEDLE STICK INJURIES.

N=60

Paired T Test	Mean±S.D.	Mean%	Range	Mean Diff.	Paired T Test	P value	Table Value at 0.05
PRETEST ATTITUDE	7.65±2.138	58.80	3-13	3.520	10.748 *Sig	<0.001	2.00
POSTTEST ATTITUDE	11.17±1.428	85.90	8-13				

** Significance Level 0.05 Maximum=13 Minimum=0

Data presented in **table 7.1** depicts the comparison of mean pre-test and post-test attitude score regarding prevention of needle stick injuries among nursing students. Here, the mean post test attitude score was slightly higher than the mean pretest attitude score i.e, mean post test was 11.17 and mean pre test was 7.65.

Further , the paired t-test was used to find the significant difference between the mean pre-test and post test attitude scores. The t-value in attitude scores was 10.748 in the experimental group at $p<0.001$ level of significance. Result was highly significant in the experimental group.

Hence, the research hypothesis H_2 was accepted and H_{02} was rejected. It was concluded that the mean post -test attitude score was high as compare to mean pre-test attitude score was high as compare to mean pre-test attitude score and that difference is due to the exposure of structured teaching programme regarding prevention of needle stick injuries among nursing students.

Table 8

a. Data on Comparison of pretest and post test scores individual gain of knowledge after effectiveness regarding prevention of needle stick injuries among nursing students.

INDIVIDUAL SCORE GAIN (EFFECTIVENESS))						
Mean %	PRE TEST KNOWLEDGE	POST TEST KNOWLEDGE	DIFFERENCE	PRE TEST KNOWLEDGE SCORE %	POSTTEST KNOWLEDGE SCORE %	DIFFERENCE%
Average	19.07	35.92	16.85	47.67	89.79	42.13

Data represented in the **table 8** shows the pre test and post test score of knowledge before and after the intervention of the programme among nursing students. The mean post test knowledge score

was slightly highest rather than the mean pre test knowledge scores i.e, the mean pretest knowledge score was 19.07% and the mean posttest knowledge score was 35.92%.

In terms of percentage increase, the pretest knowledge score percentage was 47.67%, while the posttest knowledge score percentage rose significantly to 89.79%. This indicates a substantial improvement of 42.13% in knowledge as a result of the intervention or study.

Table 8.1

b. Data on comparison of pre-test and post-test Scores individual gain of Attitude after effectiveness regarding prevention of needle stick injuries among nursing students.

INDIVIDUAL SCORE GAIN (EFFECTIVENESS)						
Mean%	PRE TEST ATTITUDE	POST TEST ATTITUDE	DIFFERENCE	PRE TEST ATTITUDE SCORE %	POSTTEST ATTITUDE SCORE %	DIFFERENCE %
Average	7.65	11.17	3.52	58.85	85.90	27.05

Data represented in the **table 8.1** shows the pre test and post test score of attitude before and after the intervention of the program among nursing students. The mean post test attitude score was slightly highest rather than the mean pre test attitude scores i.e, the mean pre test attitude score was 7.65% and the mean post test attitude scores was 11.17%.

In terms of percentage increase , the pre test attitude score percentage was 58.85%, while the post test attitude score percentage rise significantly to 85.90%. this indicate a substantial improvement of 27.05% in attitude as a result of the intervention or study.

SECTION-V

A) DATA ON ASSOCIATION OF POST TEST KNOWLEDGE SCORES OF NURSING STUDENTS WITH THEIR SELECTED SOCIO DEMOGRAPHIC VARIABLES.

This section deals with the findings related to the association between score and selected demographic variables. The chi-square test was used to determine the association between the score levels and selected demographic variables.

Table 9

CHISQUARE SHOWING ASSOCIATION OF POST-TEST KNOWLEDGE SCORES OF NURSING STUDENTS WITH THEIR SELECTED SOCIO DEMOGRAPHIC VARIABLES

ASSOCIATION OF POSTTEST KNOWLEDGE SCORES WITH SELECTED SOCIO-DEMOGRAPHIC VARIABLES.									
Variables	Opts	ADEQUATE KNOWLEDGE	MODERATE KNOWLEDGE	INADEQUATE KNOWLEDGE	Chi Test	P Value	df	Table Value	Result
Age	17-18 Years	17	2	0	4.465	0.107	2	5.991	Not Significant
	19-20 Years	30	0	0					
	21-22 Years	11	0	0					
	23 Years and above	0	0	0					
Professional course	BSc. Nursing	48	2	0	0.414	0.520	1	3.841	Not Significant
	GNM	10	0	0					
	Post BSc. Nursing	0	0	0					
	MSc. Nursing	0	0	0					
Clinical experience	Yes	58	2	0	N.A				
	No	0	0	0					
Any needle stick injury in past	Yes	13	0	0	0.572	0.449	1	3.841	Not Significant
	No	45	2	0					
	Lack of protection measure	30	1	0					
	Inattention, hasty work	11	0	0					
	Tiredness	3	0	0					
	No	4	1	0					
Source of Information	Mass media	1	0	0	0.249	0.969	3	7.815	Not Significant
	Printed media	0	0	0					
	student development program	2	0	0					
	Hospital staff	8	0	0					

*S=Significant

NS= Not Significant

Table 9 shows association of post-test knowledge scores with the socio demographic variables of nursing students. It was observed that there was no significant association of post test knowledge scores with the socio-demographic variables. i.e, Age (in years), professional course, clinical exposure, have you attended any education program related to prevention of needle stick injuries ,any needle stick in past, factors influenced, previous knowledge regarding prevention of needle stick injuries among nursing students, if yes, source of knowledge.

According to all the socio demographic variables, the obtained chi-square value was less than the table value so there is no association between post-test knowledge scores among nursing students at level of 0.05 level of significance.

b) DATA ON ASSOCIATION OF POST-TEST ATTITUDE SCORES OF NURSING STUDENTS WITH THEIR SELECTED SOCIO DEMOGRAPHIC VARIABLES.

This section deals with the findings related to the association between score and selected demographic variables. The chi-square test was used to determine the association between the score levels and selected demographic variables.

Table-9.1

CHISQUARE SHOWING ASSOCIATION OF POST TEST ATTITUDE SCORES OF NURSING STUDENTS WITH THEIR SELECTED SOCIO DEMOGRAPHIC VARIABLES

ASSOCIATION OF POSTTEST ATTITUDE SCORES WITH SELECTED SOCIO-DEMOGRAPHIC VARIABLES.									
Variables	Opts	POSITIVE ATTITUDE	NEUTRAL ATTITUDE	NEGATIVE ATTITUDE	Chi Test	P Value	df	Table Value	Result
Age	17-18 Years	17	2	0	4.465	0.107	2	5.991	Not Significant
	19-20 Years	30	0	0					
	21-22 Years	11	0	0					
	23 Years and above	0	0	0					
Professional course	BSc. Nursing	49	1	0	1.655	0.198	1	3.841	Not Significant
	GNM	9	1	0					
	Post BSc. Nursing	0	0	0					
	MSc. Nursing	0	0	0					
Clinical exposure	Yes	58	2	0		N.A			

	No	0	0	0					
Attended education program	Yes	30	2	0	1.810	0.178	1	3.841	Not Significant
	No	28	0	0					
Any needle stick injury in past	Yes	12	1	0	0.979	0.323	1	3.841	Not Significant
	No	46	1	0					
Factors influenced	Heavy workload	13	0	0	1.804	0.614	3	7.815	Not Significant
	Lack of protection measure	29	2	0					
	Inattention, hasty work	11	0	0					
	Tiredness	3	0	0					
Previous Information	Yes	53	2	0	0.188	0.665	1	3.841	Not Significant
	No	5	0	0					
Source of Information	Mass media	1	0	0	0.507	0.917	3	7.815	Not Significant
	Peer group	0	0	0					
	Family	2	0	0					
	Hospital staff	8	0	0					
	Nursing college teacher	43	2	0					

*Significant

NS= Not Significant

Data presented in **table 9.1** depicts association of post test attitude scores with the socio demographic variables of nursing students. It was observed that the obtained chi-square value was more than the table value so, there was not significant association of post test attitude score with demographic variables. Also, observed that the obtained chi-square value less than the table value so there was not significant association of post test attitude scores with the socio-demographic variable i.e, Age (in Years), clinical exposure, any needle stick injury in past, have you attended any educational programme, factors influenced, previous knowledge regarding prevention of needle stick injuries. If, yes, sources of knowledge.

According to all socio demographic variables, the obtained chi-square value was less than the table value so there is no association between post test attitude scores among nursing students at 0.05 level of significance. Hence, the research hypothesis H_5 was partially accepted and null hypothesis H_{05} was partially rejected.

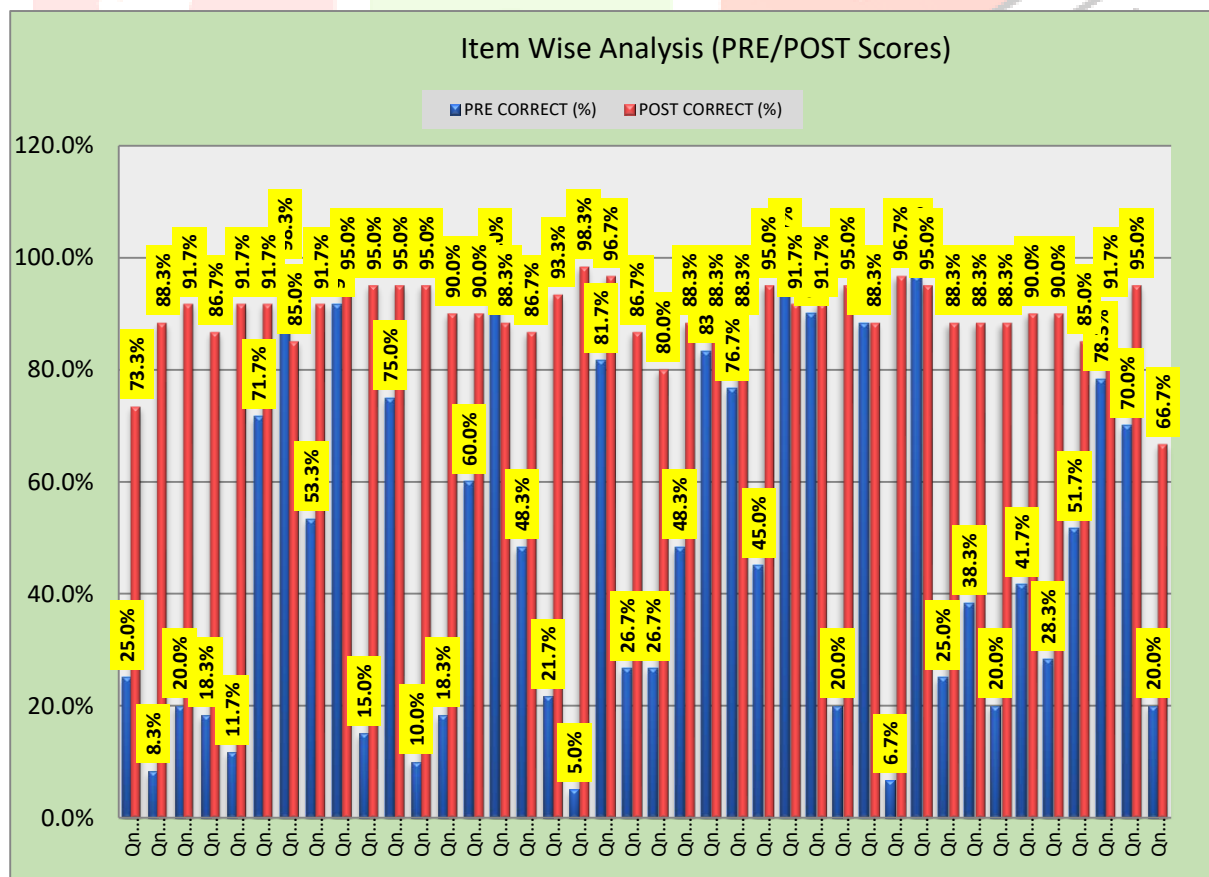
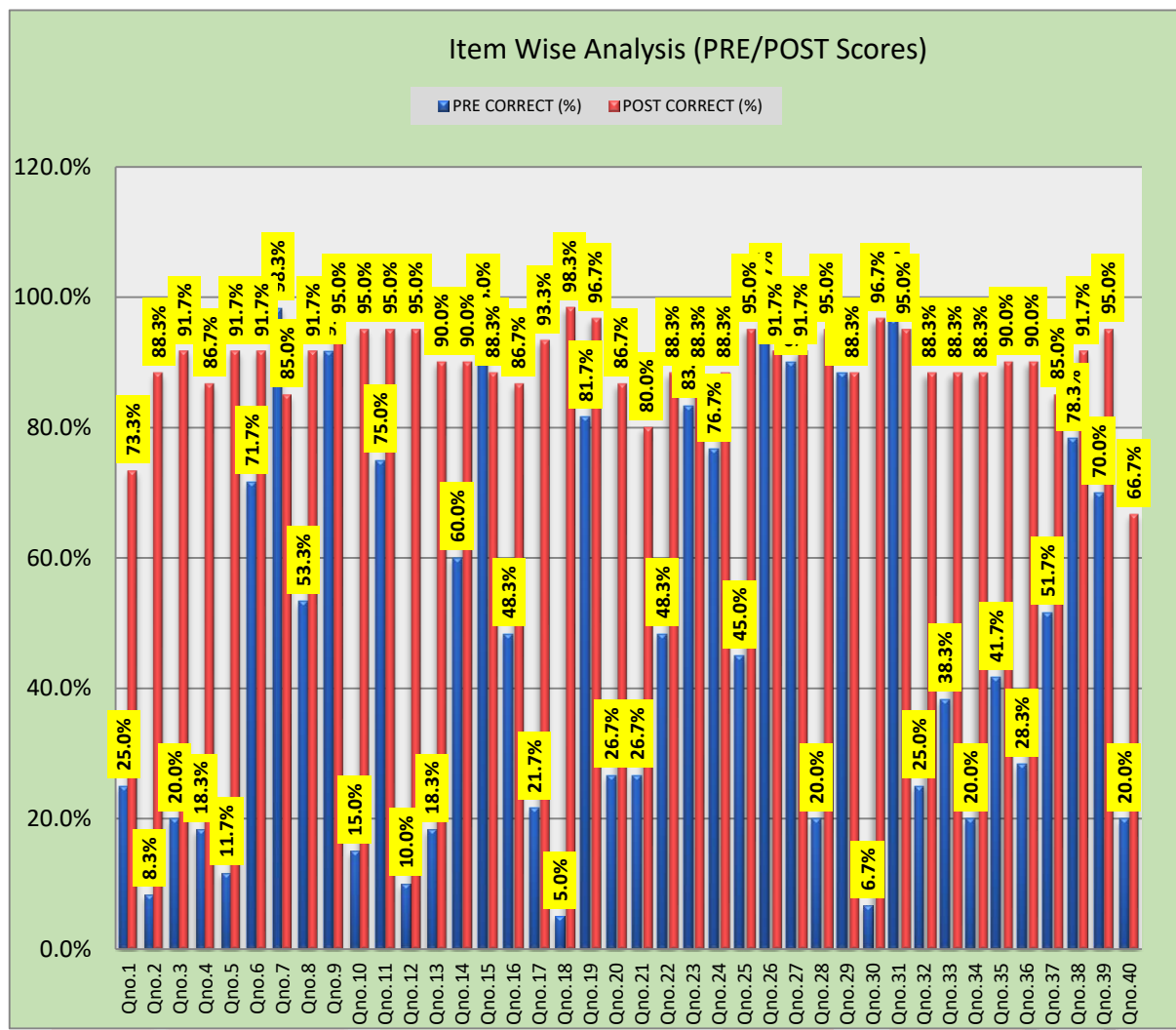


Figure no. 20: Bar diagram representing Item wise analysis representing comparison of pre-test and post-test level of knowledge regarding prevention of needle stick injuries among nursing students.

CONCLUSION

The results from study reveals that implementation of structured teaching programme to assess the knowledge and attitude regarding prevention of needle stick injuries among nursing students was adequate. As nursing student were easily attracted and shows interest toward structured teaching programme. And the Chi-Squared value had not significant association of attitude score only in selected demographic variables i.e, professional course of nursing students so it is considered that professional course of nursing students not helpful in improving attitude of nursing students regarding prevention of needle stick injuries. The Chi-square value also not significant association

of knowledge score regarding prevention of needle stick injuries among nursing students with selected demographic variables so it is concluded that selected demographic variables had no effect on nursing student knowledge regarding prevention of needle stick injuries among nursing students.

We hypothesized that providing educational programme with the help of structured teaching programme may improve the knowledge and attitude regarding prevention of needle stick injuries among nursing students. This hypothesis was supported by the findings of the current study as score of knowledge and attitude improved significantly after interventional educational programme. Hence it was concluded that the structured teaching programme is an effective strategy for improving nursing students knowledge and attitude regarding prevention of needle stick injuries.

PROCEDURE OF DATA COLLECTION

Alreck and Settle, states that data collection refers to the ways and means by which a researcher obtains relevant information regarding the major ideas of the hypothesis of the study so that he can demonstrate whether or not the hypothesis could be verified.

1. Prior permission was taken from the authorities of Maa Janki College of nursing Hamirpur, H.P. after discussing the purpose and objectives with them. Final study was conducted on in month of 22 March 2024.
2. The aim of study was to evaluate the effectiveness of structured teaching programme on knowledge and attitude of nursing students regarding prevention of needle stick injury.
3. A written consent was obtained from each subject. Total 60 sample were selected by non convenience sampling technique.
4. Appropriate orientation was given to the subject about the aim of study.
5. **Pre test:** On 1st day The pre-test questionnaire was administered to check knowledge and attitude scale to assess attitude will be provided and enough time will be given to respondents. After their response questionnaire will be collected from the respondent.
6. Provide self structured teaching programme to the study sample.
7. **Post test:** post test was conducted on the 7th day of pre test with the same set of self structured knowledge questionnaire and self structured attitude scale.
8. The data were compiled and analysis was done by using descriptive and inferential statistics.

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