



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2017; 3(5): 434-436
www.allresearchjournal.com
Received: 05-03-2017
Accepted: 06-04-2017

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A study to evaluate the effectiveness of Self instructional module regarding prevention of needle stick injury in terms of knowledge among health personnels working in a selected Hospital of Ambala Haryana

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Abstract

Needle stick injuries are a common event in the healthcare environment. When drawing blood, administering an intramuscular or intravenous drug, or performing other procedures involving sharps due to this needle can slip and injure the healthcare worker. The current study aimed to assess and compare the knowledge of health personnel in experimental group regarding prevention of needle stick injury before and after administration of Self-instructional Module, to Assess and compare the knowledge of health personnel in control group regarding prevention of needle stick, to determine the association of post-test knowledge score of health personnel in experimental group regarding prevention of needle stick injury with sample characteristics and to determine the acceptability and utility of self-instructional module on prevention of needle stick injury by health personnel. The research approach was experimental research approach with true experimental research design and was conducted in M.M.I.M.S.R & Hospital Mullana Ambala. The sample comprised of 80 health personnel (Staff nurses and laboratory technicians) and randomly divided into two groups (experimental and control group). Paper pencil technique was used to collect the data. Significant findings of the study were the mean post test knowledge scores of health personnel (20.88 ± 3.10) in experimental group was significantly higher than the mean post test knowledge score in control group (12.88 ± 2.0). The results further indicated that there was no significant association of post-test knowledge score of health personnel with sample characteristics and was concluded that the Majority of the health personnel (67.7%) opinion were fully met to accept the self-instructional module. Therefore, the findings of the study revealed that self-instructional module was effective in terms of enhancing the knowledge regarding prevention of needle stick injury among health personnel. Based on the finding the following recommendations were proposed for future research. A similar study can be replicated on a larger sample of Health personnel selected from the hospitals and can be carried out by using other training strategy like video film, planned teaching programme, structured teaching programme.

Keywords: effectiveness, self-instructional module, staff nurses laboratory technicians

Introduction

Needle stick injuries are of concern because of the risk to transmit blood-borne diseases through the passage of the hepatitis B virus (HBV), the hepatitis C virus (HCV), and the Human Immunodeficiency Virus (HIV). Despite their seriousness as a medical event, needle stick injuries have been neglected most go unreported. Accidental exposure to blood caused by needle injuries or injuries following, cutting, biting or splashing incidents carries the risk of infection by blood-borne viruses such as the Hepatitis B virus (HBV), Hepatitis C virus (HCV) and Human immunodeficiency virus (HIV). World Health Organization estimated in the year 2010 the prevalence of hepatitis B (HBV) was 5-40%, hepatitis C (HCV) was 3-10% and Human immunodeficiency virus (HIV) was 0.2-0.5% due to percutaneous injuries among health care workers. HBV prevalence is higher than average in intravenous drug users, homosexual men and in people from developing countries. HCV prevalence is higher in people who have had multiple blood transfusions, in dialysis patients and intravenous drug users. HIV prevalence is also higher in homosexual men, in intravenous drug users and in people from areas where the condition is endemic.

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There is an immense need for implementation of strategies in prevention of needle stick injury and adequate training of health personnel to cope up with the increasing vulnerability of health personnel towards prevention of needle stick injury. Therefore, this study was undertaken to evaluate the effectiveness of Self Instructional Module regarding prevention of needle stick injury in terms of knowledge among health personnels working in a selected Hospital of Ambala district of Haryana.

Methodology

The research approach adopted for the study was experimental with true experimental research design. The study was conducted in M.M.I.M.S.R & Hospital Mullana Ambala. The setting was selected purposively and study sample were selected randomly. The sample comprised of 80 health personnel (52 staff nurses and 28 laboratory technicians) were randomly selected and final sample was 26 staff nurses and 14 laboratory technicians in experimental and control group. The tool used for the data collection was structured knowledge questionnaire regarding prevention of needle stick injury, A self-instructional module regarding prevention of needle stick injury was developed to improve the knowledge regarding prevention of needle stick injury. Opinionnaire was developed to determine the acceptability and utility of SIM by health personnel. The paper and pencil technique was

used to collect data related to the sample characteristics, structure knowledge questionnaire and acceptability and utility of SIM. Content validity of the tools was established by the suggestion of seven expert in the field. Internal consistency of the questionnaire was computed by using kuder Richardson and found to be reliable (0.74). Ethical approval to conduct the study was obtained from institutional ethical committee of M.M University, Mullana, Ambala Eighty health personnel were selected by total enumeration sampling technique then they were divided into two groups with random assignment (lottery method). On day one structured knowledge questionnaire (pre-test) was administered in control group and no intervention was given. After a gap period of fifteen days post-test was taken in order to reassessing the knowledge of health personnel regarding prevention of needle stick injury. Similarly in experiment group on day fifteen pre-test of the knowledge questionnaire was taken as followed by the SIM regarding prevention of needle stick injury. After seven days SIM was collected back. Post-test was conducted on day fifteen after the administration of SIM in order to evaluate the effectiveness of SIM on prevention of needle stick injury by using the same tool as used for pre-test and after the post test the opinionnaire test was conducted to assess the acceptability and utility of the SIM

Result

Table 1: Frequency and Percentage Distribution of Health Personnel in Experimental and Control Group Based on Level of Knowledge.

level of knowledge	Range of score and percentage	Experimental group (n= 40)				Control group (n= 40)			
		Pre-test		Post -test		Pre -test		Post -test	
		(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
Very Good	23-30 (>75%)	0	0	13	32.5	0	0	13	32.5
Good	19-22 (61-75%)	0	0	22	55	0	0	1	2.5
Average	15-18 (50-60%)	3	7.5	3	7.5	4	10	3	7.5
Below average	1-14 (<50 %)	37	92.5	2	5	36	90	36	90

N=80, Minimum, score=0, Maximum score=30

Table 2: Range, Mean, Median and Standard Deviation of Pre-Test and Post-Test Knowledge Score of Health Personnel Regarding Prevention of Needle Stick Injury in Experimental and Control Groups. N=80

Group	Knowledge score			
	Range	Mean	Median	S.D
Experimental Group (n=40)				
Pre- test	09-17	12.73	13	1.82
Post- test	10-25	20.88	21	3.10
Control Group (n=40)				
Pre- test	09-16	12.70	13	1.97
Post- test	08-19	12.88	13	2.00

Maximum Possible Score: 30

The data presented in table-2 reveals that the mean post-test knowledge score was higher than the mean pre-test knowledge score in the Experimental group. The mean post-

test knowledge score and the mean pre test knowledge score were almost equal in the control group.

Table 3: Mean, Mean difference, standard deviation of difference, standard error of mean difference from pre-test to post-test knowledge scores and ‘t’ value in experimental group and control group, N=80

Group	Knowledge score				
	Mean	M _D	S _D	S.E.M.D	‘t’
Pre- test (N=80)					
Experimental Group	12.73	10.03	0.15	0.41	0.42 ^{NS}
Control Group	12.70				
Post-test (N=80)					
Experimental Group	20.88	8	1.10	0.34	23.5*
Control Group	12.88				

‘t’ (78) = 1.99; * significance (p ≤0.05); ^{NS}- Not significant (p >0.05)

Data presented in Table-3 reveals that after the administration of SIM regarding prevention of needle stick injury the mean post-test knowledge scores of the health personnel in experimental group was 20.88 and the mean

post-test knowledge scores of health personnel in the control group was 12.88 with a mean difference of 8 and t value is 23.5 which was found to be statistically significant.

Table 4: Frequency and Percentage of Acceptability and Utility of SIM based on Opinion of Health Personnel N=40

S. No. Statement	Fully met		Mostly met		Met to some extent	
	f	%	f	%	f	%
I feel the SIM was helpful in acquiring adequate knowledge about prevention of needle stick injury	28	70	10	25	2	5
I feel that information provided was enough.	35	87.5	5	37.5	0	0
I feel that the language used in SIM is simple to follow.	25	62.5	13	32.5	2	5
I find illustrations were helpful in understanding the content	21	52.5	18	45	3	7.5
I feel that SIM has enabled me to read the content at my own pace.	25	62.5	13	32.5	2	5
I find that SIM has enabled me to read appropriate visuals i.e, tables, diagrams, figure to facilitate learning.	23	57.5	15	37.5	2	5
I feel that SIM demonstrated impartiality in dealing with the Health personnel	20	50	19	47.5	1	2.5
I feel that SIM interacted well with the health personnel throughout the teaching learning process	25	62.5	15	37.5	0	0
I believe that SIM prepared was conducive of self learning	24	60	13	32.5	3	7.5
I feel that SIM can be used without anybody's help	32	80	8	20	0	0
I feel that SIM was useful to enhance the knowledge regarding prevention of needle stick injury.	40	100	0	0	0	0

Table-4 revealed that the frequency and percentage of acceptability of SIM opinion by health personnel. Majority of the health personnel (100%) responded that SIM was useful to enhance the knowledge regarding prevention of needle stick injury, The overall majority of the health personnel 67.7% were fully met as followed by 29.25% were mostly met and only 3.40% were met up to some extent to accept the SIM.

Discussion

This study showed that the mean percentage score of post test in experiment group was higher than the mean percentage score of pre test this means SIM was effective to increase the knowledge among health personnel. The findings is similar to the study to assess the level of knowledge about Post Exposure Prophylaxis (PEP) among health personnel. The findings revealed that the knowledge in pre test session was poor. The study concluded that knowledge on all the aspects improved in the post test session after the administration of SIM related to prevention of HIV AIDS. The increase in knowledge was statistically significant [62].

Conclusion

The following conclusions are drawn from the findings of the study:

- Selected group of the health personnel had deficit knowledge on prevention of needle stick injury.
- The health personnel have significant enhancing the knowledge regarding prevention of needle stick injury.
- SIM was an effective method in enhancing the knowledge of health personnel regarding prevention of needle stick injury.

Thus, the SIM was effective in enhancing the knowledge of health personnel regarding prevention of needle stick injury.

Recommendation

A similar study can be replicated on a larger sample of Health personnel selected from the hospitals of Haryana for wider generalization of the findings. A similar study can be

done to compare the knowledge and practices among health personnel regarding prevention of needle stick injury from government and private hospital.

Acknowledgement

We express our appreciations to the respected Health personnels from M.M.I.M.S.R Hospital Mullana, Ambala. Who cooperated with us for executing this research. The authors thank all the health personnels that participated in this study.

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