Effectiveness of Structured Teaching Programme Regarding Knowledge of Needle Stick Injury & Its Management Among Staff Nurses Working in Nabh Accredited & Non-Nabh Accredited Hospitals

Neeraj Kumar Bansal

Author Affiliation: Associate Professor, Department Nursing, Jai Institute of Nursing & Research, Gwalior, Madhya Pradesh 474001, India.

Abstract

Word related wellbeing perils are constantly hazardous which deliver hazard to soundness of medicinal services suppliers & furthermore create working condition which isn't in support to serve in productive way.

Needle stick wounds are fundamental wellspring of disease common among human services specialists particularly among staff medical attendants. Working in rushed way because of absence of adequate working staff, unseemly transfer of sharp waste, lacking accessibility of more secure sharp instruments & ill-advised utilization of defensive measures are fundamental driver which prompt event of needle stick wounds among staff medical caretakers.

Keywords: Needle stick injury, Percutaneous injury, Management of sharp injury, Nurse's Knowledge.

Introduction

Potential blood-borne pathogens:

- Major blood-borne pathogens

  HBV - Hepatitis B infection

  HCV - Hepatitis C infection

  HIV - Human immunodeficiency infection

- Other blood-borne pathogens

  Human T-lymphotrophic retroviruses I & II (HTLV I & II)

  Hepatitis D infection (HDV or delta operator, which is enacted withinsight of HBV)

  Hepatitis G infection (GB infection or GBV-C)

Cytomegalovirus (CMV)

Epstein-Barr infection (EBV)

Parvovirus B19

Transfusion-transmitted infection (TTV)

W741est Nile infection (WNV)

Malarial parasites

Prion operators

Blastomycosis

Cryptococossis

Diphtheria

Ebola

Leptospirosis

Mycobacterium tuberculosis

Toxoplasmosis

As indicated by World Health Organization, 2 million occurrences of needle stick wounds

Corresponding Author: Neeraj Kumar Bansal, Associate Professor, Department Nursing, Jai Institute of Nursing & Research, Gwalior, Madhya Pradesh 474001, India.

E-mail: drneerajkumarbansal@gmail.com

happened each year which prompts introduction to potential bloodborne pathogens essentially Hepatitis B, Hepatitis C & HIV. Event & predominance of such episodes are because of lacking information in regards to safe practices, utilization of more secure sharp gadgets, deficient learning in regards to treatment & post-introduction prophylaxis.

Pre-business preparing & in-benefit training with respect to needle stick wounds & its administration among social insurance specialists can decrease event of such occurrences.

An investigation titled "A Study To Compare Effectiveness Of Structured Teaching Program Regarding Knowledge Of Needle Stick Injury & Its Management Among Staff Nurses Working In NABH Accredited & Non-NABH Accredited Selected Hospitals Of Madhya Pradesh was led with targets;

1. To survey learning about needle stick damage & its administration among staff medical attendants

2. To assess adequacy of organized training program in regards to information of needle stick damage & its administration among staff medical attendants

3. To analyze viability of organized encouraging project in regards to information of needle stick damage & its administration among staff attendants working in NABH licensed & Non-NABH certify chosen healing centers &

4. To discover relationship of post-test information in regards to needle stick damage & its administration among staff medical caretakers working in NABH authorize & Non-NABH certify doctor's facilities with chose socio-statistic factors.

Hypotheses

HA1: there will besignificant difference between pre-test & post-test knowledge score regarding needle stick injury & its management among staff nurses of NABH accredited hospitals

HA1: $\mu1 \neq \mu2$

OR

HA1: $\mu1 - \mu2 \neq 0$

HA2: there will besignificant difference between pre-test & post-test knowledge score regarding needle stick injury & its management among staff nurses of Non-NABH accredited hospitals

HA2: $\mu1 \neq \mu2$

OR

HA2: $\mu1 - \mu2 \neq 0$

HA3: there will be significant difference between post-test knowledge scores regarding needle stick injury & its management among staff nurses working in NABH accredited & Non-NABH accredited selected hospitals

HA3: $\mu1 \neq \mu2$

OR

HA3: $\mu1 - \mu2 \neq 0$

HA4: there will be significant association of post-test knowledge score of needle stick injury & its management among staff nurses working in NABH accredited hospitals with selected socio-demographic variables.

HA4: x^2 cal. $> x^2$ tab.

HA5: there will be significant association of post-test knowledge score of needle stick injury & its management among staff nurses working in Non-NABH accredited hospitals with selected socio-demographic variables.

HA5: x^2 cal $> x^2$ tab

Methodology

Pre-experimental study design was used to collect the data from the samples. The study was conducted in selected hospitals of Madhya Pradesh. Selection of setting was done on the basis of availability of samples & feasibility of the study.

Information was gathered utilizing organized survey from staff medical caretakers working in NABH certifies & Non-NABH licensed doctor's facilities of Madhya Pradesh. Staff medical caretakers were chosen utilizing non-randomized purposive examining strategies with aggregate of 200 staff nurture each from NABH authorize & Non-NABH licensed healing facilities.

Consisted of 25 knowledge items questionnaire, score of one (1) was assigned to correct response & zero (0) assigned to each wrong answer. Total score of knowledge was 25. Level of knowledge was measured in terms of knowledge scores. Level of knowledge was measured on 4 point scale namely poor (0-10), average (11-15), good (16-20), &excellent (21-25).

Collected data were coded, grouped and analyzed by using descriptive statistics i.e. percentage, mean, standard deviation & inferential statistics i.e.

Neeraj Kumar Bansal/Effectiveness of Structured Teaching Programme Regarding Knowledge of Needle
Stick Injury & Its Management Among Staff Nurses Working in Nabh Accredited & Non-Nabh Accredited
Hospitals

95

paired t-test, unpaired t-test. chi-square was used to compare the relationship between demographic variables and knowledge scores of health care providers.

Results

Assessment of pretest & post-test knowledge scores of staff nurses working in NABH accredited & Non-NABH accredited hospitals

Assessment of knowledge scores of staff nurses working in NABH accredited & non-NABH accredited hospitals revealed that there were 71.75% of respondents come under poor knowledge category during pretest evaluation which was reduced to only 0.5% (only 2 participants out of 400) in posttest evaluation after implementing structured teaching programme. comparison of knowledge scores before & after teaching module explained remarkable gain in knowledge level of staff nurses.

- Assessment under average knowledge section showed that 25.5% of staff nurses (102 out of 400 participants) scored mean knowledge score of 12.49 during pretest evaluation. Posttest result unveiled that 38% of participants scored mean knowledge score of 13.8 in average knowledge category. Outcome exhibited increased frequency of personnels with improved mean knowledge scores after implementing structured teaching programme.

- In category of good knowledge level, it was observed that only 2.75% of total respondents in this category secured mean knowledge score of 16.45 before implementing structured teaching programme. After implementing STP, observations expressed that 56.5% (226 out of 400 participants) scored in good knowledge level which shows 54% addition in pretest frequency. Outcome displayed efficiency of teaching module with great improvement in knowledge level of participants.

- There was no participant under excellent knowledge category in pretest evaluation but posttest results showed that 5% respondents in this category scored mean knowledge score of 21.45. Outcome showed gain in knowledge of staff nurses.

- The overall assessment of participants of NABH accredited & non-NABH accredited hospitals showed that pretest mean knowledge score of 8.83 with SD of 3.22 was improved to 16.23 with SD of 2.53 in posttest evaluation. overall outcome of section displayed huge gain in knowledge of respondents. (Table 1)

- The pretest's mean knowledge score of 10.2 with SD of 2.861 was remarkably higher in posttest observation which was 16.2 with SD of 2.592.

Table 1: Comparison between Pre-test & post-test knowledge scores of staff nurses working in NABH accredited hospitals: (Using Paired T-test).

Level of knowledge	Pre-test				Post-test			
	F	%	Knowledge Mean Score	SD	F	%	Knowledge Mean Score	SD
Poor knowledge (0-10)	287	71.75	7.24	3.22	2	0.5	8.5	2.57
Average (11-15)	102	25.5	12.49	3.22	152	38	13.8	2.53
Good (16-20)	11	2.75	16.45	3.34	226	56.5	17.48	2.52
Excellent (21-25)	0	0	0	0	20	5	21.45	2.52
Total	400	100	8.83	3.22	400	100	16.23	2.53

Table 2: Comparison between Pre-test & post-test knowledge scores of staff nurses working in NABH accredited hospitals reveals that there is marked positive increase in knowledge scores which was highly significant.

Knowledge	Mean	SD	T-Test value	Table value	SE	DF	Remark
Pre-Test	10.2	2.861	23.91	1.962	0.25	199	Significant difference
Post-Test	16.2	2.592					

- The difference was higher which was found significant using paired t-test.

- The t-test calculated value of 23.91 was significantly higher thantable value of 1.962.

- The test for significant difference between two means ofsame group was calculated by paired t-test.Findings shows thatcalculated value (t-calculated = 23.91) is greater than tabulated value (t-tabulated = 1.962) at 5% significance. Hence there issignificant difference between two mean knowledge scores of staff nurses working in NABH accredited hospitals, & we cannot acceptnull hypothesis. HA1 is accepted. (Table 2)

The two knowledge means significant difference also shows that post-test knowledge score was more than pre-test score. So hypothesis can also be notated as:

HA1: $\mu1 < \mu2$

OR

HA1: $\mu1 - \mu2 > 0$

Table 3: Comparison between Pre-test & post-test knowledge scores of staff nurses working in Non-NABH Hospitals: (Using Paired T-test)

Knowledge	Mean	SD	T-Test value	Table value	SE	DF	Remark
Pre-Test	7.44	2.968	36.19	1.96	0.24	199	Significant difference
Post-Test	16.27	2.471					

- Comparison between Pre-test & post-test knowledge scores of staff nurses working in non-NABH accredited hospitals reveals that there is marked positive increase in knowledge scores which was highly significant.

- The comparison of mean knowledge score of pretest & posttest showed that pretest mean score of 7.44 with SD of 2.968 was increased to 16.27 with SD of 2.471 in posttest observation which was remarkably higher.

- The difference was significantly positive which was proved using paired t-test.

- The t-test calculated value of 36.19 was significantly higher thantable value of 1.96. (Table 3)

The test for significant difference between two knowledge means of same group was calculated by paired t-test. findings shows that calculated value (t-calculated = 36.19) is greater than tabulated value (t-tabulated = 1.962) at 5% significance. Hence there is significant difference between two mean knowledge scores of staff nurses working in Non-

NABH accredited hospitals, & we cannot accept null hypothesis. HA2 is accepted.

The two knowledge means significant difference also shows that post-test knowledge score was more than pre-test score. So hypothesis can also be notated as:

HA2: $\mu1 < \mu2$

OR

HA2: $\mu1 - \mu2 > 0$

Table 4: Comparison of post-test knowledge scores of Staff nurses working in NABH accredited & non-accredited hospitals: (Using unpaired T-test)

Knowledge	Mean	SD	Calculated value	Table value	Remark
Pre-Test (NABH)	16.2	2.592			No Significant difference
Post-Test (Non-NABH)	16.27	2.471	0.296	1.96	

- Comparison between post-test knowledge scores of staff nurses working in NABH accredited & non-NABH accredited hospitals showed no significant difference. This may be due toimplementation of same teaching material & content ontopic withsame technology to bothpopulation groups.

To test significant difference of mean of two large independent groups was calculated by unpaired t-test. findings shows that calculated value (t-calculated = 0.296) is lesser than tabulated value (t-tabulated = 1.962) at 5% significance. Hence there is no significant difference between two post-test mean knowledge scores of staff nurses working in NABH accredited & Non-NABH accredited hospitals, & we cannot reject null hypothesis. HA3 is rejected. (Table 4)

The two knowledge means no significant difference also shows that post-test knowledge score was almost same & not significant difference. So hypothesis can also be notated as:

H03: $\mu1 = \mu2$

OR

H03: $\mu1 - \mu2 = 0$

The result reveal that there is no significant association between knowledge of staff nurses working in NABH accredited hospitals with their demographic variables: age, gender, professional qualification,&working experience, continue nursing education&area of work. Hence we cannot rejectnull hypothesis. HA4 is rejected. (Table 5)

The findings of this section reveal that there is

Neeraj Kumar Bansal/Effectiveness of Structured Teaching Programme Regarding Knowledge of Needle
Stick Injury & Its Management Among Staff Nurses Working in Nabh Accredited & Non-Nabh Accredited
Hospitals

97

Table 5: Association between knowledge of staff nurses working in NABH hospital with their demographic variables:

Demographic variable	Category	Level of knowledge				Chi-square test	Table value (df)	Remark
		Poor	Average	Good	Excellent			
Age	21-30	1	64	73	5			
	31-40	0	16	27	5	0.29	6=12.59	NS
	41 <	0	0	9	0			
Gender	Male	0	21	24	3	0.99	3=7.81	NS
	Female	1	62	82	7			
Qualification	GNM	0	50	36	1			
	B.Sc. N	1	28	57	6	0.02	6=12.59	NS
	P.B.Sc.N	0	5	13	3			
Experience	< 1	1	38	30	1			
	1-5	0	34	52	4	0.1	9=16.92	NS
	6-10	0	6	15	1			
	10 <	0	5	9	4			
CNE	Yes	0	37	50	4	0.99	3=7.81	NS
	No	1	46	56	6			
Working Area	General	0	44	51	4			
	Emerge.	0	1	3	0			
	ICU	0	11	23	2	0.99	12=21.03	NS
	OT	0	1	1	0			
	Any Other	1	26	28	4			

Table 6: Association between knowledge of staff nurses working in Non-NABH hospitals with their demographic variables.

Demographic variable	Category	Level of knowledge				Chi-square test	Table value (df)	Remark
		Poor	Average	Good	Excellent			
Age	21-30	0	32	62	4	0.97	6=12.59	NS
	31-40	1	26	41	3			
	41 <	0	11	17	3			
Gender	Male	1	22	33	2	0.86	3=7.81	NS
	Female	0	47	87	8			
Qualification	GNM	0	16	23	2	0.99	6=12.59	NS
	B.Sc. N	1	33	66	4			
	P.B.Sc.N	0	20	31	4			
Experience	< 1	0	12	29	2	0.97	9=16.92	NS
	1-5	1	27	43	3			
	6-10	0	25	32	3			
	10 <	0	5	16	2			
CNE	Yes	1	22	45	6	0.68	3=7.81	NS
	No	0	47	75	4			
Working Area	General	0	24	44	4	0.9	12=21.03	NS
	Emergency	0	12	14	1			
	ICU	0	14	17	1			
	OT	1	11	19	3			
	Any Other	0	8	26	1			

no significant association between knowledge of staff nurses working in NON-NABH accredited hospitals with their demographic variables: age, gender, professional qualification, & working experience, continue nursing education&area of work. Hence we cannot rejectnull hypothesis. HA5 is rejected. (Table 6)

Discussion

The study indicated that majority ofnursing staff working in hospitals was female, withinage group of 21-30 years. This could be due to that, nursing isnoble profession & hadstable scope; minimum age bar at entrance level is 17 years hence it can be completed by 21 years.Majority of nurses like to work in hospitals as it has easy job placement because of heavy demand, good salary & independent working conditions. Outcome of study is more or less supported bystudy of Gudetakaweti (2014) which shows that 57.5% ofnurses were inage group of 25-34 years.Study of Hossein (2016) also supportsoutcome ofstudy which shows 40% ofresponding nurses were inage group of 26-30 years.

Female staff nurses were almost three times more than male staff nurses working instudied hospitals. This may due topreference to female staff nurses in compare to male staff nurses. Outcome is also supported bystudy of Gudetakaweti (2014) which shows that 67.5% ofrespondents were female nurses.

Staff nurses who did GNM have better knowledge in compare to other staff nurses who did B.Sc. nursing&post basic B.Sc. nursing. This may be due to balanced exposure of GNM candidates withintheoretical & practical setting. Staff nurses qualified with B.Sc. nursing wasmost instudy. Study of Mehdi jahangiri (2015) supportsoutcome as there were 81% ofrespondents qualified withB.Sc. nursing degree course.outcome is also supported bystudy of Gudetakaweti, showing 35.89% ofrespondents qualified with degree course.

Needle stick injuries arework place hazards & demands continuous knowledge about standard preventive measures. Staff nurses those are having work experience of more than 10 years of experience havemore knowledge regarding needle stick injuries & its management with compare to other experience groups. This will be due to continuous learning inworking field, exposure withnew handling techniques & use of appropriate protective equipments. study is similar tooutcome

of Mehdi jahangiri (2015) which showsaverage work experience of 7.1 years among nurses with highest knowledge scores.

Continuous nursing education hadgood effect in empowering & updating knowledge of health care providers about subject. Study shows that staff nurses attended any continue nursing education ever hadgood level of knowledge compare to those who didn't attend.

Study indicates thatstaff nurses who work inintensive care units&critical care units have better knowledge compare to others working in general wards, emergency wards or OT. This will be due to continuous exposure withsharp instruments, strict adherence topersonal protective equipments in order to preventtransmission of infection.

Summary:

The study was based on pre-experimental research design & participants were selected using non-probability random sampling method. Total participants which were selected from NABH accredited hospitals & non-NABH accredited hospitals were 400. Participants were benefited with structured teaching programme on needle stick injury & its management which was prepared in order to enhance knowledge of participants regarding disease prevalence due to needle sticks & its effective treatment & management.

The outcome of respondents in two phases pretest & post test showed remarked changes. Pretest knowledge of participants is lesser what they scored in posttest after going through structured teaching programme. These changes showed that respondents enhanced their knowledge after teaching programme on needle injury & its management.

The participants of NABH accredited hospitals also showed that they had better pre-existing knowledge regarding needle stick injuries in compare to pre-existing knowledge of respondents of non-NABH accredited hospitals which can be due to continuous in-service learning sessions to health care providers in NABH accredited hospitals. Pre-existing knowledge of both groups was not satisfactory.

Conclusion

The present study was aimed to assessexisting knowledge among staff nurses regarding needle

stick injury & its management & to improve knowledge by implementing structured teaching programme on needle stick injury & its management.

The study concludes that:

- Staff nurses with early age are more skilled&have good knowledge with regard to prevention&protection from needle stick injury & its management.

- More experience staff nurses have, more knowledge they will get or knowledge will improve by continuous learning & experiences.

- It demands frequent continuous nursing education learning sessions in order to improveknowledge of staff nurses.

- Staff nurses working in NABH accredited hospitals have better knowledge thanstaff nurses working in Non-NABH accredited hospitals, but still needs improvement.

Recommendations

Research iscontinuous process & there is alwaysmargin to improve or study more inparticular subject. Present study has following future recommendations:

- Study can be conducted onlarge scale in order to getexact incident reports&to formulate policy in preventing them.

- Randomized controlled study can be done to knoweffectiveness ofintervention.

- Studies using other interventional scales like video assisted can be done.

- Further study to assessknowledge & practice of universal precautions among staff nurses can be conducted.

Limitations of Research Work

- The study is conducted on staff nurses only hence all other health care workers do not meansame.

- The samples were selected fromautonomous hospitals only, soresult can showdifferent picture in government hospitals.

- The study results reveals onlyeducational/ knowledge status ofparticipants & effect of teaching module on them, clinical outcome may differ from this.

Reference

1. AhmedS. (2014), needle stick & sharp injuries among nurses, Middle East J. of applied sciences, 4(4): 1205-1211.

2. Angadi N., Davalgi S., Vanith S S. (2016), needle stick injuries & awareness towards post-exposure prophylaxis for HIV, Int. J. of community medicine & public health, 3(1): 335-339.

3. Beker J., Bamlie T. (2015), Needle stick&sharp injuries&associated factors, J. of Nursing Care, 4(5): 1-8.

4. D. Adams (2012), Needle stick&sharps injuries, nursing standards, 26(37): 49-56.

5. Esmaeil M., Fatemeh ND. (2015), risk factors of needle stick & sharp injuries among health care workers, J. of nursing & midwifery sciences, 2(1): 34-39.

6. Griswold S., Bonaroti A., Rieder C J., Erbayri J., Parsons J., Nocera R., Hamilton R. (2013), investigation ofsafety engineered device to prevent needle stick injuries, BMJ Open, 3:e002327, 1-6.

7. Jahangiri M., Rostamabadi A., Hoboubi N., Tadayon N., Soleimani A. (2016), Needle stick injuries & its related safety measures, Elsevier, 7: 72-77.

8. Lee J H., Cho J., Kim Y J., Im S H., Jang E S., Kim J W., Kim H B., Jeong S H. (2017), incidence, characteristics&transmission of occupational blood exposures, Biomed central; public health, 17(827): 1-8.

9. Patrician P A., Pryor E., Fridman M., Loan L. (2011), Assessment of needle stick injuries with shift level staffing, American J. of infection control, 39(6): 477-482.

10. Shaw C. (1990), external assessment of health services, World hospitals & health services, 40(1): 24-27