International Journal of Applied Research 2017; 3(11): 46-48

ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2017; 3(11): 46-48
www.allresearchjournal.com
Received: 10-09-2017
Accepted: 11-10-2017

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A study to assess the effectiveness of structured teaching programme on knowledge regarding needle stick injury among health workers in selected health centers of Tirupati

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Abstract
A Needle stick injury, percutaneous injury, or percutaneous exposure incident is the penetration of skin by needle. A pre-experimental one group pre-test and post –test design was adopted.50 health workers were selected by using convenient sampling technique on the basis of inclusive criteria to assess the knowledge regarding needle stick injury among health workers by using interview schedule**.** The study findings revealed that among 50 health workers 15(30%) had inadequate knowledge, 25(50%) had moderate knowledge and 10(20%) had adequate knowledge in pre-test. After the administration of structured teaching programme the findings of the post-test revealed that 10(20%) had inadequate knowledge 23(46%) had moderate knowledge and 17(34%) had adequate knowledge on health workers regarding needle stick injury. In pre test mean value was 1.90, post test mean value was 2.14 and the standard deviation value was 0.707 in pre test, 0.726 in post test and the t –value was 48.153 and the p value was <0.01 and hence the assumed H1 was accepted. It evidenced that the STP is significantly effective on improving knowledge regarding needle stick injury among health workers. The researcher revealed that there was a significant association between the pretest knowledge and demographic variables such as age in years was significant at $p<0.05$ level and educational sessions attended regarding needle stick injury, were significant at $p<0.01$ level. The assumed H2 was accepted. The association of post test knowledge score of subjects with demographic variables such as age in years, religion, experience, exposure to number of injections per days, did you had needle stick injury were significant at $p<0.05$ level, hence the research hypothesis H2 was accepted. The present study concluded that health workers have moderate knowledge regarding needle stick injury before STP and after STP knowledge about needle stick injury among health workers was improved.

Keywords: Assess, effectiveness, structure teaching programme, needle stick injury, health workers

Introduction
A Needle stick injury, percutaneous injury, or percutaneous exposure incident is the penetration of skin by a needle or other sharp object, which was in contact with blood, tissue, or other body fluid before the exposure. Occupational needle stick injuries primarily affect health workers, who make up 80% of needle stick injuries in the United States. Various other occupations are also at increased risk of needle stick injury, including law enforcement, laborers, tattoo artists, agricultural workers. Though the acute physiological effects of a needle stick injury are generally negligible, these devices can transmit blood - borne diseases, placing those exposed at increased risk of contracting infectious diseases, such as hepatitis B (HBV), hepatitis C (HCV), and the human immunodeficiency virus (HIV). Among health care workers and laboratory personnel worldwide, more than 25 blood - borne viruses have been reported to be caused by needle stick injury.

Needle stick injuries are common event in the health care environment, by drawing blood, administering an intramuscular or intravenous drug, or performing any procedure involving sharps, accidents can occur and facilitate the transmission of blood-borne diseases. Injuries also commonly occur during needle recapping or improper disposal of devices in to an overfilled or poorly located sharp containers. Needle stick injuries are more common among health workers during night shifts, and for less experienced people, fatigue, high work load, high pressure, or high perception of risk can all increase the chances of needle stick injury.

Generally needle stick injuries cause only minor visible trauma or bleeding, however, even in the absence of bleeding the risk of viral infection remains.

The world health organization estimated annual global needle stick injuries at 2 million per year, and another investigation estimated 3.5 million injuries yearly. The European biosafety network estimated 1 million needle stick injuries annually in Europe. The US occupational safety and health administration (OSHA) estimates 5.6 million health care workers exposure to blood – borne diseases by percutaneous injury. The US centers for disease control and prevention estimates more than 600,000 needle stick injuries occur among health care workers in the US annually.

Among health care workers nurses and physicians are at high risk, those who work in an operating room environment are at highest risk, more than half of needle stick injuries that occur during surgery, with in the medical field, specialties differ in regard to the risk of needle stick injury, surgery, anesthesia, otorhinolaryngology (ENT) internal medicine, and dermatology have high risk, where are radiology and pediatrics have relatively low rates of injury. In the unitedstates approximately half of all needle stick injuries affecting health care workers are not reported. Bloodmay be infectious, whether or not the blood is fresh, HIV and hepatitis C virus are only viable for hours after blood has dried, but hepatitis B virus is stable even when dried out, therefore other professions may experience at risk of needle stick injury including waste collectors, laborers, and agricultural workers, law enforcement workers, like health care workers under report needle stick injuries.

Needle stick injuries have the potential to transmit bacteria, protozoa, viruses, and prions, the risk of contracting hepatitis B, hepatitis C, and HIV is the highest. The world health organization estimated that 66,000 hepatitis B, 16,000 hepatitis C, and 1,000 HIV infections were caused by needle stick injuries, with higher rates of blood – borne diseases in the general population, health care workers are more susceptible to contracting these diseases from a needle stick injury. Hepatitis B, after exposure to the hepatitis B virus (HBV), appropriate and timely prophylaxis can prevent infection and subsequent development of chronic infection or liver disease. Hepatitis C immunoglobulin and antiviral are not recommended for hepatitis C, There is no vaccine for HCV, therefore post exposure treatment consists of monitoring for seroconversion. Blood should be tested for HIV as soon as possible following exposure, the injured person can start antiretroviral drugs for post exposure prophylaxis as soon as possible preferably within three days of exposure, there is no vaccination for HIV.

Physical effects of needle stick injury are pain, redness, swelling, Psychological effects of occupational needle stick injuries can include health anxiety, anxiety about disclosure or transmission to a sexual partner, trauma-related emotions, and depression. These effects can cause self-destruction behavior or functional impairment in relationships and daily life.

Needle stick injury prevention includes blood being drawn with a vacutainer or protective cap it protects the needle after it is removed, and necessary to prevent needle stick injury including proper use of needles, only use needles when necessary, training of people who use needles, improved work practices, and engineering controls. Work practices that reduce the risk of needle stick injury.

Objectives of The Study

1. To assess the level of knowledge regarding needle stick injury among health workers by pretest.
2. To assess the effectiveness of structured teaching programme on knowledge regarding needle stick injury among health workers by post test.
3. To find out the association between pre-test, post test knowledge scores regarding needle stick injury with selected socio- demographic variables.

Hypothesis

H1: There will be significant difference between the pretest and post test of knowledge scores among health workers regarding needle stick injury.

H2: There will be significant association between knowledge of the health workers with selected socio demographic variables.

Material and Methods

A pre-experimental one group pre-test and post –test design was adopted. 50 health workers were selected by using convenient sampling technique on the basis of inclusive criteria to assess the knowledge regarding needle stick injury among health workers by using interview schedule in selected health centers Tirupati. Structured questionnaire was used.

Pre test

Pre-test Knowledge regarding needle stick injury among health workers.	Frequency	Percentage	Mean	SD
Inadequate	15	30.0	1.90	0.707
Moderate	25	50.0		
Adequate	10	20.0		
Total	50	100		

Post test

Knowledge regarding needle stick injury among health workers.	Frequency	Percentage	Mean	SD
Inadequate	10	20.0	2.14	0.726
Moderate	23	46.0		
Adequate	17	34.0		
Total	50	100		

Results

In pre-test, out of 50 caregivers, 25(50%) were having moderate knowledge, 15(30%) were having inadequate knowledge and only 10(20%) were having adequate knowledge. In post-test, 23(46%) were having moderate knowledge, and 17(34%) were having adequate knowledge

and 10(20%) of health workers having inadequate knowledge. In pre-test the mean score was 1.90, standard deviation was 0.707 and post-test mean knowledge was 2.14, and the standard deviation was 0.726. The t-value was 48.153. Hence research hypothesis was accepted. It evidenced that the structured teaching programme was significantly effective on improving knowledge regarding needle stick injury among health workers. The researcher identified that there was significant association between the pretest knowledge and demographic variables such as educational session regarding needle stick injury at $p<0.01$ level and age in years was significant at $p<0.05$ level. The association of post-test knowledge score of subjects with demographic variables such as age, religion, experience, exposure to number of injections, ever had needle stick injury was significant at $p<0.05$ level.

Conclusion

The present study revealed that health workers have moderate knowledge regarding Needle stick injury and after structured teaching programme knowledge had improved among health workers.

Nursing Implications

- As a community health nurse, he/she can educate and conduct teaching programmes on needle stick injury among health workers and its importance.
- The community health nurse should be knowledgeable with updated information regarding prevention of needle stick injury among health workers.

Nursing Education

- The nursing curriculum can be strengthened by adding new and updated information about needle stick injury among health workers.
- The nurse educators can encourage students to participate and conduct needle stick injury training classes.

Nursing administration

- Nurse administrators should help in providing the adequate resources for conducting training programmes in the health centers regarding needle stick injury.
- Nurse administrators can organize various training and in-service education programmes to improve the knowledge of nurses.

Nursing Research

- There is need of nursing research to be conducted on various aspects of needle stick injury among health workers.
- There should be adequate funds to encourage upcoming nurse researches towards needle stick injury.
- The finding of the study can be practiced in their professional life, as to be a part of preventing complications by needle stick injury.

Limitations

The study has been limited to health workers regarding needle stick injury.

- Who are attending primary health center
- Both male and female
- Who are willing to participate in the study
- Who can understand Telugu / English.

Recommendations

On the basis of findings the following recommendations have been made for further study.

- The following study can be replicated on larger samples, there by the findings can be generalized for larger group.
- Follow up study can be conducted to evaluate the effectiveness of STP.
- Similar study could be conducted to develop a health education pamphlet on prevention of needle stick injury.

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