Injection safety practices among Nurses in a Tertiary Health Facility in Delta State, Nigeria

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Abstract

Background: The burden of unsafe injection practices is borne by the health care workers, patients and the community. High burden of injection has been found in Nigeria and this places Nigerians at an increased risk of blood borne infections. We report the prevalence of needle stick injury among nurses in a teaching hospital
Methods: A descriptive cross sectional study carried out over a period of 8 months (April to November 2013) involving 153 nurses in Delta State University Teaching Hospital (DELSUTH) using an interviewer administered questionnaire was used to collect data.
Results: The frequency of needle stick injury among the nurses was 57.5%, the level of reporting was 39.5%, while the level of knowledge on injection safety practices was 56.9%.
Conclusion: The frequency of needle stick injury was high, compared to a relative low reporting of the incidence. There is therefore need for the management of the hospital to have a laid down reporting procedure and also educate the workers on the action to take in the event of an exposure.

Keywords: Injection safety practices; Nurses; Teaching hospital

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Introduction

Injection safety is defined as an injection that is administered using appropriate equipment, that does no harm to the recipient, and does not expose the provider to any avoidable risk and does not result in any waste that is dangerous to other people.[1,2]Injection is one of the most common health care procedures. It has unfortunately become a vehicle for the transmission of blood borne pathogens (BBP).[3-5]A safe injection does no harm, however when safety control practices are not implemented, severe infections can result putting human lives at risk. The burden of unsafe injection practices is borne by the health care workers, the patients, and the community at large.

Globally 40% of injections are given with syringes and needles reused without sterilization and the proportion is as high as 70% in some countries.[6,7] The community is exposed to hazards of unsafe waste disposal practices such as improperly located disposal sites, improper disposal methods; like use of shallow pits, open dumping, unsecured pits, and easy access of disposal sites.[8,9] Hence proper disposal of sharp will not only protect the health care worker from accidental injuries but will also protect the communities. Standard precaution (SP) are the minimum infection prevention practices that apply to all patient care regardless of suspected or confirmed infection status of the patient in any setting where health care is delivered.These practices are designed to both protect Health Care Professional (HCP) and prevent HCP from spreading infections among patients. It is made up of the following components; hand hygiene, use of Personal Protective Equipment (PPE), safe injection practices, safe handling of potentially contaminated equipment/surfaces in the patient environment and respiratory hygiene/cough etiquette.[10-13]Each year at least 16 billion injections are administered in developing and transitional countries. Nine out of ten patients presenting to a primary health care provider receive an injection and over 70% of which are unnecessary or could have been given in oral formulation.[14-16]

In Nigeria the incidence of unsafe injections is about 45% although variations occur across the country with some states like Lagos having an incidence of 72.9%. [17,18] Injections if given unsafely exposes the health care worker to blood borne pathogens such as Hepatitis B Virus, Hepatitis C Virus, HIV/AIDS etc. In the year 2000, unsafe injections was responsible for an estimated 21million cases of HBV infection, 2million cases of HCV infection and 260,000 cases of HIV infection globally.[19,20] The indirect medical cost due to HBV, HCV and HIV/AIDS annually is an estimated US dollar 535 million. A high burden of injection use has been found to be prevalent in Nigeria,

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with an estimated average of 4.9 injections per patient per year. This places Nigerians at an increased risk of infection with HBV, HCV and HIV.[21,22] This study was carried out to determine the prevalence of needle stick injury among nurses in a teaching hospital in southern Nigeria, and to ascertain their level of reporting.

Materials and Methods

The study was carried out in Delta State University Teaching Hospital (DELSUTH), Oghara, Delta State, Nigeria. Oghara is one of the towns in Ethiope West Local Government area of Delta State. It has an estimated population of 146,678 people and covers an estimated land mass of 1175 square kilometers. Oghara lies between longitude $^{5.7}$ West and latitude $^{5.916}$ South, within the Tropical rain forest belt [23]. The community is host to a state owned polytechnic and a private university; the Western Delta University. The research study was approved by the ethical committee of DELSUTH before the commencement of the study. Informed consent was also obtained from the participant before administering the questionnaires.

A descriptive cross-sectional design was utilized for the study; and it was carried out over a period of 8 months; April to November 2013. All nurses working in DELSUTH as at the time of the study and who have been in continuous employment in the hospital for at least six months preceding the study and are willing to participate in the study were include. The minimum sample size required for the study is 335; however the total population of nurses working in DELSUTH as at the time of the study was 153. Therefore total population study was carried out and all 153 nurses were studied. Data was collected using interviewer administered questionnaire.

The questionnaire was collected, sorted and data analyzed using the Statistical Package for Social Sciences (SPSS). Frequency tables, and cross tables were constructed and where applicable result were tested for significance at 5%. Knowledge of injection safety practices was scored using a set of four questions. A score of 0-1 was regarded as poor knowledge; 2-3 was good knowledge, while 4 was taken as excellent knowledge.

Results

A total population of 153 questionnaires was administered retrieved and analyzed. A greater proportion 75 (49.0%) of the respondents fell within the 30-39 years age group with a mean age of 32.0±6.1 years.A higher proportion 88(57.5%) of the respondents in the study had sustained needle stick injury.Out of the 88 respondents, who had sustained needle stick injury (NSI), only 32(36.4%) reported their injury, while 56(63.6%) did not report theirs'

Table 1: Knowledge of injection safety practices and occurrence of needle stick injuries among nurses at the Delta State University Teaching Hospital, Nigeria

Knowledge	Occurrence of NSI		
	Yes n (%)	No n (%)	Total n (%)
Poor	38(57.6)	28(42.4)	66(100.0)
Good	35(67.3)	17(32.7)	52(100.0)
Excellent	15(42.9)	20(57.1)	35(100.0)
Total	88(57.5)	65(42.5)	153(100.0)
	P = 0.07	X2=5.11	

NSI: Needle stick injury

Table 1 shows that respondents who had good knowledge on injection safety practices and had sustained NSI were 35(67.3%) compared to 17(32.7%) who had good knowledge and did not sustain NSI (X^2=5.11, p=0.07). Respondents who are aware of PEP and reported their NSI were 23 (59.0%), compared to 16(41.0%) who sustained NSI and did not report (X^2=16.47, p<0.0001) as shown in Table 2.

Table 2: Awareness of post exposure prophylaxis and level of reporting of needle stick injury among nurses at the delta state university teaching hospital, nigeria

Awareness of PEP	Level of reporting		
	Yes n (%)	No n (%)	Total n(%)
Yes	23 (59.0)	16 (41.0)	39 (100.0)
No	9 (20.9)	34 (79.1)	43 (100.0)
Total	32 (36.4)	56 (63.6)	88. (100.0)
	P = 0.001	X2 =16.47	

Discussion

The study showed that over eighty percent of the respondents fell within 20-39 years age bracket with a mean age of 32.0±6.1 years. This finding was similar to that seen in a study carried out in Benin City, Nigeria where the mean age of the respondent was 32.0±8.9[14].Similarly the study carried out in Ilorin, Nigeria showed the mean age of the respondent to be 33±6.0[22]. On the contrary a study carried out in Morocco showed the mean age to be 41.4±7.0year[25].The mean ages of all the studies in Nigeria was 32 years; showing uniformity in the duration of training in our educational institutions.

From the study, it was found that about half of the respondents had good knowledge on injection safety practices (ISP). This finding is surprisingly low considering the fact that the study was conducted among health professionals who should have acquired reasonably high knowledge on safety practices required to protect them from hazards associated with their job in the course of their training. Similarly the report from a study conducted in Kaduna, Nigeria showed that 54.3% of the respondents had good knowledge on injection safety prctices[26]. On the contrary the findings of Benin study showed that less than half of the respondents had good knowledge on ISP.[14] Similar to the Benin study, a comparative study conducted in Ibadan, in two teaching hospitals also showed that less than half of the respondents in both teaching hospitals had good level of knowledge on ISP.[27]This finding therefore spells doom as it is likely to translate to high transmission of BBP among these health care professional.

Furthermore the result of the study showed that over half of the respondents (57.5%) had sustained needle stick injuries. This is surprisingly high considering the fact that in most tertiary health facility in Nigeria recapping of needles and re-using of needles are not encouraged and these are some of the activities that encourage needle stick injuries. This finding is in keeping with the report from the Benin study where frequency of needle stick injury was seen to be a little over 50 percent[14], but was significantly higher than that reported from a study carried out in Goa, India where only about a third of the respondents were reported to have sustained needle stick injuries.[12] This high rates of occupational exposure among participants in the study can be attributed to the non-observance of standard precaution by the health care workers while performing their duties.

The report from the study has also revealed that only a third of the respondents who had experienced occupational exposure reported it. This poor reporting attitude was also seen in the studies conducted in Karachi, Pakistain, and Goa, India.[28,12]

This study was not without limitations. We relied wholly on historical account of occurrence NSI and reportage. This could have impacted on our findings as they are subject to recall bias. Similarly, the study is limited by the relatively small sample size. However, this study does provide data for which policies regarding NSI could be formulated.

In conclusion, the prevalence of needle stick injury was high (57.5%), while the level of reporting is low. There is need for hospitals to set up a PEP protocol unit, to assist workers in the event of an exposure in order to avoid endangering the health of its workers. There is also need for hospitals to have a laid down reporting procedure and also educate the workers on the action to take in the event of an exposure, to prevent exposure from becoming an infection with blood borne pathogens. Regular monitoring is also needed to ensure that workers observe standard precautions while carrying out their duties.

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