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ISSN 2319-3077 Online/Electronic

ISSN 0970-4973 Print

Journal Impact Factor: 4.275

Global Impact factor of Journal: 0.876

Scientific Journals Impact Factor: 3.285

InfoBase Impact Factor: 3.66

Index Copernicus International Value

IC Value of Journal 47.86 Poland, Europe

J. Biol. Chem. Research

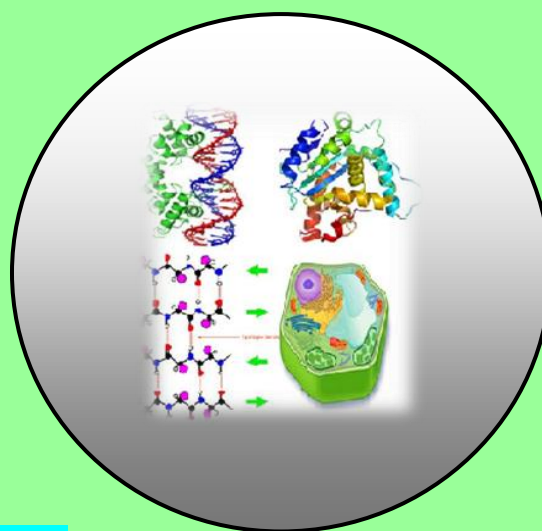
Volume 33 (1) 2016 Pages No. 279-287

Journal of Biological and Chemical Research

An International Peer Reviewed / Referred Journal of Life Sciences and Chemistry

**Indexed, Abstracted and Cited in various International and
National Scientific Databases**

Published by Society for Advancement of Sciences®



J. Biol. Chem. Research. Vol. 33, No. 1: 279-287, 2016

(An International Peer Reviewed / Refereed Journal of Life Sciences and Chemistry)

Ms 33/1/81/2016

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ISSN 0970-4973 (Print)**ISSN 2319-3077 (Online/Electronic)**[http:// www.sasjournals.com](http://www.sasjournals.com)[http:// www.jbcr.in](http://www.jbcr.in)jbiolchemres@gmail.com**RESEARCH PAPER**

Received: 12/02/2016

Revised: 04/03/2016

Accepted: 10/03/2016

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ABSTRACT

This study aimed to assess occupational hazards and preventive measures among nurses in University of Calabar Teaching Hospital, Calabar. This research is a cross-sectional descriptive study that employed the use of structured questionnaires in data collection. Two hundred and thirty six respondents were included in this study. Simple random sampling technique was used for sampling. The questionnaires were pre-tested to ensure validity and reliability of instruments using the test /retest method. Data generated from the study were analyzed using SPSS (version 20.0). Findings revealed that Majority of the respondents 192 (81.4%) were females while 44 (18.6%) were males. The age distribution of respondent's shows that a larger number of the respondents were within the age group of 36 – 40 years. Twenty five percent of the respondents reported exposure to sharp injury while administering parenteral medications. Findings also showed that 90% of the respondents reported nursing a patient with an infectious blood borne diseases, 81% described attempting to nurse a patient with infectious respiratory diseases, 17% of the respondents reported fall or slipped in the course of rendering care in the ward needle. This study also revealed that majority of the respondents used preventive measures to protect themselves against occupational hazards.

Out of 236 respondents only 16 (6.7%) wash hands before and after contact with patient all the time. the respondents 38% Wore protective gloves at all times and facial mask were necessary. It was concluded that nurses UCTH were exposed to occupational hazards, therefore continuous education to emphasize the need for hand washing, use of personal protective equipment and good body mechanics is necessary.

Keywords: Occupational Hazards, Preventive Measures, Infectious Borne Blood Diseases and Infectious Respiratory Diseases.

INTRODUCTION

Health and safety of the workers within the work place is the public health concern that has emerged with the rapid technological advancement in the every field of the practice. It is important to know that Hospital-associated infections (HAI) are considered as major causes of mortality, emotional stress and enhanced morbidity in hospitalized patients and this account for significant Economic loss and additional burden on health care institutions. Occupational Blood and body fluid exposure continue to be major worldwide public health problem, despite advances in our understanding and control of these infections. Health care workers are trained by profession to provide health care services in the hospital, this put them at risk of exposure to blood and body fluid. Houle, (2001) in a study reported that 30% of Philipino nurses felt either somewhat safe or not safe at all at where they work as nurses in the Philippines compared to 44% of U.S. nurses. A descriptive study in a hospital in Erzurum, Turkey, found infection risk (97.9%), stress (83%), verbal abuse (80.9%), psychiatric trauma (66%), allergic substance (63.8%), noise (36.2%), and physical abuse (23.4%) to be prevalent among practicing nurses (Curcani and Tan, 2009).

An Ibadan study found that 84.4% of the nurses have had work related musculoskeletal disorders (WMSDs) once or more in their occupational lives. WMSDs occurred mostly in low back (44.1%), neck (28.0%), and knees (22.4%). Nurses with more than 20 years of clinical experience are about 4 times more likely to develop WMSDs than those with 11-20 years' experience. Working in the same positions for long periods (55.1%), lifting or transferring dependent patients (50.8%) and treating an excessive number of patients in one day (44.9%) were the most perceived job risk factors for WMSDs (Tinubu, Mbada, Oyeyemi, & Fabunmi, 2010). De Castro (2009) in a study in the Philippines concluded that approximately 40% of nurses had experienced at least one injury or illness in the past year, and 80% had experienced back pain.

Among health care workers, nurses seem to have a higher level of stress than physicians and pharmacists. This finding was revealed in a study using the Health Professions Stress Inventory (HPSI) to compare stress levels among these three groups of health care workers. Occupation exposure to the blood pathogen plays a significant role in increasing the risk of the workers in the health care industry. Occupational blood and body fluid (BBF) exposures place healthcare workers (HCW) at risk for numerous blood-borne infections, most importantly human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).

Transmission of blood borne pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) from patient to workers is an important occupational hazard faced by healthcare workers especially nurses.

Risk factors for transmission of blood borne pathogens after occupational exposure are likely related to the source patient, the type of injury, and quantity of blood/body fluid transferred to the HCW during the exposure, and the health status. The greatest risk of infection transmission is through percutaneous exposure to infected blood. Transmission of HBV, HCV, and HIV after mucous membrane or skin exposure to blood has also been reported and the risk of transmission of these pathogens through mucocutaneous exposure is considered lower than the risk associated with a percutaneous exposure (CDC 2000). WHO reported that, the highest frequencies of HAI from hospitals in the Eastern Mediterranean Region (11.8%) followed by South-East Asia, where it was 10%. It has also been estimated that at any time over 1.4 million people worldwide suffer from infectious. Complications acquired in hospital. The infections acquired in the hospitals may be due to resistant organisms that further accentuate the problem (WHO, 2002).

MATERIAL AND METHODS

Study setting: This study was carried out in the University of Calabar Teaching Hospital (UCTH) Calabar, Cross River state. UCTH is a tertiary institution that renders clinical services at a level that meets the requirement of training clinical students of University of Calabar, Calabar. The Hospital was formerly referred to as St Margaret Hospital, which was established in 1897 (the first hospital in Nigeria) but was taken over by the federal government and became University of Calabar Teaching Hospital in 1979. The hospital was formerly situated at Moore road but later moved to their permanent site at Calabar municipality Cross River State.

The hospital lies between latitude 45'5' and 50'2' North of equator and Longitude 81'8' and 30'2' East of Greenwich Meridian. It is bounded in the north by Odukpani Local Government Area, east by Akpabuyo Local Government area and west by cross river which empties into the Atlantic Ocean. Calabar has an area of 331,551 square kilometers and a population of 371,022 (2006 census). The common language of Calabar people is Efik, Efut ant Qua. Majority of them are Christians, others are traditional worshippers while very few practice Islamic religion.

Administratively, the hospital is divided into twenty six (26) clinical departments and four training schools. The clinical departments include: Nursing services, Medicine, Surgery, Obstetrics and Gynaecology, Anaesthesiology, Radiology, Histology, Chemical Pathology and General practices. The chairman Medical Advisory committee is the overall head of clinical services and training. The Nursing service department has 48 units/wards. There are nine supporting departments with their various heads and Director of Administration.

Study design: A Cross-sectional descriptive study was conducted using a pretested questionnaire to solicit information from respondents

RESULTS

Socio-demographic characteristics of respondents

Out of the 236 respondents, 192(81.4%) were females while 44(18.6%) were males. The age distribution of respondents shows that majority of the respondents were within the age group of 36 – 40 years, followed by 31-35 years 50(21%); 45years and older, 38 (16%); 41-45years ;34(14%), 26-30years, 31(13%); 21-25years, 20(9%) above.

Table 1. Socio-Demographic Characteristics of Respondents (N=236).

Variable	Frequency	Percentage
Sex		
Male	44	18.6
Female	192	81.4
Age		
21-25 years	20	9
26-30 years	31	13
31-35 years	50	21
36-40 years	63	27
41-45 years	34	14
45 years and older	38	16
Marital status		
Married	179	76
Single	50	21
Separated	6	2
Widowed	4	1
Widower	0	0
Professional qualification		
RN	44	19
RNRM	44	19
B.Sc RN	62	26
B.Sc RNRM	43	18
RN Accident & Emergency	12	5
RN Orthopedic	31	13
Total		
Ranks		
NO II	108	46
NO I	49	21
SNO	27	11
PNO	22	9
ACNO	12	5
CNO	18	8

A greater proportion of the respondents 179(76%) were married and 50 (21%) were currently single. Professional qualification of respondents shows that, 44(19%) had RN, 44(19) had RNRM, 62(26%) had B.Sc RN, 43(18%) had B.Sc RNRM, 12(5%) had RN Accident & Emergency and 31(13%) had RN Orthopedic. In respect to respondents working experience, 30(12.7%) of the respondents had 2-5 years working experience, 49 (20.8%) worked for 6-9years, 47(19.9%) had 10-15years working experience, 66(28%) had 16-20years working experience, 44(18.6%) had worked for more than 21 years.

Ranking distribution among respondents shows that 108(46%) were nursing officer II, 46(21%) were nursing officer I, 27(11%) were senior nursing officers, 22(9%) were principal nursing officer, 12(5%) were Assistant Chief Nursing Officer, while 18(8%) were Chief nursing officers. (Table .0)

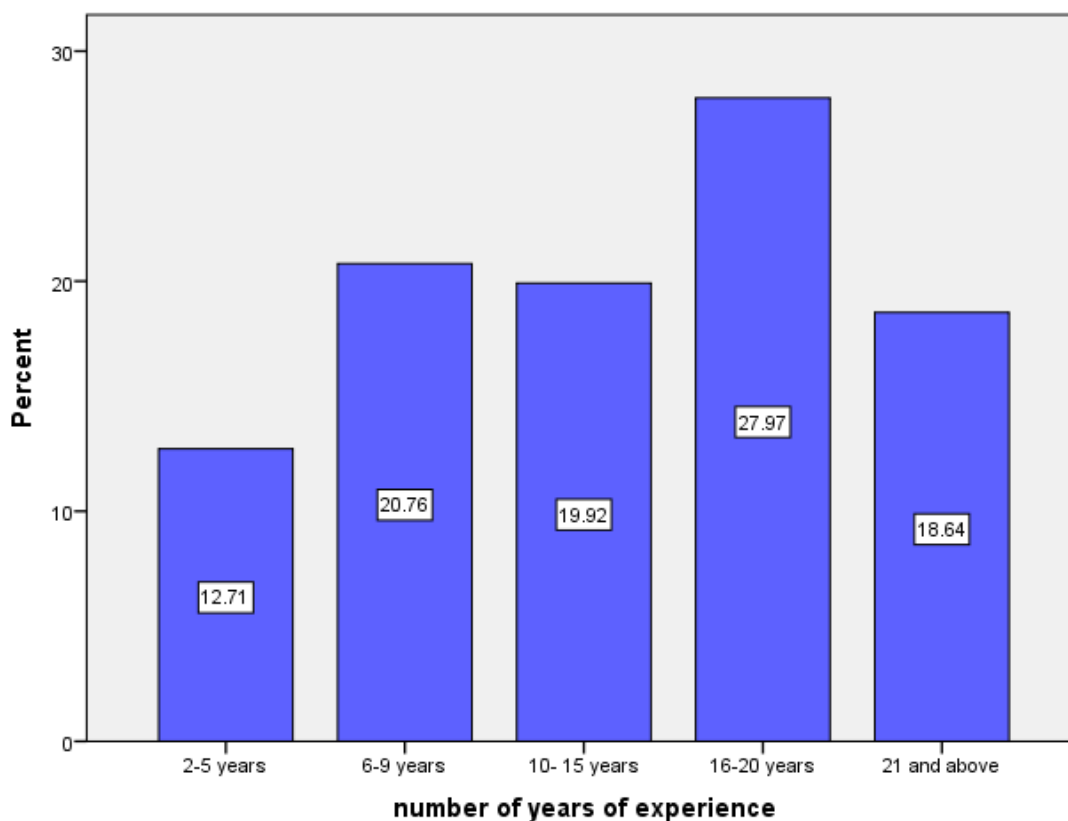


Table 2. Occupational hazards encountered by nurses (N=236).

VARIABLE	FREQUENCY	PERCENT
Nursed a patient with an infectious blood borne diseases	212	90
Nursed a patient with infectious respiratory diseases	192	81
Pricked by needle in the course of administering parenteral medications	58	25
Fall or slipped in the course of rendering care in the ward	41	17
Had experience of back and neck pains	231	98
Shocked by a faulty electrical instrument while working	11	5
Lifted patients while rendering care	67	28
Stand for long while caring out certain procedures	203	86
Attacked, abused or assaulted by a patient, patient's relative or coworker	59	25
Had skin reactions after using an antiseptic or disinfectant	66	28
Experience any allergic reaction after administering cytotoxic drugs such as irritation of the skin, eyes or mucous membrane	41	17
Experience any allergic reaction after using latex gloves?	16	7

Occupational hazards encountered by nurses

It was observed that more than 90% of the nurses have been exposed to one occupational hazard or the other, either directly or indirectly, and some of those hazards constitute to non-reported work-related injury, 25% of the respondent reported exposure to sharp injury while administering parenteral medications.

Table 3. Preventive measures taken by nurses against occupational hazards.

Preventive Measures	All the Time	Most of the time	Sometimes	Never
Wash hands before and after contact with patient	16(6.7%)	88(37%)	128(54%)	6(2.5%)
Wear protective gloves at all times and facial mask were necessary	90(38%)	52(22%)	91(39%)	3(1.3%)
Keep your hands from face, eyes and mouth while carry out a procedure	130(55%)	82(34.7%)	22(9.3%)	2(0.8%)
Dispose used needles in the sharp box	168(71)	43(18.2%)	21(8.9)	4(1.7%)
Uses protective goggle or plastic apron when carrying out procedures that involves blood splash	123(52.1%)	65(27.5%)	43(18.2%)	5(2.1%)
Ensure the floor of you work environment is free from spills?	173(73.3%)	21(8.9%)	25(10.6%)	17(7.2%)
Wear sturdy, flat shoes with good slip protection?	182(77.1%)	36(15.3%)	12(5.1%)	6(2.5%)
Recap needle after use?	4(1.7%)	43(18.2%)	21(8.9)	168(71%)
Fog or training in the proper use of kinetic principles?	18(7.6%)	28(11.9%)	12(5.1%)	178(75.4%)
Enter restricted radiation areas	10(4.2%)	1(0.4%)	11(4.7%)	201(85.2%)
Use of ergonomic assistive devices e.g. rolling toilet, patient moving sling?	84(35.6%)	73(30.9%)	43(18.2)	32(13.6%)
Work environment well illuminated	171(72.5%)	37(15.7%)	22(9.3%)	6(2.5%)
Electrical appliances in work environment always in good condition	143(60.6%)	51(21.5%)	21(8.9%)	21(8.9%)
Use good body mechanism while lifting or moving a patient	77(32.6%)	59(25%)	33(14%)	67(28.4%)
Wash your hands with mild soap and dry completely after contact with any antiseptic or disinfectant?	154(65.3%)	23(9.7%)	47(19.9%)	12(5.1%)

Findings also shows that 90% of the respondents reported Nursing a patient with an infectious blood borne diseases, 81% described attempting to Nursed a patient with infectious respiratory diseases, 17% of the respondents reported Fall or slipped in the course of rendering care in the ward needle, 98% of the respondents reported an experience of back and neck pains, 5% reported experiencing Shocked by a faulty electrical instrument while working, 28% reported Lifting patients while rendering care, 86% reported Standing for long while caring out certain procedures, 25% reported been Attacked, abused or assaulted by a patient, patient's relative or coworker, 28% Had skin reactions after using an antiseptic or disinfectant, 17% reported an Experience of allergic reaction after administering cytotoxic drugs, 7% reported Experiencing an allergic reaction after using latex gloves. (Table 2.0)

Preventive measures taken by nurses against occupational hazards

This study revealed that respondents practices preventive measures to protect themselves against occupational hazards, out of 236 respondents only 16(6.7%) Wash hands before and after contact with patient all the time. 38% of respondents Wears protective gloves at all times and facial mask were necessary. About 130(55%) of the respondents Keeps their hands from face, eyes and mouth while carry out a procedure at all time, 71% of the respondents dispose used needles in the sharp box. 51% of the respondents reported using protective goggle or plastic apron when carrying out procedures that involves blood splash at all times. Seventy three percent of the respondents also reported Ensuring that the floor of the working environment is free from spills.

Findings also revealed that about 77% reported Wearing sturdy, flat shoes with good slip protection at all times and about 1% of the respondents have recap needles. Only 7% of respondents had Fog or training in the proper use of kinetic principles, and about 4% of respondents have Entered restricted radiation areas. 37% of respondents had used ergonomic assistive devices and 72% had Work environment well illuminated. 60% Have Electrical appliances in work environment always in good condition. 32% have used good body mechanism while lifting or moving a patient and about 65% of respondents have used good body mechanism while lifting or moving a patient. (Table 3.0)

DISCUSSION

Nurses are seriously exposed to high levels of different occupational hazards depending on their areas of work (working departments), 90% of the respondents reported nursing a patient with an infectious blood borne diseases, 81% indicated exposure to infectious respiratory diseases, 17% of the respondents reported Fall or slipped in the course of rendering care in the ward and exposure to other physical, biological and chemical hazards These findings correspond to the study of Wilson (Wilson , 2012), WHO stated that the causes of occupational-related injury result from failure to follow recommended procedures through personal behavior than professional risk such as safe handling and disposal of needles and syringes. 25% of the respondent reported exposure to sharp injury while administering parenteral medications. This is dangerous to the individual nurse and her family by extension, other patients as well as the larger society. This finding corresponds to the study done by Clarke *et al.* (2002), about relationship between work organizational factors such as short staffing, poor safety climate. Other authors similarly supported this finding (ANA's 2000; Buve *et al.*, 2010; Dale *et al.*,2012).

Determining means of preventing occupational hazards among the study participants and investigating their frequency and exposure to occupational hazards at work in the setting, implies that the application of universal precaution is necessary to protect them from exposure to work related hazards. It is expected that every nurse should understand that prevention practices are necessary to protect them from exposure to work related hazards and possibilities of contracting infection. Occupational hazards prevention measures include administrative and providing prevention interventions in workplace such as educating workers about hazards, implementing universal precautions, (Haiduven *et al.*, 2011; Olatunji *et al.*, 2009). In a study involving three Virginia hospitals, Jagger (Jagger, 2012) found 95.9% reduction in IV access needle injuries following an educational program and implementation of universal precautions. Management commitment to occupational health is therefore important for prevention, which can be demonstrated through the provision of necessary resources and delegation of authority to an occupational hazards prevention committee charged with monitoring and exposure control plan and the evaluation and selection of control measures including safer needle devices (Olatunji *et al.*, 2009). Lack of training about occupational prevention of blood borne pathogens may place nurses at risk in clinical practice (Olatunji *et al.*, 2009). In Nigeria, workplace conditions, such as lack of or poor lighting of workplace, lack of appropriate protective materials and out dated techniques such as needle recapping as revealed in this study increases the risk of nurses' exposure to sharp injuries. Furthermore, prevention of occupational hazards is possible by investigating the hazards and applying control measures using public health measures.

CONCLUSION

It was concluded that nurses in UCTH were exposed to occupational hazards, therefore continuous education to emphasize the need for hand washing, use of personal protective equipment and good body mechanics is necessary. Every health worker not only nurses should observe universal precautions in the hospitals. The government should provide the necessary support to the workers.

ACKNOWLEDGEMENTS

The authors are grateful to the nurses who gave their consents to this study and to the management of University of Calabar Teaching Hospital for their support and encouragement.

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