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ATTITUDE AND PRACTICE OF NURSES TOWARDS PREVENTION OF NOSOCOMIAL INFECTIONS IN TERTIARY HOSPITALS IN RIVERS STATE

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Abstract: The aim of this study is to investigate the practice of nurses towards prevention of nosocomial infections in tertiary hospitals in Rivers State. The descriptive research design was adopted for the study. The population of the study consisted of all categories of nurses having direct contact with the patients in tertiary hospitals. The simple random sampling technique was used to select a sample of 400. A self-structured questionnaire with a reliability coeffi cient of 0.72 was used as the instrument for data collection. The instrument was administered by a direct delivery to the respondents with the aid of two research assistants. Data collected were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0. Statistical tools such as frequency, percentage, mean, chisquare and binary logistic regression were used for relevant variables. The result on the major practices show that 302(75.5%) always washed their hands to prevent HAIs, 292(73.0%) always sterilized instrument for operation before use, and 288(72.0%) always washed their hands before and after contact with patient and procedure and 142(35.5%) used alcohol based hand rub. The result of the tested hypothesis showed The binary logistic regression model showed that on bivariate analysis age has a nonsignificant influence on the practice of prevention of nosocomial infections (X2value = 19.851, df = 3, p = 0.631) and as respondents age ≥41 increases practices decreases (B = -0.425). It was concluded that, nurses in tertiary hospitals in Rivers State have good practice towards the prevention of nosocomial infections. It was recommended that, State-wise nosocomial infections surveillance should be conducted by the hospital infection con trol committee from time to time in order to maintain a balance in the prevention of such infections among nurses

Keywords: Nosocomial Infection, Practice, Education, Nurses.

Introduction

Health care system has its utmost significance of saving lives and keeping the people healthy hence the advancement in health care technology. Despite this advances, the health care sector has never been without its peculiar problem of patients becoming vulnerable to the unintended harm of the health care institution referred

to as Hospital Acquired Infections (HAI), (Mani, Shubhangi & saini, 2010)); which are also referred to as Nosocomial infection. According to the Centre for Disease Control (CDC) (2007), Health Care Associated Infection or Hospital Acquired Infection (HAI) also known as nosocomial infection refers to an infection acquired in the hospital by a patient who was admitted for a reason except for the infection. The HAI means all infections that do not result from patients' original diagnosis on admission and is favoured by hospital environment i.e. contacted from hospital as a result of interaction between nurses, the patient and hospital environments. There are various types HAI which include the surgical site infection (SSI), these are infection acquired through surgical procedure, urinary tract infection (UTI) or catheter-associated urinary tract infections (CAUTI), central line-associated bloodstream infections (CLABSI), select surgical site infections (SSI), some examples of HAIs are Staphylococcus aureus, Klebsiella, Escherichia coli, Pseudomonas aeruginosa, hospital-onset Clostridium difficile infections. The infectious agents are also transmitted by the contact or droplet route potentially transmitted by contamination of nurses' hands, skin or clothing.

Akyoi (2007) reported that, hand hygiene became the solution to this in the health care delivery system since it was revealed that peuperal fever was common in the maternity where physicians and medical students took delivery of mothers in the labour room from the theatre without washing their hands properly thereby encouraging the spread of Hospital Acquired Infection (HAI). Studies have shown that access to information of the existence of infection, lack of training on infection prevention and control measures, non-compliance to HAI procedure, lack or inadequate supply of materials, poor supervision control committee are impediments to effective prevention of HAIs. Lack of hand hygiene products and facilities, such as running water, sinks, antiseptic or non-antiseptic soaps, alcohol hand-rubs and hand paper towels, can also play a major role in poor hand hygiene practice (Kampf & Loftier, 2010). Unavailability of facilities is even worse in developing countries. Ogunsola and Adesiji (2008) report that most wards in Nigerian hospitals lack adequate facilities for effective hand hygiene and use the bucket and bowl method as an alternative to running water.

Balarabe, Joshua, Dauda, Sunday and Yusuf (2011) reported from their study on Knowledge of Nurses on Nosocomial Infection in Selected Secondary Health Institutions in Zaria, Nigeria that HAI is on the increase in both developed and developing countries with Nigeria inclusive. In Rivers State, the researcher observed in two tertiary health institution in Obio- Akpo Local Government Area that, nurses where seen going in and out of an Intensive Care Unit (ICU) with hand gloves on as well as attending to patient which is against the ethic and practice of the profession in prevention and control of HAI. It is against this backdrop that the study intends to investigate the nurses' compliance with the WHO guidelines for prevention of HAI, and practice of Health Care Workers towards achieving reduction of HAIs in government hospitals in Obio/Akpor Local Government Area of Rivers State.

Methodology

Research Design

The descriptive research design is used for the study. The design describes event as they occur in their natural setting without it being influenced by the researcher. It also encourage gathering of data from relatively large population. The design is employed because it explains or analyse event and behaviour as they occur at a particular time (Elendu, 2010).

Population of Study

The population of the study consisted of all categories of nurses having direct contact with the patients in tertiary hospitals (University of Port Harcourt Teaching Hospital & Rivers State University Teaching Hospital) in Rivers State. There are six hundred (600) nurses in University of Port Harcourt Teaching Hospital and four hundred (400) nurses in Rivers State University.

Sample and Sampling Technique

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The sample size for the study was calculated using Nwana's postulation. Nwana cited in Ofoegbu (2009) was of the opinion that where the population of the study is a few hundreds, a 40% sample size will be adequate, if in many hundreds, a 20% sample size is used. If in few thousands 10%, then in several thousands of the population only 5% or less is to be used for the study. For this study, 40% sample size was used which is 400. A simple random sampling technique was used to select the respondents.

Instrument for Data Collection

Instrument for data collection was a self-structured questionnaire titled "Practices of Nurses towards Prevention of Nosocomial Infections in Tertiary Hospitals in Rivers State (P.N.T.P.N.I.Q)". The instrument is in two sections, A and B. A is for gathering demographic information while section B was structured to source information for the variables under study with the modified liker scale response options of strongly agreed, agreed, disagree and strongly disagree.

Procedure for Data Collection.

An introduction letter from the head of department, Human Kinetics and Health Education was presented to the Head of Departments Nursing Services of the two hospitals that formed the study population. The researcher distributed the questionnaires to the respondents in their various health institutions and retrieve on the spot after filling with the aid of two trained research assistants.

Method of Data Analysis.

Data analysis was done using the Statistical Package for Social Sciences (SPSS). Demographic data were analyzed using frequency and simple percentages. Research question one was analyzed using mean and standard deviation was used to answer research question one, the pearson correlation was used to answer research question 2 and the binary logistic regression model was used to test the hypothesis at 0.05 alpha level.

Results

Table 4.1: Personal Data of Respondents

Items	Frequency (F)	Percentage (%)
Gender		
Male	60	15.0
Female	338	84.5
Non response	2	.5
Total Age	**400**	**100.0**
25-30	113	28.3
31-35	83	20.8
36-49	113	28.3
≥41	91	22.8
Total	**400**	**100.0**
Years of experience		
1-5	170	42.5
6-10	53	13.3
11-15	66	16.5
≥16	66	16.5
Non response	45	11.3

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Total	**400**	**100.0**
Educational qualification		
RN/RM	132	33.0
DIP	51	12.8
BNSc	157	39.3
MSc	38	9.5
Non response	22	5.5
Total	**400**	**100.0**

Table 4.1 reveal the personal data of the respondents. Majority 338(84.5%) of the respondents were females while 60(15.0%) were males. 113(28.3%) each were within the age range of 2530 years and 36-49 years, 91(22.8%) were aged 41 and above and 83(20.8%) were between the ages of 25-30 years. 170(42.5%) had 1-5 years working experience, 66(16.5%) each had a working experience of 11-15 years and 16. The table also showed that 157(39.3%) had BNSc, 132(33.0%) had RN/RM, 51(12.8%) had DIP while 38(9.5%) had MSc.

Research question 1: What is the practice of nurses towards the prevention of nosocomial infections in tertiary hospitals in Rivers State?

Table 4.3: Practices towards Nosocomial infections

Items	Away F (%)	Occ F (%)	Rarely F (%)	Never F (%)	Mean	SD
Hand wash to prevents HAIs effectively	302(75.5)	84(21.0)	13(3.2)	3(0.1)	3.71	.53
Hand wash before and after contact with patient and procedure	288(72.0)	87(21.8)	25(6.3)	0(0.0)	3.60	.66
Proper hand wash to prevent and control the contraction of HAI	249(62.3)	112(28.0)	39(9.8)	0(0.0)	3.52	.67
Uses alcohol based hand rub to prevent HAIs	142(35.5)	128(32.0)	51(12.8)	79(19.8)	2.83	1.12
Sterilizes patient and hospital equipment to prevent HAIs	267(66.8)	94(23.5)	26(6.5)	13(3.3)	3.53	.76
Minimizes the number of days for catheter and other invasive to prevent HAIs	210(54.3)	138(35.7)	26(6.7)	13(3.2)	3.41	.76
Adequately sterilizes all instrument for operation before use during operations	292(73.0)	96(24.0)	12(3.0)	0(0.0)	3.70	.52

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Carry out intervention programmes and regular evaluation reports to prevent transmission and spread of HAIs	198(49.5)	176(44.1)	13(3.2)	13(3.2)	3.39	.71
Disinfection of only patients' personal equipment and environment	124(31.0)	75(18.8)	31(7.8)	170(42.5)	2.38	1.31
Provision of guidelines to visitors	150(38.8)	163(42.1)	39(10.1)	35(9.0)	3.11	.92
Display of posters relation to forms of prevention of infection in reception, wards and offices	152(38.0)	212(53.0)	14(3.5)	22(5.5)	3.23	.76
Grand mean/SD					**3.31**	**0.79**

Table 4.3 show the practices of respondents towards prevention of nosocomial infections. The grand mean = 3.23±0.76 is greater than the criterion mean = 2.5 indicating that the respondents of this study had good practice towards the prevention of nosocomial infections. The major practices show that 302(75.5%) always washed their hands to prevent HAIs, 292(73.0%) always sterilized instrument for operation before use, 288(72.0%) always washed their hands before and after contact with patient and procedure and 142(35.5%) used alcohol based hand rub.

Research question 2: What is the influence of educational status on practice of nurses towards the prevention of nosocomial infections in tertiary hospitals in Rivers State?

Table 4.5b: Influence of educational qualification on practices towards the prevention of nosocomial infections

Educational qualification	**Practice**		**Total***	**r-value**	**Decision**
	Good	**Poor**			
RN/RM	132(100)	0(0.0)	132(100)	0.452	Moderate
DIP	51(100)	0(0.0)	51(100)		
BNSc	146(93.0)	11(7.0)	157(100)		
MSc	12(31.6)	26(68.4)	38(100)		
Total	341(96.0)	37(4.0)	378(100)		

*Non responses excluded

Table 4.4b shows the influence of educational qualification on practice of nurses towards the prevention of nosocomial infections in tertiary hospitals in Rivers State. The result show that the influence of educational qualification practice towards prevention of nosocomial infection is moderate (r = 0.452).

Hypothesis

Education qualification will not significantly influence the attitude of nurses towards the prevention of nosocomial infections in tertiary hospitals in Rivers State.

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Table 4.8b: Binary Logistic Regression analysis showing significant influence of educational qualification on the practice of prevention of nosocomial infections

Educational qualification	B	Stand. Error	Wald	df	Sig.	Odds ratio(OR)	95% C.I for OR Lower	Upper
RN/RM	Ref		51.387	3	.000			
DIP	-21.976	3498.349	.000	1	.995	.000	.000	.
BNSc	-21.976	5628.142	.000	1	.997	.000	.000	.
MSc	3.359	.469	51.387	1	.000	2.167	1.104	3.870
Constant	.773	.349	4.908	1	.027	.035		

* Significant.

Table 4.8b revealed the binary logistic regression showing the influence of educational qualification on the practice of prevention of nosocomial infections. On bivariate analysis the study shows a significant influence of educational qualification on the practice of prevention of nosocomial infections (X^{2}-value = 115.136, df = 3, p = 0.000). On binary logistic regression the result of the study shows that those who had MSc were significantly about 2 times (OR = 2.167: 95%CI = 1.104-3.870) more likely to practice prevention of nosocomial infections compared to those who had RN/RM. The result further demonstrated that as educational qualification increases practices increases (B = 3.359).

Discussion of Findings

The findings of this study showed in table 4.3 the study respondents had good practice towards the prevention of nosocomial infections. The result on the major practices show that 302(75.5%) always washed their hands to prevent HAIs, 292(73.0%) always sterilized instrument for operation before use, and 288(72.0%) always washed their hands before and after contact with patient and procedure and 142(35.5%) used alcohol based hand rub. It can be deduced from the findings of this study that the positive attitude of the respondents was translated to the good practices found among them. This finding confirms that having a positive attitude is an antecedent to any desired health outcome. The findings of this study gives credence to that of Scheichever, Kammerseder, Peterson, Brokman and Hopez-Gozalez (2013) where 40% of the respondents reported compliance to the use of hand rub to prevent hospital acquired infections. It was seen from the result of the study that the major practice towards prevention of HAIs was washing of hands. This finding of this study gives credence to the World Health Organizations (2014) report that, hand washing is an important strategy in prevention of disease and illness to attain maximum health, reduce the risk of infections and it serves as a prerequisite for the prevention infections such as the hospital acquired infections. However, the findings of this study is at variance with that of Samuel, Kayode, Musa, Nwigwe, Aboderin, Salami and Taiwo (2010) where the study respondents were found to have negative attitude towards the prevention of hospital acquired infection. This variation is due to the fact the presents study is focused on the practices towards prevention of hospital acquired infections in general whereas the previous study was focused on a specific hospital acquired infection (Urinary Tract Infection). The finding of this study is also at variance with that of Brisibe, Ordinioha and Gbenecolol (2014) where it was reported that there was noncompliance with hospital infection control guidelines. The variation is due to the fact that the previous study is focused on policy issues guiding the prevention of hospital acquired infections among different

categories of health professionals whereas the present study was concerned about the existing practices towards the prevention of nosocomial infections among nurses only.

The finding of this study showed that educational qualification has a moderate influence (r = 0.452) on practices towards the prevention of nosocomial infections. On bivariate analysis the study shows a significant influence of educational qualification on the practice of prevention of nosocomial infections (X^{2-}value = 115.136, df = 3, p = 0.000), as educational qualification increases prevention practices also increases (B = 3.359). The finding of this study is akin to that of Khan et al (2012) where it was found that educational status significantly influence health practices ($p<0.05$). The findings of this study is also similar to that of Marrone et al (2014) who found that respondents with higher educational status increased the chances of healthy practices. The similarity between the present study and the previous ones might be due to the fact that education is helping to bridge the gap in health knowledge which in turn is translated to practice among those who have higher education.

Conclusion

Based on the findings of the study, it was concluded that, nurses in tertiary hospitals in Rivers State have good practice towards the prevention of nosocomial infections which was influenced by their educational qualification.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. The World Health Organization should review and modify the policy guidelines on the prevention of hospital acquired infections in order to sustain the good practice found in this study.

2. State-wise nosocomial infections surveillance should be conducted by the hospital infection control committee from time to time in order to maintain a balance in the prevention of such infections among nurses.

3. The government should provide adequate hand washing facilities and equipment in the various hospitals to elude deterrents for hand hygiene.

4. The hospitals' management and administrative system should make effort to make free availability of hand hygiene products, lotions and creams, disposable towels, and hand rub for nurses at the point of care in hospitals.

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