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Knowledge, Attitude and Practice of standard precaution among Health Care Workers in Federal Medical Centre Yenagoa, Nigeria

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Abstract
Background: *Health care workers (HCWs) are at a high risk of needle stick injuries and blood borne pathogens, such as HIV, and Hepatitis B and C viruses, as they perform their clinical activities in the hospital.*
Objectives: *This study was therefore designed to determine the knowledge, attitude and practice of standard precautions among HCWs in Federal Medical Centre Yenagoa Bayelsa State, Nigeria.*
Methodology: *This is a cross-sectional study carried out among 200 health workers at Federal Medical Centre Yenagoa, Bayelsa State. They were selected through a stratified sampling technique. The instrument used for data collection was a semi-structured questionnaire that assessed the knowledge, attitude and practice of standard precautions.*
Results: *The age of the respondents ranged from 22 – 60 years, with a mean age of 38.3 ± 9.1 years. Majority of the respondents had good knowledge 79.0%, attitude 70.0% and practice 91.50% of standard precautions respectively. Less than half of the respondents 87 (43.5%) reported always recapping needles after use, 52 (26.0%) always detach needles from syringes and 105 (52.5%) had experienced needle stick injuries in the last one year. Furthermore, respondents showed poor immunization status as only 40.0% had been immunized against hepatitis B virus.*
Conclusion: *The study recommended training and re-training of staffs regularly on standard precautions; hepatitis B virus immunization should be made compulsory, needle recapping should be prohibited, unsafe and unwarranted use of injections should be minimized and a post exposure prophylaxis protocol should be in place with a well-known designated focal person.*
Keywords: *Standard precautions, knowledge, attitude, practice, blood-borne infection, needle stick injury, health care workers, compliance*

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I. Introduction

Health Care Workers (HCWs) are prone to infection of blood borne pathogens whenever they come in contact with infected body parts, blood and body fluids in the course of carrying out their duty [1,2,3]. Most occupational exposure to blood pathogens usually results percutaneously, mucocutaneously or through blood contact with non-intact skin [4,5]. According to the World Health Report (6); an estimated three million HCWs all over the world experience percutaneous exposure to blood-borne viruses Hepatits C and B and HIV viruses annually. Similarly, it has been estimated that about 2.5% of HIV cases and 40% of HBV and HCV cases among HCWs worldwide are the result of these exposures [1,7,8].

Furthermore, Hepatitis B Virus (HBV) has been shown to be endemic in places such as China, South-East Asia and Sub-Saharan Africa including Nigeria as compared to Europe and North America; coupled with the scourge of HIV AIDS in Nigeria [9]. Therefore the need for protection among HCWs calls for strict application of standard precautions in health care settings because HCWs are at risk of infection regularly through contaminated hands, relatives/friends of the patients, contaminated environmental surfaces, drugs and intravenous solutions [1,10,11].

According to the World Health Organisation [12], standard precautions can be defined as a set of infection control measures meant to reduce the risk of transmission of blood borne and other pathogens from both recognized and unrecognized sources. These measures are to be used by HCWs when providing care to all individuals, whether or not they appear infectious or symptomatic. Furthermore, the elements of standard

precautions include use of personal protective equipments and other self protection behavioural practices such as hand hygiene, use of gloves and other barriers for example masks, eye protection, face shield, gown [12,13,14]. Others include proper handling of patient care equipments and linen, environmental control, prevention of injury from sharp devices [12,13,14]. Knowledge, practice and compliance to standard precaution guidelines by HCWs have been highlighted to be a sure way of preventing occupational infection [1,15,16]. However, despite the establishment and implementation of detailed standard precaution guidelines for HCWs; knowledge and practice of standard precautions have shown to be low and fair among health workers in developing countries especially in Nigeria [17,18,19]. Therefore this study was designed to determine the knowledge, attitude and practice of standard precautions among HCWs in Federal Medical Centre Yenagoa a developing urban area with rising cases of HIV/AIDs and other infectious diseases.

Conceptual Framework

The Health Belief Model (HBM) was used to explain the Knowledge, Attitude and Practice of standard precaution among Health Care Workers in Federal Medical Centre Yenagoa.

Diagrammatic representation of the health belief model on the knowledge attitude and practice of standard precaution among health care workers in Federal Medical Centre Yenagoa.

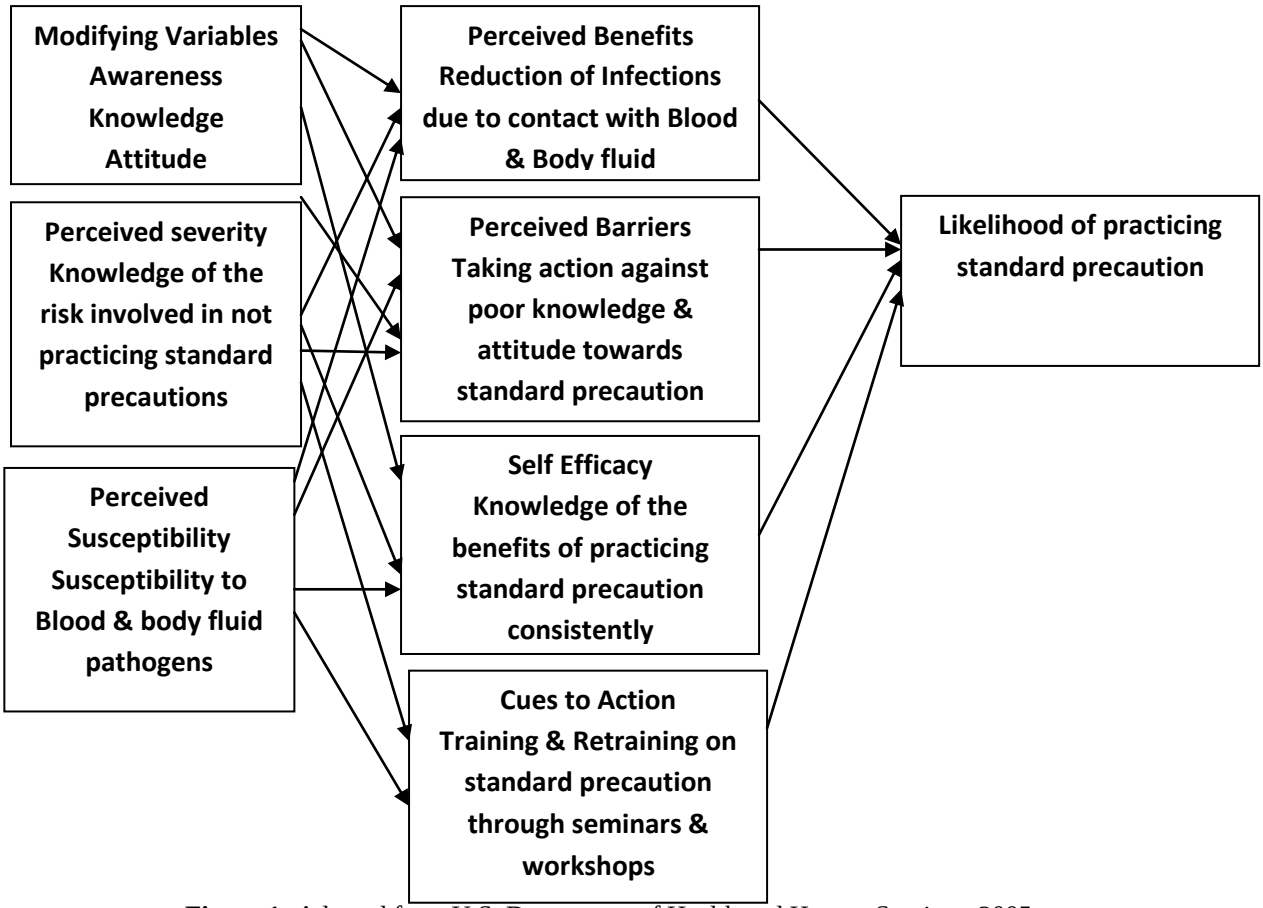

Figure 1: Adapted from U.S. Department of Health and Human Services, 2005

Methods

Study design

The study employed a descriptive cross sectional study design.

Study setting

The study was carried out at Federal Medical Centre Yenagoa, Bayelsa State, Nigeria. It was known as a specialist hospital in 1996, then renamed Federal Medical Centre in July, 1999 by the federal government. It is the biggest hospital in Bayelsa State, with a bed capacity of 215 with a workforce of 597. It has eleven wards and twelve clinical departments as follows: Out Patient, Internal Medicine, Pediatrics, Surgery, Obstetrics/Gynecology, Radiology, ENT, Dental, Ophthalmology, Physiotherapy, Psychiatry and Anesthesia. It also has an HIV antiretroviral therapy (HART) Centre and a very effective Renal Centre with a nephrologist in charge.

Study population

The population chosen for this study comprises nurses, health assistants and waste handlers in Federal Medical Centre, Yenagoa, Bayelsa State. All health care workers directly involved in the handling of patient's blood, body fluids, needles, sharp objects and waste, and who have been in employment for at least 6 months, and were willing to participate in the study were included.

Sample size

The sample size was calculated using the formula for single proportion. A sample size of 200 was obtained after the calculation.

Sampling procedure

The study employed stratified and simple random sampling technique. Furthermore, using a total sampling frame of 308 for these categories of health workers (Doctors, Nurses, Laboratory workers, Health Assistants, Waste handlers), and the sample size of two hundred. The following sample size was proportionally allocated; Doctors 45, Nurses 104, Laboratory workers 10, Health Assistants 39 and Waste handlers 2.

Instrument for data collection

The instrument for data collection was a self-administered questionnaire comprising of five sections. Section A contains socio-demographic characteristics, section B sought the knowledge of the respondents on standard precautions, section C sought the attitude of the respondents towards standard precautions and section D explored the practice of standard precautions among the respondents.

Data analysis

To ensure the validity and reliability of the instrument for data collection, the questionnaire was pretested among 20 health care workers in a private hospital in Yenagoa. The aim of the pretesting was to ascertain whether the questions and instructions in the questionnaire were well understood by the respondents, and whether the format or presentation of the questionnaire was well designed, with respect to sequence, wording, order and clarity of questions, relevance of the questions, the need for additional instructions, length of the questionnaire and time required to complete it. The questionnaires were sorted and checked for completeness in order to determine their usability. The 200 questionnaires were administered and all (100%) were completed, available for analysis, giving a response rate of 100%. The responses were coded and entered into SPSS version 16.0 statistical package for analysis.

Ethical Consideration

Ethical clearance was obtained from the department of public and community and from the Chief Medical Director of the hospital.

II. Results

More than one third 75(37.50%) of the respondents were between the ages of 30-39 years, while majority 144(72.0%) were females and two third 135(67.50%) were married. Furthermore, less than one third 59(29.50%) of the respondents have been in service between 1-5 years and more than half 104(52.0%) were nurses (Table 1).

Table 1: Socio-demographic characteristics of the respondents

Variable	Frequency(N)	Percentage
Age		
20-29	39	19.5
30-39	75	37.5
40-49	55	27.5
50-59	30	15.0
60-69	1	.5
Total	200	100.0
Sex		
Male	56	28.0
Female	144	72.0
Total	200	100.0
Marital status		
Married	135	67.5
Single	50	25.0
Divorced	7	3.5
Separated	5	2.5
Widow/Widowed	3	1.5
Total	200	100.0

Educational level		
Primary	25	12.5
Secondary	15	7.5
Tertiary	160	80.0
Total	200	100.0
Years of service		
Less than one year	16	8.0
1-5 years	59	29.5
6-10 years	36	18.0
11-15 years	39	19.5
Above 15 years	50	25.0
Total	200	100.0
Designation		
Medical doctor	45	22.5
Nurse	104	52.0
Laboratory scientist/assistant	10	5.0
Health assistant	39	19.5
Wastes handlers	2	1.0
Total	200	100.0

As shown in table 2 below, majority 177(88.50%) of the respondents were aware of standard precaution, while 138(78.0%) and 87(49.20%) had their source of information on standard precaution from seminar/workshop and medical school respectively and 83(41.50%) opined that standard precaution should be applied for all patients during treatment. In addition, more than one third 80(40.0%) believes sterilization is one of the method of treating working tools that comes in contact with intact mucous membrane and 70(35.0%) and 45(22.50%) affirmed HIV and HBV as disease condition for which standard precaution is compulsory.

Table 2: Knowledge of standard precaution among the respondents

Variable	Frequency	Percentage
Awareness of standard precaution		
Yes	177	88.5
No	23	11.5
Sources of information of standard precaution		
Federal medical centre	75	42.40
Yes	102	57.60
No		
Radio	11	6.2
Yes	166	93.8
No		
Television	19	10.7
Yes	158	89.3
No		
Workshop/Seminar	138	78.0
Yes	39	22.0
No		
Journals	23	13.0
Yes	154	87.0
No		
Textbooks	39	22.0
Yes	138	78.0
No		
From a colleague	50	28.2
Yes	127	71.8
No		
School	87	49.2
Yes	90	50.8
No		
Condition for which standard precautions is mandatory		
Patient with HIV	50	25.0
Patient with HBV	25	12.5
Nosocomial infection	18	9.0
Seriously ill patients	24	12.0
For all patients	83	41.5
Method of treating working tools that comes in contact with intact mucous membrane	80	40.0
Sterilization	60	30.0
Disinfection	40	20.0
Cleaning	15	7.50
Wiping	5	2.50
None of the methods		

Disease condition for which standard precaution is compulsory		
Patient with HBV	45	22.5
Patient with HIV	70	35.0
Nocosomial Infection	30	15.0
Seriously ill Patients	25	12.50
For all patients	30	15.0

Attitude of the respondents shows that majority 172(86.0%) agreed that standard precaution can prevent the spread of infectious diseases, while 183(91.50%) affirmed that they would report to the hospital following a needle stick injuries and 133(66.50%) agreed that they will screen the patient for HIV following a needle stick injury. Furthermore, majority 148(74.0%) showed their willingness to perform vaginal examination procedure on an HIV and HBV positive patient and 181(90.50%) agreed to carryout delivery or assist in delivery on an HIV and HBV positive patient (Table 3).

Table 3: Attitude of the respondents towards standard precaution

Variable	**Frequency (%)**		
Attitude towards standard precaution	Agree	Disagree	Don't know
Standard precaution can prevent spread of infectious diseases so should be observed	172(86.0)	1(0.5)	27(13.5)
Standard precaution requires one to recap needles after use	86(43.0)	107(53.5)	7(3.5)
Attitude following needle stick injuries			
Report to the hospital	183(91.5)	15(7.5)	2(1.0)
Would not report to the hospital	16(8.0)	182(91.0)	2(1.0)
Screen the patient for HBV	100(50.0)	28(14.0)	72(36.0)
Screen the patient for HIV	133(66.5)	8(4.0)	59(29.5)
Go for medical check-up	157(78.5)	27(13.5)	16(8.0)
Would take HBV immunization	74(37.0)	73(36.5)	53(26.5)
Would take some anti-retroviral drugs	93(46.5)	58(29.0)	49(24.5)
Willingness to perform the following procedures on HIV & HBV positive patients			
Vaginal examination	148(74.0)	3(1.5)	49(24.5)
Catheter insertion	136(68.0)	2(1.0)	62(31.0)
Drawing blood	148(74.0)	2(1.0)	50(25.0)
Delivery or assisting in deliveries	181(90.5)	0(0)	19(9.5)
Wound dressing	158(79.0)	1(.5)	41(20.5)
Surgical operation	76(38.0)	0(0)	124(62.0)
Ways to protect self if managing HIV &HBV positive patients			
Wearing double hand gloves	180(99.4)	1(.6)	0(0)
Wearing goggles/ face mask	143(79.0)	37(20.4)	1(.6)
Wearing gowns/ aprons	164(90.6)	15(8.3)	2(1.1)
Wearing boot/ foot wear	159(87.8)	20(11.0)	2(1.1)

A higher proportion of the respondents agree to the use of all available options of standard precaution when managing patients. The respondents affirmed that they would recap needle after use 87(43.5%), detach needles from syringe after use 52(26.0%) and dispose needle and syringe immediately after use 196(98.0%). A higher proportion of respondents 171(85.50%) affirmed that sharps/needles should be disposed in sharp containers and 145(72.50%) agreed that it should be disposed in a tight cover container and burn, (85.5%); however few of the respondents 9(4.50%) agreed that used needles should be buried after usage (Table 4).

Table 4: Practice of standard precaution by the respondents

Variables	**Frequency (%)**		
Ways to handle spill of blood and body fluid	Yes	No	Don't know
Use 0.5% chlorine bleach	109(54.5)	47(23.5)	44(22.0)
Clean with soap and water	58(29.0)	51(25.5)	91(45.5)
Clean with alcohol	15(7.5)	91(45.5)	94(47.0)
Clean with mob stick and water	35(17.5)	91(45.5)	74(37.0)
Clean with antiseptic immediately	61(30.5)	75(37.5)	64(32.0)
Use any available disinfectant	162(81.0)	19(9.5)	19(9.5)
Injection safety practices			
Recap needle after use	87(43.5)	96(48.0)	17(8.5)
Detach needles from syringe after use	52(26.0)	131(65.5)	17(8.5)
Dispose needle and syringe immediately after use	196(98.0)	3(1.5)	1(0.5)
Methods of needle disposal			
Throw into waste bin	75(37.5)	92(46.0)	33(16.5)
Disposal into tight cover container and burn	145(72.5)	18(9.0)	37(18.5)

Bury them	9(4.5)	131(65.5)	60(30.0)
Throw them on the floor	1(0.5)	198(99.0)	1(0.5)
Sharps/ needles are disposed in sharps containers	171(85.5)	0(0.0)	29(14.5)
Methods of handling used re-usable instruments			
Soak in a disinfectant after washing with soap and water	173(86.5)	20(10.0)	7(3.5)
Put in an autoclave	187(93.5)	4(2.0)	9(4.5)
Put in the sterilizing unit	188(94.0)	4(2.0)	8(4.0)
Keep them for re-use without washing	1(0.5)	197(98.5)	2(1.0)
Have you ever had needle stick injury	105(52.50%)	95(47.50%)	0(0.0%)

As shown in figure 2 below, majority of the respondents demonstrated good knowledge 74%, Attitude 79% and practice 91.5% of standard precaution respectively.

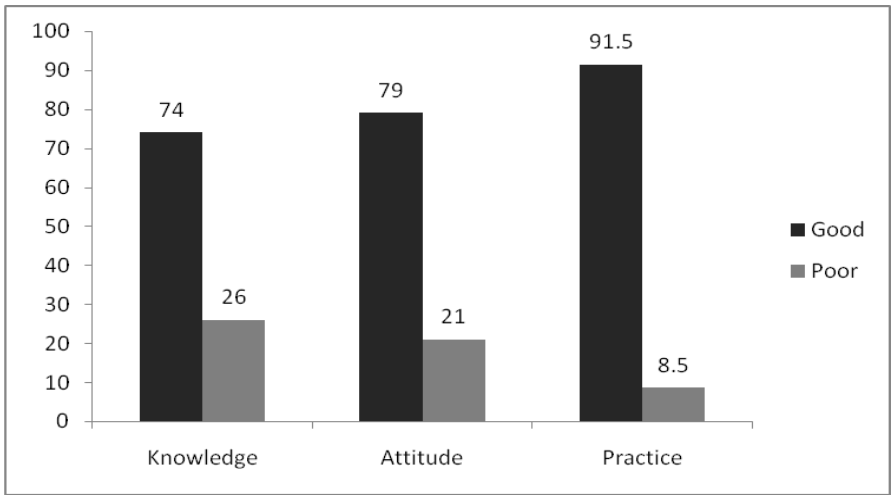

Figure 2: Knowledge, Attitude and Practice of standard precaution among the respondents

Similarly, the figure below shows that 52.50% of the respondents had experience needle stick injuries, while 60% of the respondents have not been immunized against Hepatitis B virus.

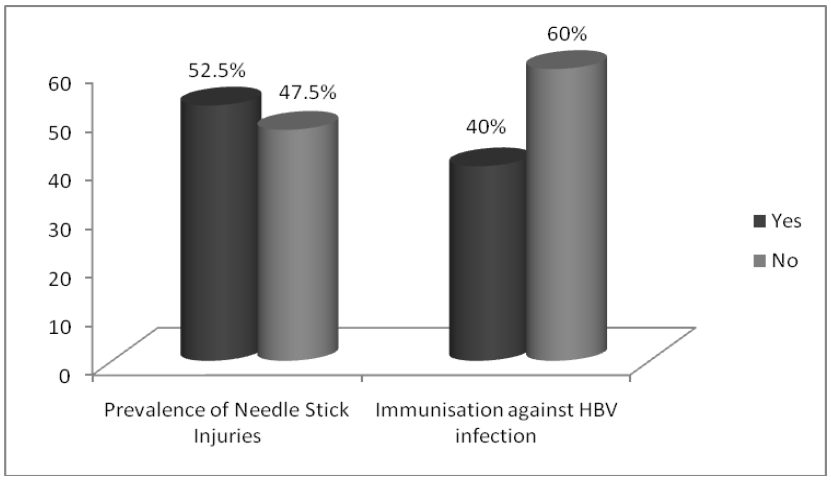

Figure 3: Prevalence of needle stick injuries and proportion of respondents immunized against HBV

III. Discussion

The study shows that majority of the respondents were aware of standard precaution as a form of universal precaution against infection. Furthermore, majority of the respondents demonstrated good knowledge, attitude and practice towards standard precaution. The study shows majority of the respondents were females, nursing profession and had served between 1-5 years as a health worker in the hospital. This finding is similar to the study conducted in Edo State South-South Nigeria [1]; but slightly different from a study in Federal Teaching Hospital Gombe, Nigeria where the respondent were 6-10 years in service [20]. Furthermore, the respondents demonstrated high awareness of standard precaution which is similar to the findings from previous studies [1,20,21].

The sources of information for standard precaution for most of the respondents were workshop and seminar which is similar to other study [22]. This is not surprising as most of the health workers do attend various seminar and workshop for on the job training and retraining. In addition, more than half of the respondents demonstrated good knowledge of standard precaution. This finding is different from previous studies in Nigeria which found lower level of knowledge [1,22,23]. The finding in this study was not surprising as the respondents demonstrated high awareness of standard precaution, however in some previous studies the high awareness did not necessarily translate to knowledge of standard precaution [23,24]. The demonstration of knowledge in the study by the respondents goes to show that the respondents probably do attend seminars and workshops which is usually the avenue to learn new and best practices by medical practitioners.

Similarly, the respondents exhibited good attitude towards standard precaution by agreeing to go for medical check-up in case of a needle stick injury and wearing double hand gloves as a way of protecting oneself when managing HIV and HBV positive patients. This is in line with the findings from a previous study [20]. The appreciable knowledge of standard precaution can be said to probably have encouraged positive attitude towards standard precautions by the respondents. Furthermore, the respondents practiced standard precaution which is similar to previous studies in Nigeria [1,19,20]. In terms of specific standard precaution practices there are some variations with previous studies. Some of the respondents affirmed they do not recap needle after use and detach needles from syringe after use which is similar to previous study where the respondents admitted not to or never recap needle after use [1,19]. The prevalence of needle stick injuries from this study is similar to what was reported in Nigeria, Indonesia and other studies [1,8,25,26,27].

IV. Conclusion

In conclusion, Standard Precaution as a life saving measure is more relevant in the medical field because of the increasing number of people living with HIV/AIDS, Hepatitis and other infectious diseases worldwide. The study shows the knowledge, attitude and practice of standard precautions among health care workers in Federal Medical Centre Yenagoa, was fair as majority of the health care workers has good knowledge, attitude and practice of standard precautions respectively. However, majority of the Health Care Workers still recapped needles, while few detach needles from syringes. In addition, over half of the Health Care Workers had experienced needle stick injuries which should be a concern both to the management of the hospital and stakeholders as most of the health workers will be susceptible to infections. The effective knowledge, attitude and practice of standard precautions among Health Care Workers in Federal Medical Centre, Yenagoa, are of absolute necessity because of the rising population of HIV-infected individuals in the study area and lack of immunization of some of the respondents against HBV. Therefore, both the management of the hospital, stakeholders at the state ministry of health and health workers union should strive to promote strict compliance to standard precautions in order to prevent infections from sharps, blood and body fluid pathogens.

Acknowledgement

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