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Health Care Worker Perception on HIV Pre-Exposure Prophylaxis and Service Delivery among Health Care Workers in South-East Nigeria

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ABSTRACT: *Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) prevention among health care workers (HCWs) remains a key issue. Infection with the human immunodeficiency virus endangers public health and kills a large number of individuals, including medical staff. There is now a genuine danger of HIV transmission among HCWs during work exposure. This study aims to assess health care worker perception on HIV pre-exposure prophylaxis and service delivery among health care workers in South-East Nigeria. Descriptive cross sectional study design using multistage sampling techniques was used to select four hundred respondents. Data was analyzed using the SPSS software version 25.0. Mean scores were generated for the major outcome variables of knowledge, attitude and practice of immunization schedule. P value was assumed significant at values less than 0.05. The findings of this study shows that 218 (54.5%) were male and 182 (45.5%) were female, 312 (78.0%) have good knowledge , 109 (27.3%) had history of occupational exposure to HIV, 234 (58.5%) had high, 85 (21.3%) had moderate and 81 (20.3%) had low level of exposure to occupational HIV, socio demographic variable based on age, religion, tribe, marital status and tear of practice shows a significant association with perceived level of exposure to occupational HIV at (χ^2=45.511, p=0.000), (χ^2=67.189, p=0.000), (χ^2=692.874, p=0.000), (χ^2=35.331, p=0.000) and (χ^2=34.899, p=0.000) respectively as p<0.05 and non-significant association with gender of the respondents at p<0.05. The findings from this study shows that there is a high level of Pre-Exposure Prophylaxis among health care workers in the study area, larger proportion perceived level of exposure to occupational HIV and at significant risk of acquiring occupational infections, even though majority were satisfied with service delivery. Health authorities in the study area need to improve the training of HCWs and provision of infection prevention equipment.*

KEYWORDS: health care worker, perception, HIV, prophylaxis, and service delivery

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INTRODUCTION

Health care workers (HCWs) have a crucial role in both treating and preventing blood-borne illnesses, including HIV (Twitchell, 2003). The inadvertent transmission of HIV to healthcare workers in the workplace is a current concern (Kumar et al., 2002). Annually, around 3 million healthcare professionals come into contact with blood-borne viruses (BBVs) through their skin (Sadoh et al., 2006). The prevention of AIDS and the human immunodeficiency virus (HIV) among health care workers (HCWs) continues to be a significant global topic of discussion. HCWs have a possibility of unintentionally contracting HIV while working (Rivet Amico & Bekker, 2019). Africa is home to 25.7 million out of the total 37.9 million individuals worldwide who are living with HIV. In 2018, Sub-Saharan Africa accounted for over 61% of the total number of fatalities caused by AIDS globally. 2 The 2018 Nigeria HIV/AIDS Indicator and Impact Survey reveals that there are currently 1.9 million individuals residing in Nigeria who are infected with HIV. The national incidence rate is 1.4%. Nigeria is severely affected by the HIV epidemic. In 2018, a total of 130,000 individuals in Nigeria contracted HIV for the first time, resulting in more than 50,000 fatalities due to AIDS. 5.6. Chen et al. (2001) have shown that HIV/AIDS remains a significant threat to the public health of Nigeria.

Healthcare practitioners in impoverished nations are at a greater risk of contracting blood-borne diseases at work due to the presence of increased dangers and inadequate safety protocols (Ademe et al., 2020).It is crucial to minimise the chances of being exposed to dangers as much as possible, as losing workers could have a significant adverse impact on the development of health systems. Developing nations face numerous challenges when it comes to mitigating occupational exposure hazards. Efforts have been undertaken at both the national and international levels to seek solutions to these difficulties. Safeguarding all healthcare workers (HCWs) is crucial in order to prevent the depletion of this vital element of the developing healthcare systems (Nuwayhid, 2004). Key strategies for prevention are providing comprehensive education on illnesses and ensuring strict compliance with safety protocols.

Healthcare workers in underdeveloped nations, like Nigeria, have a higher likelihood of acquiring HIV due to their occupation and are less likely to utilise post-exposure prophylaxis (PEP) compared to their counterparts in developed countries and institutions with superior equipment (Marfatia et al., 2017). As the prevalence of HIV-positive individuals rises, the probability of healthcare practitioners encountering their blood also increases. This is particularly accurate if none of the patients adhere to safe practices in handling bodily fluids and blood. Nigeria is severely affected by the HIV/AIDS pandemic. The prevalence of HIV among adults in Ethiopia is 3.2% of the population (Awofala & Ogundele, 2018). Additionally, there are certain methods that can effectively decrease stress levels and enhance employee morale and productivity. Nevertheless, research has uncovered that the healthcare system is afflicted by a dearth of information.

Blood-borne diseases, such as HIV, HCV, and HBV, can present a substantial risk of transmission. Knowledge of sharp injury and HIV exposure is crucial for anybody involved in health programme management, research, or working in the healthcare industry. The future development and execution of efficient measures for healthcare personnel, patients, and the community to mitigate the risk of blood-borne pathogen transmission will amplify the significance of this knowledge beyond its current importance.

Research Design and study area

This is a cross-sectional survey study among healthcare providers from selected hospitals in South-East Nigeria. The South-East geopolitical (Abia, Anambra, Ebonyi, Enugu and Imo). The wet season runs from April to November, while the dry season is from December to March (December–March). The yearly temperature varies from 30 to 36 degrees Celsius, while the annual precipitation ranges from 3000 to 4000 millimeters. According to the 2006 national census, the zone has a population of 16,381,729 people. With a 3% national growth rate, the zone's population is presently expected to reach about 22,279,151. The South-East Zone has around 766 inhabitants per km^2 and a total size of 29,095 km^2. Awka LGA in Anambra State (5.9076300° N, 6.9343600° E), Abakaliki LGA in Ebonyi State (5.8895° N; 7.9538° E), Enugu LGA in Enugu State (6.461253° N; 7.725586° E), and Aba South LGA in Abia State (6.0057200° N, 7.4017600° E) were all investigated. Alex Ekwueme's Orl Prior to the 1950s, when the nation was divided into three halves, it was known as Eastern Nigeria, or simply East. In 1967, the Gowon Administration divided it into three sections. (1967-1975). Imo and Anambra were two of the new states established beginning in 1976.

Sample and Sampling Techniques

A total of 400 primary health workers in South-East Nigeria, comprising of 125 medical doctors, 188 nurses and 87 laboratory scientists/technologists. The sample size was first computed using the equation developed by Cochran (1963:75).

Sampling techniques

To select participants for this quantitative study, the researcher used stratified, proportional, and simple random sampling as part of a multistage sampling strategy. The 400 study participants were divided into three groups: doctors, registered nurses, and lab scientists. Stratified sampling method was used to recruit participants for the study, this allowed us to ensure that the various groups of primary healthcare providers in the area who treat HIV-positive patients were fairly represented in the sample, resulting in more precise parameter estimations. The stratification method does not violate the random selection principle because a probability sample can be drawn from each group.

Ethical Consideration

Approval of the Scientific and Ethical Committee of the relevant Federal Medical Centres were sought and received. Informed permission of each of the participants was also gained after a clear and transparent explanation was presented to them.

Method of Data Collection

With the assistance of three study assistants, the researcher delivered copies of the instrument to the sample hospitals and/or health institutions. Before distributing the instrument to their employees, permission from the hospital and/or health facility administration was obtained from each settings. For the formal introduction of the researcher and the research assistants to the administration of the primary healthcare facilities and/or hospitals, a valid identification and a copy of the ethical clearance were used.

Method of Data Analyses

SPSS version 25 was used to analyze the data. The instrument copies were gathered, scored, and assembled in order to examine the data. After the data had been properly cleaned, a univariate analysis was performed, and the results were presented as a percentage. Frequency tables, graphs, and charts were used to depict the frequency distribution of the dependent and independent variables. At a 95% level of confidence, the Chi-square test, Phi, Cramer, and Contingency Coefficients were used to assess the degree of association between dependent and independent categorical variables.

RESULT

Table 1: Participant characteristics

Variable	Categories	Frequency	Percent
Age group	20 – 29	57	14.3
	30 – 39	97	24.3
	40 – 49	116	29.0
	50 – 59	86	21.5
	60 – 69	44	11.0
Sex	Male	218	54.5
	Female	182	45.5
Religion	Christianity	213	53.3
	Islam	125	31.3
	Traditional	20	5.0
	Others	42	10.5
Tribe	Yoruba	93	23.3
	Igbo	74	18.5
	Hausa	146	36.5
	Others	87	21.8
Marital Status	Married	215	53.8
	Single	124	31.0
	Separated	35	8.8
	Widow	17	4.3
	Divorced	9	2.3
Educational level	Tertiary	400	100.0
Year of Practice	>10years	50	12.5
	1year	55	13.8
	2-3years	175	43.8
	4-10years	120	30.0
How long have you work in the current department	>10 years	72	18.0
	>2 years	132	33.0
	2-4 years	119	29.8
	5-10 years	77	19.3
Have you being exposed to Occupational HIV before	Yes	109	27.3
	No	125	31.3
	I don't know	166	41.5

Table 1 presents the socio demographic characteristics of the respondents, in the table majority of the respondents 116 (29.0%) were 40 – 49 years, 97 (24.3%) were 30-39 years, 86 (21.5%) were 21.5%, the gender of the respondents shows that 218 (54.5%) were male and 182 (45.5%) were female, the religion of the respondents shows that 213 (53.3%) were Christians, 125 (31.1%) were Islam and 20 (5.0%) were traditional, the variable based on tribe of the respondents shows that 93 (23.3%) were Yoruba, 74 (18.5%) were Igbo and 146 (36.5%) indicate Hausa, the marital status of the respondents shows that 215 (53.8%) were married and 124 (31.0%) were single, all the respondents 100% had tertiary education, the year of practice of the respondents shows that 50 (12.5%) had more than 10 years experienced, 55 (13.8%) had 2-3 years experienced and 120 (30.0%) had 4-10 years experienced, the variable based on history of exposed to occupational HIV showed that 109 (27.3%) had previous history of exposure to occupational HIV

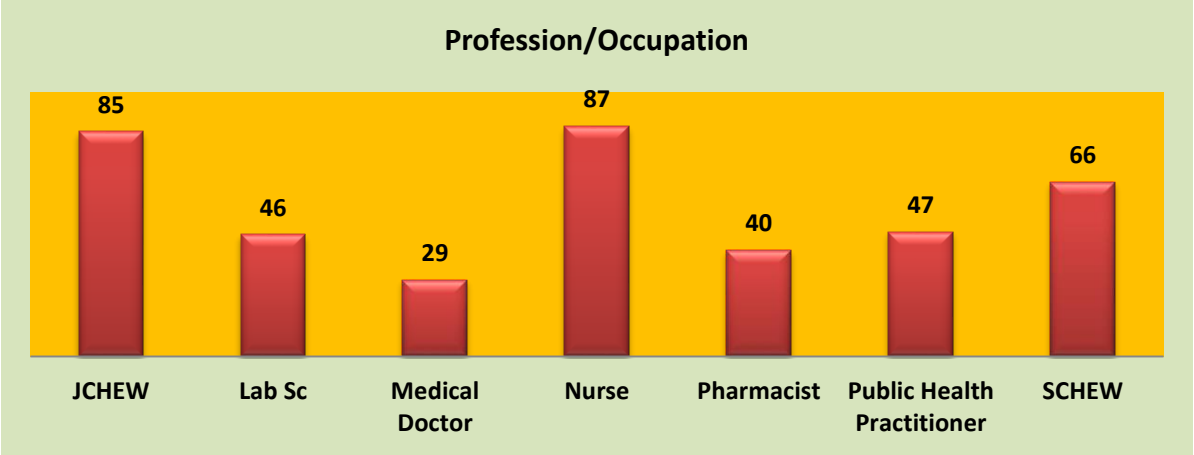

Figure 1: Profession of the respondent

Figure 1 presents the profession of the respondents, in the figure 85 (21.3%) were JCHEW, 46 (11.5%) were laboratory scientist, 29 (7.3%) were medical doctor, 87 (21.8%) were nurse, 40 (10.0%) were pharmacist, 47 (11.8%) were Public Health Practitioner and 66 (16.5%) were SCHEW

Figure 2: History of occupational exposure to HIV

Figure 2 presents the history of occupational exposure to HIV, in the figure 109 (27.3%) had history of occupational exposure to HIV, 125 (31.3%) indicate no and 166 (41.5%) indicate I don't know

Table 2: Knowledge of the respondents on post exposure prophylaxis for HIV/AIDS

Variable	Categories	Frequency	Percent
Can you get HIV from occupational exposure	Yes	398	99.5
	No	2	0.5
How will you indicate level of exposure to occupational HIV in your facility	High	234	58.5
	medium/moderate	85	21.3
	Low	81	20.3
Have you ever heard of post exposure prophylaxis (PEP) for HIV	Yes	400	100.0
Do you know any sexually transmitted infection	Yes	400	100.0
When will you think PEP should indicate	Patient at high risk	103	25.8
	Patient known with HIV	15	3.8
	HIV with unknown	282	70.5
What is the maximum time to delay the PEP	24 hours	382	95.5
	48 hours	13	3.3
	72 hours	5	1.3
What is preferable time to take PEP	28 days	143	35.8
	40 days	88	22.0
	6 month	104	26.0
	Life time	65	16.3
Have you attend any training about PEP	Yes	312	78.0
	No	88	22.0
Do you know about the PEP guide lines	Yes	307	76.8
	No	87	21.8
	I don't know	6	1.5
What is the effectiveness of PEP Within hour	After 6 hour of exposure	87	21.8
	After 12 hour of exposure	144	36.0
	After 72 hour of exposure	169	42.3

Table 2 presents knowledge of the respondents on post exposure prophylaxis for HIV/AIDS, 398 (99.5%) indicate HIV can be obtained from occupational exposure, the variable based on How will you indicate

level of exposure to occupational HIV in your facility shows that 234 (58.5%) indicate high, 85 (21.3%) indicate medium/moderate and 81 (20.3%) indicate Low, all the respondents 100% had ever heard of post exposure prophylaxis (PEP) for HIV and know sexually transmitted infection, the maximum time to delay the PEP as indicated by the respondents shows that 382 (70.5%) indicate 24 hours, 13 (3.3%) indicate 48 hours and 5 (1.3%) indicate 72 hours, the preferable time to take PEP shows that 143 (35.8%) indicate 28 days, 88 (22.0%) indicate 40 days, 104 (26.0%) indicate 6 month and 65 (16.3%) indicate Life time, 312 (78.0%) had training about PEP, 307 (76.8%) know about the PEP guide lines.

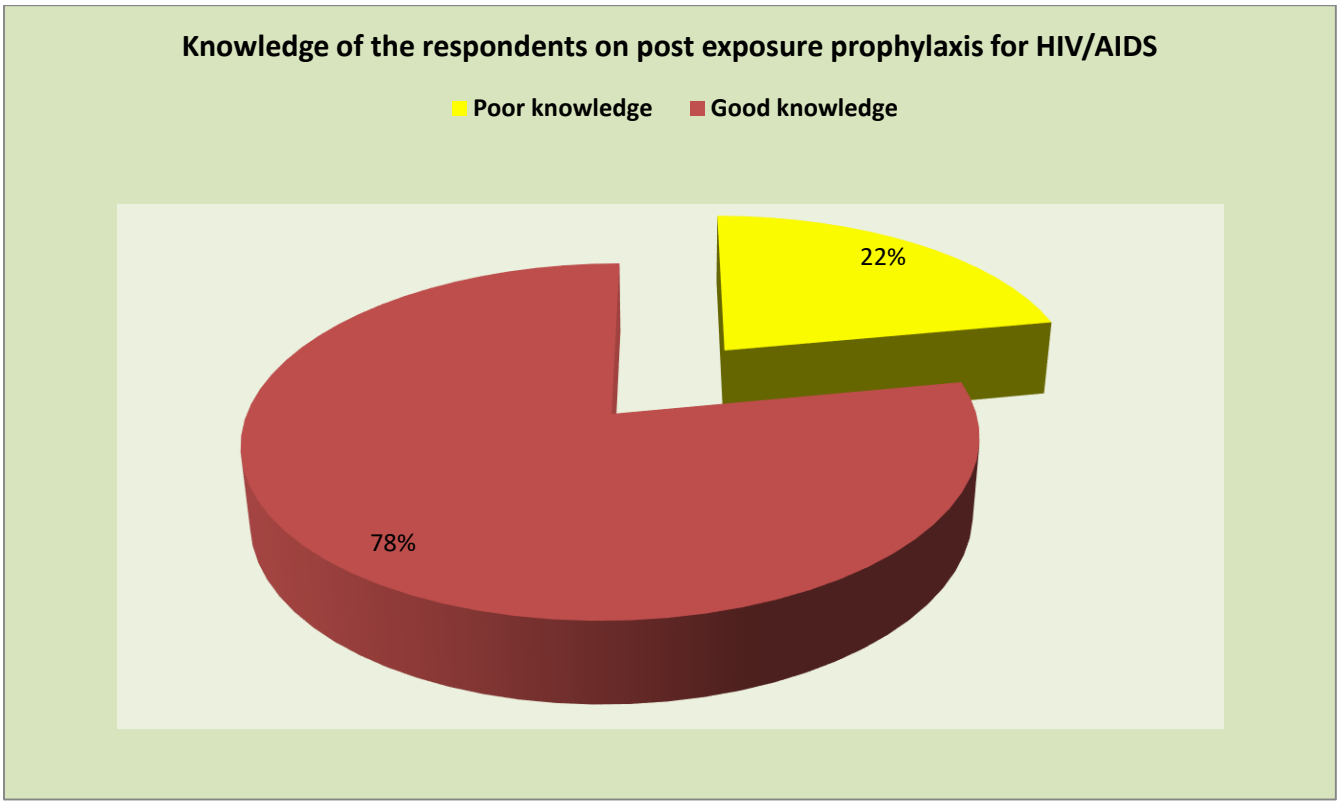

Figure 3: Knowledge of the respondents on post exposure prophylaxis for HIV/AIDS

Figure 3 knowledge of the respondents on post exposure prophylaxis for HIV/AIDS, in the figure 312 (78.0%) have good knowledge on post exposure prophylaxis for HIV/AIDS and 88 (22.0%) have poor knowledge

Table 3: Association between socio demographic and knowledge of the respondents on post exposure prophylaxis for HIV/AIDS

Variable	Categories	Poor knowledge	Good knowledge	Total	Chi square (χ^2)	df	P-value
Age group	20 – 29	27(47.4%)	30(52.6%)	57(100.0%)	32.035	4	0.000
	30 – 39	9(9.3%)	88(90.7%)	97(100.0%)			
	40 – 49	28(24.1%)	88(75.9%)	116(100.0%)			
	50 – 59	17(19.8%)	69(80.2%)	86(100.0%)			
	60 – 69	7(15.9%)	37(84.1%)	44(100.0%)			
Sex	Male	42(19.3%)	176(80.7%)	218(100.0%)	2.087	1	0.149
	Female	46(25.3%)	136(74.7%)	182(100.0%)			
Religion	Christianity	57(26.8%)	156(73.2%)	213(100.0%)	16.442	3	0.001
	Islam	29(23.2%)	96(76.8%)	125(100.0%)			
	Traditional	2(10.0%)	18(90.0%)	20(100.0%)			
	Others	0(0.0%)	42(100.0%)	42(100.0%)			
Tribe	Yoruba	88(94.6%)	5(5.4%)	93(100.0%)	372.429	3	0.000
	Igbo	0(0.0%)	74(100.0%)	74(100.0%)			
	Hausa	0(0.0%)	146(100.0%)	146(100.0%)			
	Others	0(0.0%)	87(100.0%)	87(100.0%)			
Marital Status	Married	49(22.8%)	166(77.2%)	215(100.0%)	15.777	4	0.003
	Single	33(26.6%)	91(73.4%)	124(100.0%)			
	Separated	0(0.0%)	35(100.0%)	35(100.0%)			
	Widow	6(35.3%)	11(64.7%)	17(100.0%)			
	Divorced	0(0.0%)	9(100.0%)	9(100.0%)			
Year of Practice	>10years	9(18.0%)	41(82.0%)	50(100.0%)	22.988	3	0.000
	1year	0(0.0%)	55(100.0%)	55(100.0%)			
	2-3years	53(30.3%)	122(69.7%)	175(100.0%)			
	4-10years	26(21.7%)	94(78.3%)	120(100.0%)			

Table 3 presents the association between socio demographic and Knowledge of the respondents on post exposure prophylaxis for HIV/AIDS, in the table the socio demographic variable based on age, religion, tribe, marital status and year of practice shows a significant association with knowledge of the respondents on post exposure prophylaxis for HIV/AIDS at (χ^2=32.035,p=0.000), (χ^2=16.442,p=0.001),

(χ^2=372.429,p=0.000), (χ^2=15.777,p=0.003) and (χ^2=22.988,p=0.000) at p<0.05 and non-significant association with gender of the respondents

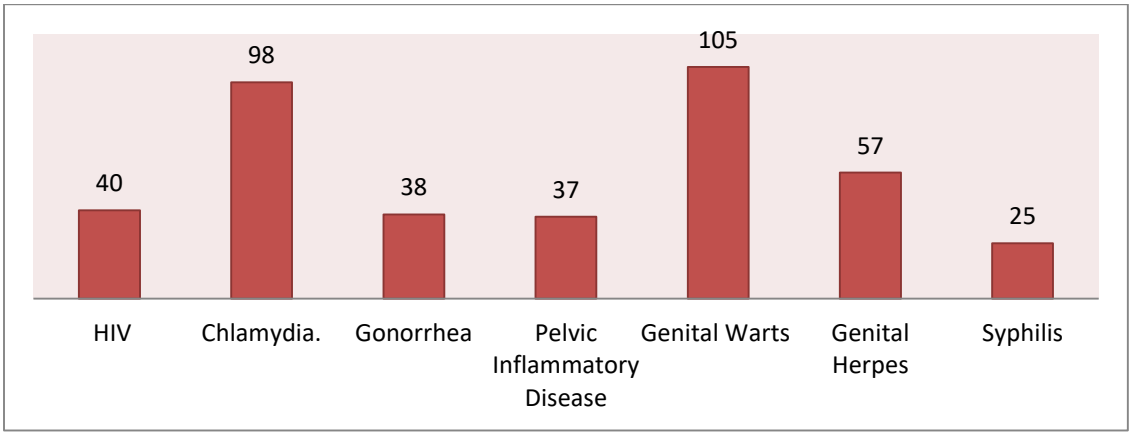

Figure 4: Knowledge of the respondents on causes of sexually transmitted infection

Figure 4 presents the knowledge of the respondents on causes of sexually transmitted infection, in the table 40 (10.0%) indicate human immunodeficiency virus (hiv) and acquired immune deficiency syndrome, 98 (24.5%) indicate chlamydia, 38 (9.5%) indicate gonorrhea, 37 (9.3%) indicate pelvic inflammatory disease, 105 (26.3%) indicate genital warts and human papillomavirus, 57 (14.3%) indicate genital herpes and 25 (6.3%) indicate syphilis

Table 4: Source of information on sexually transmitted infection

Variable	Categories	Frequency	Percent
TV/radio	Yes	323	80.8
	No	77	19.3
Newspaper	Yes	369	92.3
	No	31	7.8
Public talks/seminars	Yes	361	90.3
	No	39	9.8
Billboards/posters	Yes	392	98.0
	No	8	2.0
Hospital/health workers	Yes	371	92.8
	No	29	7.3
Teachers	Yes	318	79.5
	No	82	20.5
Friends/relations	Yes	260	65.0
	No	140	35.0

Table 4 present source of information on sexually transmitted infection, in the table 323 (80.8%) indicate TV/radio, 369 (92.3%) indicate newspaper, 361 (90.3%) indicate Public talks/seminars 392 (98.0%) indicate Billboards/posters, 371 (92.8%) indicate Hospital/health workers, 318 (79.5%) indicate teachers and 260 (65.0%) indicate friends/relations

Table 5: Perception of the respondents to transmitted of HIV/AIDS

Variable	Categories	Frequency	Percent
From needles and syringes	Agree	400	100.0
Blood and blood product	Agree	392	98.0
	Disagree	8	2.0
Sharing the same plate with infected person	Agree	5	1.3
	Disagree	395	98.8
Unprotected sexual intercourse	Agree	400	100.0
From mother to child	Agree	400	100.0
From sharing the same toilet with an infected person	Agree	124	31.0
	Disagree	276	69.0
Exposure to cough and sneeze from infected persons	Agree	132	33.0
	Disagree	268	67.0

Table 5 presents the perception of the respondents to transmitted of HIV/AIDS, in the table all the respondents 100% indicate agree to From needles and syringes, Unprotected sexual intercourse and From mother to child, 392 (98.0%) indicate agree to Blood and blood product, 5 (1.3%) indicate agree to Sharing the same plate with infected person, 124 (31.0%) indicate agree to sharing the same toilet with an infected person and 132 (33.0%) indicate agree to cough and sneeze from infected persons

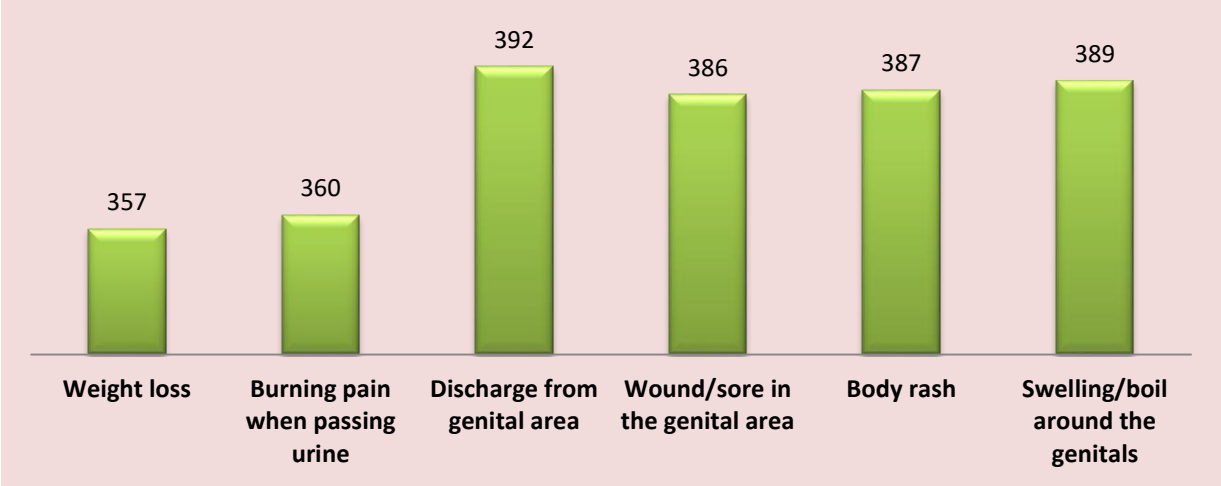

Figure 5: Common complaints in people with HIV/AIDS

Figure 5 present the common complaints in people with HIV/AIDS, in the figure 357 (89.3%) indicate weight loss, 360 (90.0%) indicate burning pain when passing urine, 392 (98.0%) indicate strongly discharge from genital area, 387 (96.8%) indicate body rash and 389 (97.3%) indicate swelling/boil around the genitals

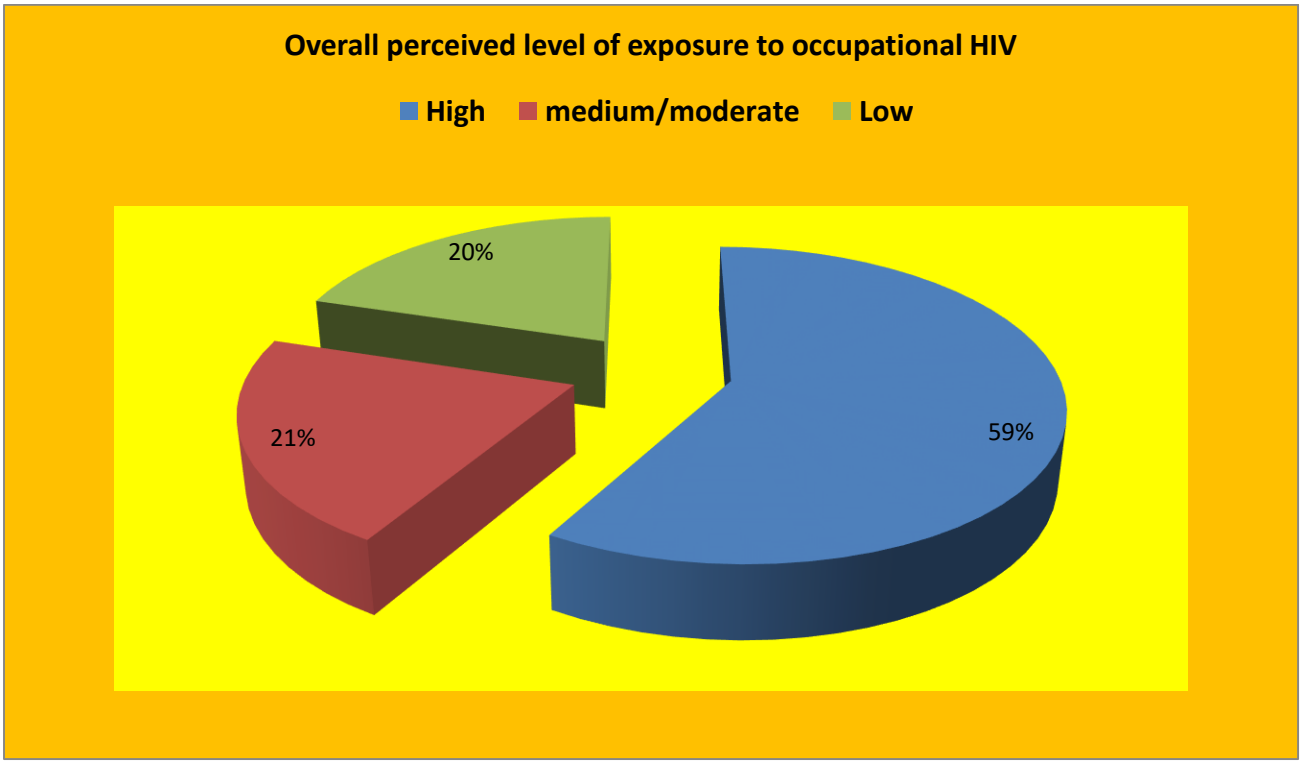

Figure 6: Overall perceived level of exposure to occupational HIV

Figure 6 the overall perceived level of exposure to occupational HIV, in the figure 109 (27.3%) had history of occupational exposure to HIV, 234 (58.5%) had high, 85 (21.3%) had moderate and 81 (20.3%) had low level of exposure to occupational HIV

Table 6: Association between socio demographic and perceived level of exposure to occupational HIV

Variable	Categories	High	Medium/ moderate	Low	Total	Chi square (χ^2)	df	P-value
Age group	20 – 29	19(33.3%)	16(28.1%)	22(38.6%)	57(100.0%)	45.511	8	0.000
	30 – 39	63(64.9%)	25(25.8%)	9(9.3%)	97(100.0%			
	40 – 49	80(69.0%)	8(6.9%)	28(24.1%)	116(100.0%)			
	50 – 59	49(57.0%)	20(23.3%)	17(19.8%)	86(100.0%)			
	60 – 69	23(52.3%)	16(36.4%)	5(11.4%)	44(100.0%)			
Sex	Male	124(56.9%)	52(23.9%)	42(19.3%)	218(100.0%)	1.972	2	0.373
	Female	110(60.4%)	33(18.1%)	39(21.4%)	182(100.0%			
Religion	Christianity	94(44.1%)	62(29.1%)	57(26.8%)	213(100.0%)	67.189	6	0.000
	Islam	96(76.8%)	5(4.0%)	24(19.2%)	125(100.0%)			
	Traditional	10(50.0%)	10(50.0%)	0(0.0%)	20(100.0%)			
	Others	34(81.0%)	8(19.0%)	0(0.0%)	42(100.0%)			
Tribe	Yoruba	0(0.0%)	12(12.9%)	81(87.1%)	93(100.0%)	692.874	6	0.000
	Igbo	1(1.4%)	73(98.6%)	0(0.0%)	74(100.0%)			
	Hausa	146(100.0%)	0(0.0%)	0(0.0%)	146(100.0%)			
	Others	87(100.0%)	0(0.0%)	0(0.0%)	87(100.0%)			
Marital Status	Married	120(55.8%)	46(21.4%)	49(22.8%)	215(100.0%)	35.331	8	0.000
	Single	75(60.5%)	21(16.9%)	28(22.6%)	124(100.0%)			
	Separated	31(88.6%)	4(11.4%)	0(0.0%)	35(100.0%)			
	Widow	4(23.5%)	9(52.9%)	4(23.5%)	17(100.0%)			
	Divorced	4(44.4%)	5(55.6%)	0(0.0%)	9(100.0%)			
Year of Practice	>10years	23(46.0%)	18(36.0%)	9(18.0%)	50(100.0%)	34.899	6	0.000
	1year	42(76.4%)	13(23.6%)	0(0.0%)	55(100.0%)			
	2-3years	108(61.7%)	21(12.0%)	46(26.3%)	175(100.0%)			
	4-10years	61(50.8%)	33(27.5%)	26(21.7%)	120(100.0%)			

Table 6 presents the association between socio demographic and perceived level of exposure to occupational HIV, in the table the socio demographic variable based on age, religion, tribe, marital status and tear of practice shows a significant association with perceived level of exposure to occupational HIV at (χ^2=45.511, p=0.000), (χ^2=67.189, p=0.000), (χ^2=692.874, p=0.000), (χ^2=35.331, p=0.000) and (χ^2=34.899, p=0.000) respectively as $p<0.05$ and non-significant association with gender of the respondents at $p<0.05$

Table 7: Practices on infection prevention control on post exposure prophylaxis for HIV/AIDS

Variable	Yes	No	I don't know
Does your organization developed and distributed written policies for the management of occupational exposure	372(93.0)	11(2.8)	17(4.3)
Have you use personal protective equipment when anticipating contact with patient blood and body fluid	342(85.5)	48(12.0)	10(2.5)
Is hand washing in your practice routine after contact with infected patients	351(87.8)	34(8.5)	15(3.8)
Is there proper handling and disposing of sharp instrument after and before use	367(91.8)	23(5.8)	10(2.5)
Have you ever been placed on HIV PEP after needle stick injury	373(93.3)	9(2.3)	18(4.5)
Screening of patients are being done to detect colonization even if no evidence of infection	370(92.5)	18(4.5)	12(3.0)
Personal protective equipment are always accessible	371(92.8)	15(3.8)	14(3.5)
Our hospital monitors patients with urinary catheters for infection and gives feedback on urinary tract infection rates	350(87.5)	19(4.8)	31(7.8)
We shake linens out to release dust from the linen	353(88.3)	38(9.5)	9(2.3)
Have you been trained on IPC	336(84.0)	56(14.0)	8(2.0)
Do you have up to date knowledge on IPC	332(83.0)	49(12.3)	19(4.8)

Table 7 presents the practices on infection prevention control on post exposure prophylaxis for HIV/AIDS, in the table 372(93.0) indicate developed and distributed written policies for the management of occupational exposure, 342(85.5) have use personal protective equipment when anticipating contact with patient blood and body fluid, 351(87.8) practice routine after contact with infected patients, 367(91.8) indicate handling and disposing of sharp instrument after and before use, 373(93.3) have been placed on HIV PEP after needle stick injury, 370(92.5) indicate patients are being done to detect colonization even if no evidence of infection, 371(92.8) indicate Personal protective equipment are always accessible, 350(87.5) indicate hospital monitors patients with urinary catheters for infection and gives feedback on urinary tract infection rates, 353(88.3) shake linens out to release dust from the linen, 336(84.0) have been trained on IPC and 332(83.0) have up to date knowledge on IPC

Table 8: Association between perceived level of exposure to occupational HIV and Provision, support, and preparedness for PEP service delivery

Variable	Categories	High	medium/moderate	Low	Total	Pearson Chi-Square	df	P-value
How well the facility is staffed to provide HIV prevention services	Very well	24(6.0%)	12(3.0%)	81(20.3%)	117(29.3%)	587.306	6	0.000
	Somewhat	1(0.3%)	73(18.3%)	0(0.0%)	74(18.5%)			
	Not at all	136(34.0%)	0(0.0%)	0(0.0%)	136(34.0%)			
	Unsure	73(18.3%)	0(0.0%)	0(0.0%)	73(18.3%)			
How well the facility is staffed to cater for PEP delivery	Very well	18(4.5%)	17(4.3%)	81(20.3%)	116(29.0%)	578.717	6	0.000
	Somewhat	1(0.3%)	68(17.0%)	0(0.0%)	69(17.3%)			
	Not at all	138(34.5%)	0(0.0%)	0(0.0%)	138(34.5%)			
	Unsure	77(19.3%)	0(0.0%)	0(0.0%)	77(19.3%)			
If PEP were made available, would you offer/recommend PEP for potential users	Yes	233(58.3%)	16(4.0%)	81(20.3%)	330(82.5%)	303.141	2	0.000
	No	1(0.3%)	69(17.3%)	0(0.0%)	70(17.5%)			
Stigma in offering PEP services to key populations	Yes	137(34.3%)	12(3.0%)	81(20.3%)	230(57.5%)	125.436	2	0.000
	No	97(24.3%)	73(18.3%)	0(0.0%)	170(42.5%)			
PEP is available as a recommended method of HIV prevention	Yes	146(36.5%)	12(3.0%)	81(20.3%)	239(59.8%)	128.842	2	0.000
	No	88(22.0%)	73(18.3%)	0(0.0%)	161(40.3%)			

DISCUSSION

In this study high proportion of health care workers 312 (78.0%) have good knowledge on post exposure prophylaxis for HIV/AIDS and the remaining had poor knowledge. This is lower than similar studies from Gonder University hospital (36.9% of health workers had poor knowledge) (Tetali & Choudhury, 2006), Nigeria (7% - 29%). This difference might be due to the advantage of having special training of health care workers in DRH and year of study conducted. Greater than 75% of study participants had completed their bachelor degree or medical doctor; this higher level of education may explain the higher knowledge demonstrated by our participants. However the year of experienced of individual might also be a contributing factor to good knowledge of the respondents as more than two third of the respondents had year of practice of 2 years and above, this findings is similar to the submission of (Oche et al., 2018).

This study revealed that all the respondents were aware of universal health precautions and HIV PEP, respectively. This is not unexpected given the respondents' educational background and occupational setting. This is similar though slightly lower than that reported among HCWs at Lagos University Teaching Hospital where 83.3% had prior awareness about PEP and (91.7% and 87.2%) were aware of universal health precautions and HIV PEP, respectively reported by (Oche et al., 2018) and 97% as reported by (*Rotimi, 2012*), finding in Western Ethiopia also report 92.8% of respondents had heard about PEP(Mathewos et al., 2013). Among the respondents that are aware of PEP, only 46.2% got to know of it

from their workplace. This may be a pointer to the lack of regular in-house trainings toward identification and control of workplace hazards which should be an important consideration at tertiary health facilities.

Occupational exposure to HIV in HCWs is of public health concern in Cameroon, a country with an elevated burden of HIV within the central African region. Occupational injuries expose HCWs to HIV infection and other blood-borne infections in a hospital setting while providing care to an infected patient. The findings from this study shows that 27.3% had previous exposure to Occupational HIV which is lower compared to the submission of(Eyong et al., 2022) who reported over half of the health care workers (63.5%) had suffered occupational injuries.

This finding suggests that there is increased negligence and failure by the HCWs to adhere to the universal precaution thereby implementing unsafe practices in health care settings. Among the type of occupational injuries incurred by HCWs, needle stick injury was the most prevalent , Sharing the same plate with infected person, sharing the same toilet with an infected person and exposure to cough and sneeze from infected persons were some of the perceived causes of HIV/AIDS transmission. This finding support study in Tanzania wherein splashing of blood/bodily fluids on mucosal surfaces, needle stick injuries was the most prevalent occupational injury incurred by HCWs(Kimaro et al., 2018). The high prevalence of needle stick injuries could be a result of the constant and continuous use of syringes in the administration of drugs and collection of blood, recapping of the needle after use on the patients as has been previously reported. Needle stick injuries of health care workers are an important occupational hazard leading to infections with bloodborne pathogens like HBV, HCV, or HIV(Reda et al., 2010).

Each year, 3 million medical professionals are exposed to blood-borne viruses at work, according to WHO estimates. 90% of infections caused by these exposures occur in low-income countries (Hutin et al., 2003). The majority of HIV-positive people and those who contract the virus through work live in developing countries, particularly in Sub-Saharan Africa(Jones & Hunter, 1995). In this study the 58.5% of the respondents perceived they have high exposure to occupational HIV and common complain received among people with HIV/AIDS, include weight loss, burning pain when passing urine, discharge from genital area, body rash and swelling/boil around the genitals. The socio demographic variable based on age, religion, tribe, marital status and tear of practice shows a significant association with perceived level of exposure to occupational HIV at (χ^2=45.511, p=0.000), (χ^2=67.189, p=0.000), (χ^2=692.874, p=0.000), (χ^2=35.331, p=0.000) and (χ^2=34.899, p=0.000) respectively as $p<0.05$ and non-significant association with gender of the respondents at $p<0.05$. Association between perceived level of exposure to occupational HIV and provision, support, and preparedness for pep service delivery shows that more than two third of the respondents had positive response to how well the facility is staffed to provide HIV prevention services, 20.3% indicate facility is very well staffed to cater for PEP delivery, 82.5% indicate yes to If PEP were made available, would you offer/recommend

CONCLUSION

The findings from this study shows that there is a high level of Pre-exposure Prophylaxis among health care workers in the study area, larger proportion perceived level of exposure to occupational HIV and at significant risk of acquiring occupational infections, even though majority were satisfied with service delivery. Health authorities in the study area need to improve the training of HCWs and provision of

infection prevention equipment. In addition, regular reporting, follow up and assessment of occupational exposures need to be introduced.

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