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Knowledge, Attitude and Practice of Post Exposure Prophylaxis for Hiv Among Healthcare Workers in Two Tertiary Hospitals In Enugu Southeast Nigeria

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Research Article

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Abstract

Background: Human Immunodeficiency Virus (HIV) infection is a global public health challenge with 1.9 million infected people in Nigeria. World Health Organization (WHO), stated that post exposure prophylaxis (PEP) for HIV can prevent seroconversion after exposure.

Objective: This study assessed the level of knowledge, attitude and practice of post exposure prophylaxis for HIV/AIDS among healthcare workers (HCWs) in two tertiary hospitals in Enugu.

Methods: A descriptive cross-sectional study was conducted and a multistage sampling technique was used to select 543 participants aged 18 years and above from two tertiary hospitals in Enugu. Pretested interviewer-administered questionnaire was used to obtain information from the participants. Univariate, Bivariates and Multivariate analysis were performed using Microsoft excel and Epi Info 7 and results were presented in charts, tables and graphs. Associations between variables were determined using Chi square and Odds ratio at 95% confidence intervals. The level of significance was set at p-value of 0.05.

Results: The overall mean age of the respondents was 37.1 ±10.74 years. A total of 305(56.2%) respondents were females, 273 (52%) in UNTH and 333 (61.3%) married. Majority of the respondents, 351 (64.8%), attained first degree higher educational level, and 248 (47.9%) had served 5 years and below. Only 182 (33.5%) respondents have good knowledge of PEP for HIV. Out of 543 respondents, 369 (68%) have positive attitude towards PEP for HIV but with generally poor practice of it. Out of 125/543 (28%) respondents who have ever been exposed to HIV risky conditions; 53/108 (49%) commenced PEP and only 25/53 (47.2%) of those who took it, completed 28 days' course. Logistic regression analyses revealed that the significant predictors of the respondents' likelihood of having good knowledge of HIV PEP were attainment of higher educational level (Adjusted OR: 2.2, 95% C.I:1.3.5-4); and working in UNTH (Adjusted

OR: 3.4, 95%C. I: 2.3-5.0)]. Again, the predictors of respondents' positive attitude were good knowledge of PEP for HIV (Adjusted OR: 2.3, 95% C. I: 1.46-3.62); working in UNTH (Adjusted OR: 1.86, 95% C.I: 1.26-2.75) and attaining Master's Degree and above (Adjusted OR: 1.86, 95% C. I: 1.14-3.04).

Conclusion: Most of the respondents had poor knowledge of PEP for HIV. There was a positive attitude towards PEP. However, poor practice of PEP for HIV, was predominant.

Keywords: Public Health; Safety; Exposure dynamics; HIV; Healthcare workers; Disease prevention

Introduction

Globally, Human Immunodeficiency Virus (HIV) is a serious public health challenge. More than 38 million people were infected globally in 2019 with 58 percent in Western and Central Africa [1]. Healthcare workers in HIV endemic areas are at high risk of contracting HIV infection [2]. This risk increases with percutaneous injuries, contamination of non-intact skin or mucus membranes exposed with blood or other potentially infectious body fluid [3].

Post-exposure prophylaxis (PEP) is short-term antiretroviral (ARV) treatment to reduce the likelihood of HIV infection after potential exposure, either occupational or non-occupational [4]. The PEP strategy include patient's HIV testing, correct combination of 2 or 3 ARVs taken within 72 hours of exposure, appropriate timing and duration (28-day course) of treatment, monitoring and management of drug toxicity, follow-up and post-exposure HIV testing [4,5]. If started soon after exposure, PEP can reduce the risk of HIV infection by over 80% and adherence to a full 28-day course of ARVs is critical to the effectiveness of the intervention (WHO, 2014) [4]. Traditionally, separate World Health Organization (WHO) and national guidelines have been developed for PEP according to exposure type [6]. The new PEP guidelines and recommendations cover all types of exposures in all population groups [4]. The recommended drugs for adults are Tenofovir combined with either lamivudine (3TC) or Emtricitabine (FTC). The third drug is ritonavir-boosted Lopinavir (LPV/r). Recent evidence shows insufficient PEP uptake with only 57% of the people who initiated PEP completing the full course) [4].

Nigeria with a population of over 200 million people, faces high prevalence of HIV infection with estimated 1.9 million people living with the virus [7,8]. The sub-Saharan African countries have challenges in implementing the HIV PEP program due to poor management of limited resources, improper dissemination of the information and poor program structures [6]. In Nigeria, reported issues regarding practice of PEP include lack of PEP protocols and limited compliance to guidance [9].

There is paucity of data on the knowledge and practice of PEP for HIV/AIDS among tertiary HCWs in Enugu. It is paramount that HCWs are knowledgeable on PEP strategies and are able to act promptly and effectively when occupation exposure occurs. This study will identify deficit(s) in knowledge and practice which the health policy makers will find relevant in designing necessary intervention aimed at improving PEP activities and personal safety in health facilities. The study findings will not only add to the literature on this topic but also serve as a source of information to address the factors affecting the compliance of HIV PEP practice among HCWs in the hospitals. This study assessed the level of knowledge, attitude and practice of PEP for HIV/AIDS among HCWs in 2 tertiary hospitals, Enugu. Identification of the factors affecting the outcome of HIV PEP practice in hospitals will be invaluable in promoting HIV PEP practice among HCWs. This study assessed the level of knowledge, attitude and practice of post exposure prophylaxis for HIV/AIDS among healthcare workers (HCWs).

Methods

Study area: This study was conducted at UNTH and ESUTH both in Enugu, South-East Nigeria which has a 2006 census projected population of 722,664, and growth rate of 3.05% per annum [10]. UNTH, is a federal health institution located few kilometers from the city. The institution serves as a referral center for all the hospitals in the South-Eastern zone of the country. ESUT is a state health institution located at the government reserved area (GRA) of the city and also serves as treatment and referral center to all the state health facilities in and around Enugu. In their employ are professionals, semiskilled and skilled workers.

Study design: The study employed a descriptive cross-sectional design.

Study population: This include HCWs (Doctors, Pharmacists, Nurses, and Laboratory Scientists), 18 years and above in the hospitals.

Sampling technique and data collection: Using multi-stage sampling technique, 543 participants were recruited. Interviewer administered questionnaires written in English were used by the researcher and the trained assistants to obtain information on the Socio-demographic characteristics of the participants; Knowledge of PEP for HIV by HCWs; Attitudes of HCWs towards PEP for HIV; Practice of PEP for HIV by the HCWs. The data collection however lasted for 3 months.

Study criteria

Inclusion criteria: Considering the study time limit, all registered Doctors, Nurses, Pharmacists, and Medical Laboratory Scientists who have worked in the hospitals for at least one month from the time of commencement of the study participated. Secondly, healthcare workers who gave their informed consent to participate in the study.

Exclusion criteria: All the healthcare workers who qualified to participate but were absent during the time of study were excluded.

Data analysis: Frequencies, proportions, means, and standard deviation were calculated. Results were presented in tables, charts and graphs. Chi-square test and odds ratios (OR) at 95% confidence interval (CI) were used to determine the strength of association between socio-demographic characteristics, knowledge about PEP, Attitudes of HCWs towards PEP and Practice of PEPs among the HCWs. Logistic regression analysis of significant variables was performed to determine the factors affecting the knowledge, attitude and practice of HIV PEP among these participants and the level of significance was set at a p-value of < 0.05. Age of respondents and duration of work experience in years were re-grouped into four and five categories. In order to determine the associations between variables in 2x2 tables, the respondents' work experience in years, educational levels, marital status and respondents' religion were re-grouped into two categories each. The significant variables from bivariate analysis were then put in a model for multivariate analysis to determine the significant predictors of the healthcare workers' knowledge, attitude and practice of PEP for HIV. Knowledge level of PEP for HIV was predicted using marital status, hospital setting, educational levels, health workers work experience (duration). Attitude towards PEP for HIV was predicted using marital status, hospital, educational levels, work experience (duration), knowledge level of HIV PEP.

Ethical Consideration

The ethical approvals were obtained from both the Ethics Committee on Research and Statistics of UNTH, Enugu and ESUTH Enugu. Informed consent was obtained from the participants. The purpose of this study was made known to the participants and they were assured of the confidentiality of any information they provided and also the right not to participate or withdraw from the study at any point they felt uncomfortable.

Results

This study got 543 respondents who answered questionnaires completely, making up 95% of the calculated sample size of 572. The overall mean age of the respondents was 37.11 ±10.74 years; 238 (43.8%) of them were males. Slightly, more than half (52%) of them are healthcare workers of Enugu State University Teaching Hospital and

Table 1: Socio-demographic characteristics of Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria: 2020. N=543

Variables	Options	(n)	(%)	
Age group(Years)	21-30	212	39.22	Mean age 37.11± SD10.74
	31-40	151	27.81	
	41-50	108	19.89	
	51-60	71	13.08	
Sex	Female	305	56.17	
	Male	238	43.83	
Marital status	Married	333	61.33	
	Single	207	38.12	
	Widowed	2	0.37	
	Divorced	1	0.18	
Name of Hospital	UNTH	263	48.43	
	ESUTH	280	51.57	
Religion	Christianity	525	96.69	
	Muslim	12	2.21	
	Traditional	3	0.55	
	Judaism	1	0.18	
	Atheist	2	0.37	
Profession	Medical Doctor	144	26.52	
	Nurse	144	26.52	
	Pharmacist	111	20.44	
	Lab Scientist	144	26.52	
Highest Educational level	First degree	351	64.76	
	Master's degree	101	18.63	
	PhD	22	4.06	
	Specialist	68	12.55	
Work experience (Years)	≤5	248	47.88	
	6-10	110	20.05	
	11-15	68	12.52	
	16-20	49	8.96	
	>20	68	12.52	

333 (61.3%) respondents are married. The respondents: Medical doctors, Nurses and Medical Laboratory Scientists were 144 (26.3%) each, while pharmacists were 111 (20.4%). Majority of the respondents, 351 (64.8%), attained first degree higher educational level. With regard to the number of years in service of the respondents, 248 (47.9%) had served 5-years and below (Table 1-5). The results of the logistic regression revealed that attainment of higher educational level (Adjusted OR: 2.2, 95% C. I:1.4-3.5) and working in UNTH (Adjusted OR: 3.4, 95% C. I: 2.3-5.0) significantly increased the likelihood of having a good knowledge of HIV PEP among the respondents (Table 6). Having good knowledge of PEP for HIV (Adjusted OR: 2.3, 95% C. I: 1.46-3.62), working in UNTH (Adjusted OR: 1.86, 95% C. I: 1.26-2.75) and attaining higher educational level (Master's degree and above) (Adjusted OR: 1.86, 95% C. I: 1.14-3.04) significantly increased the likelihood of having positive attitude towards HIV PEP (Table 7).

Table 2: Level of Knowledge of Post Exposure Prophylaxis for HIV among Healthcare workers

QUESTIONS	Options	Frequency (n)	Percent (%)
Have you heard about PEP?	1. Yes 2. No	540 3	99.45 0.55
From what source did you get the information?	1. Training 2. Mass media 3. Friends 4. Journals	379/540 106/540 113/540 154/540	70.19 19.63 20.93 28.52
When do you think PEP should be given?	1. When the source patient is high risk for HIV 2. When the patient is known to be HIV positive 3. When the HIV status of the source patient is unknown 4. For any needle stick injury in the work place.	188/540 125/540 206/540 298/540	34.81 23.15 38.15 55.19
What is the maximum delay to take PEP?	1. 12 hours 2. 24 hours 3. 48 hours 4. 72 hours	25/540 95/540 129/540 291/540	4.62 17.60 23.89 53.89
What is the preferable time to take PEP?	1. Within 1 hour of exposure 2. Within 6 hours of exposure 3. Within 12 hours of exposure 4. Within 72 hours of exposure	130/540 53/540 110/540 247/540	24.07 9.82 20.37 45.74
What is the effectiveness of PEP?	1. 100% 2. 70-90% 3. 40-60% 4. 10-30%	203/540 298/540 36/540 3/540	37.59 55.19 6.67 0.55
What is the duration of intake of PEP?	1. For 28 days 2. For 40 days 3. For 6 months 4. For life time	362/486 39/486 50/486 35/540	74.50 8.01 10.29 7.20
Have you ever attended any training on PEP guideline?	Yes No	358/540 182/540	66.40 33.70

Table 3: Attitude of Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria toward Post Exposure Prophylaxis for HIV

Variables		(n)	(%)
Do you think PEP is important?	Yes	541/543	99.64
	No	1/543	0.18
	I don't know	1/543	0.18
Do you believe that PEP training is important for a behavioral change?	Yes	522/543	96.13
	No	8/543	1.47
	I don't know	13/543	2.40
Do you believe that there should be a PEP guideline in the work areas?	Yes	541/543	99.64
	No	1/543	0.18
	I don't know	1/543	0.18
Do you believe PEP can reduce the likelihood of being HIV positive?	Yes	457/541	84.47
	No	63/541	11.65
	I don't know	21/541	3.88
Do you believe HIV PEP prevents other infections (Hepatitis B & C)?	Yes	113/542	20.84
	No	321/542	59.23
	I don't know	108/542	19.93
Do you believe that, PEP should be indicated for any type of sharps injuries"?	Yes	233/543	42.91
	No	272/543	50.09
	I don't know	38/543	7.00
Do you believe that PEP is not important if the exposure is not with blood of a known HIV positive patient?	Yes	343/542	63.28
	No	174/542	32.10
	I don't know	25/542	4.62
Do you believe that PEP is effective for HIV prevention?	Yes	419/543	77.16
	No	116/543	21.36
	I don't know	8/543	1.48

Table 4: Practice of Post Exposure Prophylaxis for HIV among Healthcare Workers

Variables	Response	(n)	(%)
Have you ever been exposed to HIV risky conditions (i.e. sharp object injuries, body fluid splashes) at the workplace?	Yes	125/438	28.54
	No	311/438	71.00
	I don't Know	2/438	0.46
Did you report to the program Coordinator?	Yes	79/124	63.71
	No	45/124	36.29
Did you take PEP after exposure?	Yes	53/108	49.07
	No	55/108	50.93
What was your reason for taking PEP?	Exposure to blood from known HIV positive patient	22/107	20.56
	Exposure to blood from patient whose HIV status is unknown	17/22	77.27
	Injury from any sharp objects	1/53	1.88
	Contact with patient body fluids	13/53	24.52
What was your reason for not taking HIV PEP?	Patient was HIV negative	35/55	63.64
	Because of adverse side effects of ARVs	12/55	21.81
What time did you start taking PEP?	Within 1 hour of exposure	8/53	7.41
	Within 2-6 hours of exposure	18/53	16.67
	Within 6-10 hours of exposure	5/53	4.63
	Within 72 hours of exposure	22/53	41.50
What was the period of time that you took PEP?	1-7 days	9/53	16.98
	8-14 days	9/53	16.98
	28 days	17/53	32.08
Did you complete the prescribed drugs for PEP?	Completed	25/53	47.17
What was your reason for discontinuation of PEP drugs?	Fear of adverse side effects	4/28	14.29
	Assuming that it was enough	10/28	35.71
	Assuming that the drug was not effective	14/28	50.00

Table 5: Association of Socio-demographic characteristics with Knowledge of Post Exposure Prophylaxis for HIV among Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria: 2020.

Attitude					
Variables	**Positive**	**Negative**	**Chi Square**	**P value**	**OR (95% C.I)**
Age group 21-30 31-40 41-50 51-60	 58(27.36%) 50(33.11%) 41(37.96%) 33(46.48%)	 154(72.64%) 101(66.89%) 67(62.04%) 38(53.52%)	 10.43 Probability=0.033		
Sex Female Male	 210(68.85%) 159(66.81%)	 95(31.15%) 79(33.19%)	 0.26	 0.61	 1.09(0.76-1.57)
Marital status Married Not presently married*	 234(70.27%) 135(64.29%)	 99(29.73%) 75(35.71%)	 2.12	 0.15	 1.31 (0.91-1.89)
Name of Hospital UNTH ESUTH	 202(76.81%)167(59.64%)	 61(23.19%) 213(40.36%)	 151.68	 0.000	 10.53 (7.08-1565)
Religion Christianity Muslim& Others**	 357(68.00%) 12(66.67%)	 168(32.00%) 6(33.33%)	 0.014	 0.91	 1.60 (0.39-2.88)
Highest Educational level First degree Master's degree & Others***	 222 (63.25%) 146(76.44%)	 129(36.75%) 45(23.56%)	 9.88	 0.002	 0.53 (0.36-0.79)
Work experience >5 Years ≤5 Years	 119(40.34%) 63(25.4%)	 176(59.66%) 185(74.60%)	 13.49	 0.0002	 1.99 (1.37-2.87)
Knowledge level Good Poor	 149(81.87%) 220(60.94%)	 33(18.13%) 141(39.06%)	 24.33	 0.000	 2.89(1.88-4.46)
*Single, Widowed, Divorced **Muslim, Traditional Religion, Judaism, Atheist ***Master's degree, PhD, Specialist					

Discussions

Adherence to the universal precaution guidelines is fundamental in the prevention of accidental acquisition of HIV infection at workplaces. Administration of PEP to HIV- negative people who may have been occupationally exposed to HIV is important for its prevention especially among HCWs because it reduces the likelihood of HIV seroconversion by approximately 80% [11]. Once exposed to HIV, there may be a brief period before the infection is established, during which ART may successfully prevent viral replication [12]. PEP should be given as soon as possible for better efficacy often within 72 hours of exposure; a 28 day course of treatment is recommended [13].

This study revealed that the majority of the respondents have heard about HIV PEP which is not unexpected given their educational background and work setting. The result is similar, though higher than reported in UATH, Gwagwalada, Lagos University Teaching Hospital (LUTH), UDUTH, Sokoto, Nigeria where majority of the respondents have heard about PEP [14,16]. These finding is consistent with that in, Gondar, Ethiopia, Gaborone-Botswana and Northwest Ethiopia where majority of the HCWs had heard about HIV, PEP [6-18]. However, a studyin Parkistan recorded low outcome among HCWs that had heard about HIV [19]. The difference may be due to study design, location and training opportunity.

Only half of respondents, who had heard about PEP, knew when to commence PEP following exposure to HIV and less than half of the respondents knew the correct duration for the use of HIV PEP and its effectiveness. This may be due to lack of regular in-house training and re-training of HCWs as observed in good number of them who had never attended such trainings. Healthcare workers, by the nature of their work should enjoy these training opportunities to reduce the incidence and transmission of infections. The findings are similar to what was documented in North Ethiopia where 50.7% knew when to initiate PEP for HIV, 60.5% knew its efficiency and 72.8% knew the duration an exposed individuals should be on PEP to prevent infection [6]. It is also similar to the report from Cameroun where only 12.5% of HCWs had received formal training on HIV

Table 6: Association of Socio-demographic characteristics with Attitude of Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria towards Post Exposure Prophylaxis: 2020.

Attitude					
Variables	**Positive**	**Negative**	**Chi Square**	**P value**	**OR (95% C.I)**
Age group					
21-30	**58(27.36%)**	**154(72.64%)**			
31-40	**50(33.11%)**	**101(66.89%)**	**10.43**		
41-50	**41(37.96%)**	**67(62.04%)**	**Probability=0.033**		
51-60	**33(46.48%)**	**38(53.52%)**			
Sex					
Female	**210(68.85%)**	**95(31.15%)**	**0.26**	**0.61**	**1.09(0.76-1.57)**
Male	**159(66.81%)**	**79(33.19%)**			
Marital status					
Married	**234(70.27%)**	**99(29.73%)**	**2.12**	**0.15**	**1.31 (0.91-1.89)**
Not presently married*	**135(64.29%)**	**75(35.71%)**			
Name of Hospital					
UNTH	**202(76.81%)167(59.64%)**	**61(23.19%)**			
ESUTH		**213(40.36%)**	**151.68**	**0.000**	**10.53 (7.08-1565)**
Religion					
Christianity	**357(68.00%)**	**168(32.00%)**	**0.014**	**0.91**	**1.60 (0.39-2.88)**
Muslim& Others**	**12(66.67%)**	**6(33.33%)**			
Highest Educational level					
First degree	**222 (63.25%)**	**129(36.75%)**	**9.88**	**0.002**	**0.53 (0.36-0.79)**
Master's degree & Others***	**146(76.44%)**	**45(23.56%)**			
Work experience					
>5 Years	**119(40.34%)**	**176(59.66%)**	**13.49**	**0.0002**	**1.99 (1.37-2.87)**
≤5 Years	**63(25.4%)**	**185(74.60%)**			
Knowledge level					
Good	**149(81.87%)**	**33(18.13%)**	**24.33**	**0.000**	**2.89(1.88-4.46)**
Poor	**220(60.94%)**	**141(39.06%)**			
***Single, Widowed, Divorced**					
****Muslim, Traditional Religion, Judaism, Atheist**					
*****Master's degree, PhD, Specialist**					

Table 7: Logistic regression model of significant variables of healthcare workers level of knowledge about Post Exposure Prophylaxis for HIV, Enugu, Nigeria: 2020.

Variables	AOR	95% C. I	P-value
Marital status (Married/Not currently married)	1.012	0.590 - 1.733	0.967
Hospital (UNTH/ESUTH)	3.397	2.307 - 5.001	0.000
Educational level (Masters & above/First degree)	2.196	1.375 - 3.505	0.001
Work experience (≥5 Years/<5years)	1.246	0.730 - 2.127	0.419

Table 8: Logistic regression model of significant variables of healthcare workers' Attitude towards Post Exposure Prophylaxis for HIV, Enugu, Nigeria: 2020.

Variables	AOR	95% C. I	P-value
Marital status (Married/Not currently married)	1.11	0.68 - 1.82	0.67
Hospital (UNTH/ESUTH)	1.86	1.26 - 2.75	0.00
Educational level (Masters & above/First degree)	1.86	1.14 - 3.04	0.01
Work experience (<5Years/≥5years)	0.68	0.41 - 1.13	0.14
Knowledge (Good/Poor)	2.30	1.46 – 3.62	0.00

PEP [16]. In our study, less than half of respondents knew "within 72 hours of exposure" as the preferable time to start PEP for HIV. This finding is much lower than that of North Ethiopia where 72.3% gave same answer but comparable to that of Uganda where 48.1% had no idea on when it should be started, with only 22.3% being sure it should be started within an hour of exposure [6,21].

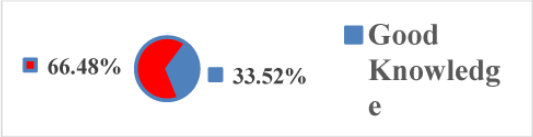

Figure 1: General assessment of level of Knowledge of Post Exposure Prophylaxis for HIV among Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria: 2020.

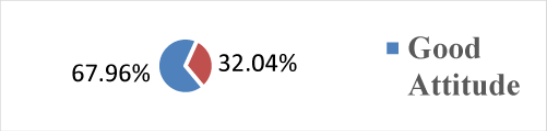

Figure 2: Overall assessment of the Attitude of Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria towards Post Exposure Prophylaxis: 2020.

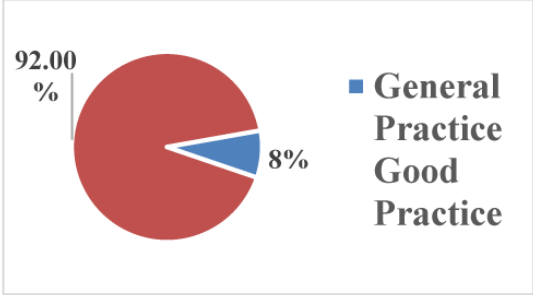

Figure 3: Overall assessment of Post Exposure Prophylaxis for HIV Practice among Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria: 2020.

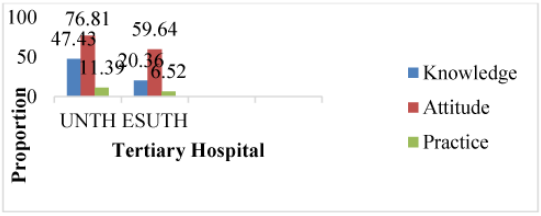

Figure 4: Comparison of Knowledge, Attitude and Practice of Post Exposure Prophylaxis for HIV among Healthcare Workers in Two Tertiary Hospitals, Enugu, Nigeria: 2020.

The knowledge of PEP for HIV among respondents in this study was very poor and quite worrisome considering the fact that majority lacked vital information on how to take care of themselves in events of exposure at work. This finding is similar to 68.5% inadequate knowledge reported among Dental Surgeons in University of Benin Teaching Hospital, Edo State, Nigeria [22]. It is high when compared to other studies done in Sokoto, Nigeria, NW Ethiopia where poor knowledge were reported but similar to that reported in Zimbabwe and Cameroun with poor knowledge [2,16,20]. These findings from across the African region calls for an immediate action to ensure refresher courses, training and retraining on the appropriate management of exposed individuals in our health-care centers.

Our study revealed that majority of the respondents have positive attitude towards HIV PEP. This is expected since majority believes that HIV PEP is very important and can reduce the likelihood of being infected following occupational exposure. Most of the respondents strongly agreed that there should be a PEP guideline in the work areas and that HIV PEP is effective. This finding is consistent with that of Northwest Ethiopia where overall positive attitude was 69.8% but contrary to the report from a study in Gondar where 75.4% had positive attitude towards PEP for HIV [6,18].

It wass also consistent with the report from Gondar where majority of the respondents agreed on the importance of PEP for HIV; the availability of PEP guidelines in the hospital or in their work place; and that it can reduce the probability to be infected respectively [6]. Report of the study among Dental Surgeons in University of Benin Teaching Hospital, Nigeria also revealed that the participants predominantly agreed on the importance of PEP for HIV [22]. This is contrary to what was obtained in Pakistani where less than a half of the HCWs agreed that HIV PEP is important, effective and that PEP guidelines must be in working places [19]). We observed that half of the HCWs believed that PEP should not be indicated for any type of sharp injuries and that PEP is not important if the exposure is not with blood of a known HIV positive patient. Similar report was found in North Ethiopia, and Pakistan where less than a half of the respondents shared same belief [19].

This study revealed a good number of respondents who have never been exposed to HIV risky conditions such as sharp object injuries, body fluid splashes at the work place. Though, majority of those exposed reported the incident to the HIV Program Coordinators, only half of them took PEP after the exposure. This may be due to lack of in-depth knowledge of HIV PEP as documented in this study. There is therefore the need for the hospital authorities to train healthcare workers on the protocol for managing accidental exposure to infectious body fluids, detailing the steps the healthcare workers should take and also making the drugs available. The finding is similar to that of Uganda where majority of the HCWs had been exposed, while 21% sought some sort of advice for PEP and did not follow it up [21]. In Gaborone and Cameroun studies, more than a half

of the participants had occupational exposures, while less than a half received PEP respectively [2,17]. The finding is comparable to the value of participants who were exposed to HIV risky conditions in Lagos Nigeria and North Ethiopia. However less than a half of them collectively, received HIV PEP [6,23].

Majority of the respondents who commenced HIV PEP after exposure did either because they were exposed to blood of a known HIV patient or to patient with unknown HIV status. Few of them took PEP because they had contact with patient's body fluids or injury from any sharp object. For the safety of HCWs, every patient should undergo HIV risk assessment before a final decision is taken concerning the use of PEP in HCWs who have had accidental exposure to potentially infectious body fluids. These findings are similar to 57.1% and 24.5%, who took PEP for their exposure to known HIV positive blood and blood of unknown HIV status in Gondar [6]. Among those who commenced HIV PEP, majority commenced within 72 hours of exposure while the rest did within 1 hour and 2-6 hours of exposure. Less than half of the respondents took PEP for HIV for a period of 28 days, others for 8-14 days, while only slightly more than half of them completed the prescribed drugs for PEP. The respondents who discontinued PEP cited the fear of adverse effects of ARVs; having assumed that they had taken enough or the ineffectiveness of the drug, as their reasons. This result is consistent with that of Gaborone, Botswana study where, 26.6% did not complete PEP, 71.4% quit due to adverse side effects, 4.76% assumed they have gotten enough treatment and 4.76% doubted drug efficacy [17]. Also, 50% and 30% of study participants in NW Ethiopia who discontinued PEP did due to fear of its efficacy and the adverse effects respectively [2].

Most of the exposed respondents, who did not take PEP, cited the patients' negative status to HIV and fear of adverse effects of antiretroviral therapy as their reasons. This underscores the need for HCWs to understand the pathophysiology of HIV infection and that a patient testing negative to HIV does not totally rule out HIV infection. The finding is similar to that of those who did not receive PEP because the source of exposure was HIV negative patient in UATH, Abuja and Cameroun studies, while majority reported of PEP discontinuity in Lagos was due to unpleasant side effect of the drugs [2,14,15].

Our study revealed significant associations between good knowledge of PEP for HIV and the following: being married; workplace (UNTH); attaining higher educational level (Master's and higher degrees), and work experience of 5 years and above. Also, positive attitude of HCWs towards PEP for HIV was found to be significantly associated with the following: workplace (UNTH); attaining higher educational level; and at 5 years and above work experience and good knowledge of HIV PEP. This finding is contrary to that reported in a study by Agaba and colleagues who found among Family Physicians that, being a junior doctor and male gender were significantly associated with adequate knowledge of PEP [9]. In North West Ethiopia, profession and attitude level were found to have significant associations with PEP knowledge [6]. Here, the reason was observed to be that PEP was taught as a part of the curriculum and in different academic year. Knowledge status of respondents had significant association with PEP attitude label. On the contrary; a Cameroun study reported source of knowledge of PEP as seminar/workshop and awareness of hospital policy on PEP as variables significantly associated with good knowledge of HIV PEP [2].

The multivariate analyses in this study revealed the major significant predictors of HCWs knowledge of HIV PEP as higher educational level and workplace (UNTH). However, the same factors plus good knowledge of HIV PEP was found to be the significant predictors of the HCWs attitude towards PEP for HIV. Similar study in Cameroun reported prior awareness of hospital policy for PEP as predictor of good knowledge for PEP [2].

Conclusions

The knowledge level on post exposure prophylaxis for HIV and its practice were generally poor among the tertiary healthcare workers in Enugu, Nigeria. However, their attitude towards the PEP was positive. This does not translate to good practice because majority of those who were exposed to HIV risky conditions did not take the PEP and those who did cited fear of adverse effect of the drugs as their reason for drug discontinuity. The common significant predictors of the healthcare workers' knowledge and attitude towards HIV PEP were higher educational level and workplace (UNTH). Other predictors were marital status, (for knowledge) and respondents' good knowledge of PEP, (for the attitude).

Limitations

Getting the healthcare workers to consent and participate in the study was not easy because of their tight

schedules. We overcame this challenge using weekends and public holidays to carry out the data collection. It was possible that some of those who consented may have given inaccurate responses due to work induced stress and those who did not participate may have vital information that the study sought for.

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