Original Research Article

Knowledge, Attitude and Utilization of HIV Post Exposure Prophylaxis among Health-Care Workers in Enugu State University Teaching Hospital, Parklane Enugu.

ABSTRACT

Background:

It is impossible to overstate the significance of Human Immunodeficiency Virus Post-exposure Prophylaxis (HIV PEP), which has demonstrably reduced the risk of getting the fatal disease Acquired Immunodeficiency Syndrome (AIDS). It is crucial for the public health to understand the effects of an HIV infection in a health care worker (HCW). Because of the risks associated with their jobs, these HCWs are more likely to contract an infection.

Aim: The objective of this study was to assess the knowledge, attitude and utilization of HIV PEP among health care workers in Enugu State University of Science and Technology Teaching Hospital (ESUTH), Parklane, Enugu State.

Methodology: This study was a descriptive, cross-sectional study. The sample size was 204 HCWs and 200 questionnaires were returned for analysis. The sample was selected by stratified sampling technique. The data was analyzed using statistical packaged for social science (SPSS).

Results: The study revealed that majority of the respondents were within the age range of 26-30and 31-35 years (24.5% each). Majority (65.6%) were married and most (44.0%) were nurses. About 89% have heard of HIV PEP. Almost forty-three percent (42.5%) have been accidentally exposed to needle stick injury before but only 39% reported. Even a less percentage (21%) went ahead to take PEP.

Conclusion: The study concluded that most of the correspondents were aware of HIV PEP but only a few deemed it necessary to practice what they know. Therefore, there is a great need for health education on the right approach to HIV PEP in this institution and the general population. This will go a long way to help reduce the incidence of HIV infection and improve the utilization of HIV PEP among HCWs in ESUTH.

Keywords: Knowledge, Attitude, Utilization, HIV Post exposure prophylaxis, AIDS, health care workers.

1. INTRODUCTION

The Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) remains a public and international health issue, being one of the most causes of death in the developing countries.[1] Africa is the most affected continent in the world, and morbidity and mortality due to HIV/AIDS has affected development in the continent. [2]

Sub-Saharan African is the most affected sub-region in Africa, with over 25.6 millions living with HIV, two-third of the overall global HIV infection and 70% of AIDS –related death.[3]

In west-Africa, Nigeria (the most populated country in Africa) is with the highest population of HIV infected individuals (3,500,000) in 2015, and of AIDS-related death.[3] HIV/AIDS in Nigeria is associated with high prevalence of sharp injuries, and low use of Post Exposure Prophylaxis (PEP) and low rate of reporting.[2]

Since the start of the epidemic, 40 years ago till 2021, 79.3 million people have become infected with HIV while there are 36.3 million deaths associated with AIDS.[4] In 2020, 65% of HIV

infection in the world was attributed to sex workers and their clients, people who inject drugs, transgender people, gay men and other men who have sex with men and their sexual partners.[4] According to the UNAIDS 2021 epidemiological estimates, in 2020, an average of 37.7 million people globally were living with HIV while about 1.5 million were newly infected with the virus and averagely 680 000 deaths related to AIDS were recorded.[4] However, since the peak of HIV infection in 1997 till now, incidences of HIV have reduced by 52%; a 31% reduction from 2010 to 2020. Death due to AIDS has been reduced by 64% since the peak in 2004. This reduction might be due to improvement in HIV/AIDS prevention and treatment. In West and central Africa 4.7 million were living with HIV in 2020, 200 000 newly infected, 150 000 AIDS related death. Nigerian HIV records seem the highest in Africa; the country in Africa with the largest number of people living with HIV.[4] In 2020, Nigeria recorded 86, 000 trends of new HIV infection, 1,700,000 people living with HIV, 49, 000 of AIDS related deaths.[4]

Majority of the people living with HIV/AIDS (PLWHA) are seen in low and middle income countries.[4] Sub-Saharan Africa been among these categories harbours an estimated 66% of PLWHA.[4] In absolute figures, South Africa with 7.1 million, followed by Nigeria with 3.2 million had the highest HIV/AIDS number of cases by the end of 2016.[4] According to a survey by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the National Agency for the control of AIDS, Nigeria had 1.9 million people living with Nigeria.[5] However, the Nigerian total prevalence has dropped to 1.4% by 2018 from 3.0 in 2017.[5] The apparent decline has been attributed to better surveillance.[6] On the other hand, since 2005, the reduction in the number of annual AIDS- related deaths have been minimal, indicative of the fact that only 33% of those with a positive diagnosis in Nigeria are accessing antiretroviral treatment (ART).[6]

HIV testing is an essential gateway to HIV prevention, treatment, care and support services.[7] In 2020, about 6.1 million people in the world did not know that they were living with HIV.[3]However; approximately 25% of PLWHA globally are unaware of their HIV status in 2017.[6] Across the country testing rates are low: only 15.1% of people between the ages of 15-49 tested from 2016 to 2017 and knew their results.[6] Nigeria is estimated to have 90% of people living who know their status by 2021.[6] The HIV epidemic affects not only the health of individuals, it impacts households, communities, and the development and economic growth of nations.[6] Many of the countries hardest hit by HIV also suffers from other infectious diseases, food insecurity, and other serious problems.[6]

This high population of people getting infected with HIV will need increasing and wide range of services by the health care workers (HCWs). This would lead to an increased risk of occupational exposure particularly when there is a breach of the infection prevention protocol. Occupational exposure to blood or other body fluids constitutes a small but significant risk of transmission of HIV and other blood borne pathogens among HCWs.[2, 8] About 2.5% of the global HIV cases are due to occupational exposure among HCWs.[8] Most people at risk of occupational exposures are in developing countries where there is paucity of standard reporting protocols.[2]

Per-cutaneous injuries usually inflicted by a hollow bore needle are the most common mechanism of occupational HIV transmission.[2] Centre for Disease Control (CDC) estimate that more than 380,000 needle stick injuries occur in hospitals each year, and approximately 61% of these are caused by hollow bore devices.[2] The consequences of having an infected health care worker are of great public health importance. The economic impact of losing work hours and

also the possibility of infecting a previously uninfected patient and even re-infection of an already infected patient cannot be overlooked.

HIV post-exposure prophylaxis (PEP) also known as post exposure prevention is a group of services to prevent transmission of HIV infection to someone who is exposed to an HIV-positive sources.[9] It consists of first aid, counselling, evaluation of risk; consent-based laboratory testing of both the source and the exposed personnel; and finally provision of proper treatment with follow-up. [10]

In the health care setting, it offers a level of protection to medical staff after exposure to infected bodily fluids through needle injuries and other sharp surgical instruments, even after exposure of the eye, nose or mouth to HIV infected blood, (with risk of infection after such exposure being an average of 0.1%).[11] Other factors that may put health workers at higher risk of HIV infection include a high prevalence of the infection in the population, such as Nigeria, with about 1.9 million people living with HIV.[5] It is therefore necessary that health care workers arm themselves with sufficient knowledge of prevention in case of accidental exposure for themselves and for the public.

1.1 Research Objectives:

The objectives of this study are to determine the level of awareness and knowledge of HIV PEP, factors that influence the utilization of the PEP and attitudes to the PEP amongst HCW in ESUTH, Enugu state.

1.2 Research Questions:

1. What is the level of awareness of HIV PEP amongst HCW in ESUTH, Enugu State?
2. What is the level of knowledge of HIV PEP amongst the HCW?
3. What are the factors that influence knowledge and awareness of HIV amongst the HCW?
4. What is their attitude towards receipt of HIV PEP following exposure to (suspected) sources of HIV?
    a. What is the degree of uptake of HIV PEP by the HCW?
    b. What are the factors responsible for the degree of uptake of the PEP among the HCW?

1. MATERIALS AND METHODS

2.1 Study design

This study is of descriptive cross-sectional design.

2.2 Study setting

The study was carried out in Enugu State University Teaching Hospital, Parklane, Enugu State. In order to have a representative sample from the area understudied; a stratified sampling technique was used to cover the healthcare workers according to cadre: doctors, nurses, medical laboratory scientists, and ward orderlies/cleaners.

2.3 Participants and sample

The study targeted and accessed HCWs in Enugu State University Teaching Hospital, Parklane, Enugu State. This group was selected because of their availability and perceived familiarity with the subject matter being studied. The sample size was calculated:

Using the formula for unknown population:

e - Margin of error

p – Proportion of the success

q – (1-p) - proportion of failure

Z^2 – (1-α)- desired confidence value: 95% critical value

$n_o = Z^2pq/e^2$

$Z^2pq = (1.96) \times (1.96) \times (0.85) \times (0.15) = 0.489804$

$Z^2pq/e^2 = 0.489804 \times (0.05)^2$

0.489804 /0.0025 = 195.9216

≈ 196.

However, 200 respondents completed the questionnaires.

2.4 Tools of the study

Data for the study was collected by the researchers who were able to cover the area understudied. The data collection instrument used was a 30 item self-reported questionnaire administered to

ascertain the level of knowledge, attitude and practice towards PEP among health workers in ESUTH.

We designed the questionnaire ourselves based on insight from our literature review, knowledge and experiences. A pilot study testing the ability of the questionnaire to answer the research questions was done with 10 respondents. Our pilot revealed that certain questions needed to be made open ended to allow them express their opinion. For example, our question on what be done by the hospital services to improve the PEP services was made open-ended to allow the respondents to express themselves. The respondents were requested to tick the alternative that matched their opinions on each item, and this was completed within two hours. The modified questionnaire consisted of five sections; Section A: Demographic Data, Section B: Knowledge of HIV Post Exposure Prophylaxis (PEP), Section C: Attitude towards HIV PEP, Section D: utilization of PEP, Section E: Reasons that Influence the Utilization of PEP.

2.5 Statistical analysis

The data gathered for this study was analyzed using descriptive statistics of mean, frequencies and percentages to summarize the data, and inferential statistics via the statistical package for social scientists SPSS.

3. RESULTS

Majority (73.0%) of the respondents were females while 27.0% were males. Majority are between the ages of 31-35years and 26-30 years (24.5% each). Greater percentages (28.0%) have checked their HIV status within the past 3-6months.

Majority of the respondents (89.0%) have heard of HIV PEP. Many (34.5%) said they heard it from lectures. Majority (82%) answered correctly that HIV PEP is needed after exposure. The procedure that puts most of them at risk of contracting HIV infection is injection prick injury (54.0%).

Most (93%) of the respondents believe that HIV PEP reduces the risk of HIV infection. Majority (43.0%) stated that HCWs exposed to needle stick injury report to the hospital management.

About forty-two percent (42.5%) of respondents have been accidentally exposed to needle stick injury. Only 39% reported while 21.0% took PEP.

Public awareness (70.0%) was the most accepted reason that influences the utilization of HIV PEP. 'Careful and protective practices by health workers' was stated by most (93.5%), as a factor that can reduce accidental occupational exposure.

4. DISCUSSION

Occupation transmission of HIV is one of the important health dangers to HCW.[12] There is high prevalent of exposure to HIV amongst HCW especially via needle stick exposures.[13-15]

Treatment with antiretroviral drugs decreases the risk of infection. Post-exposure Prophylaxis regimens are typically prescribed for a four week period. The sooner after exposure PEP is started the better, and it is started within the first 72 hours after exposure. HCWs should therefore be well informed on what PEP is and be willing to use and recommend it to anyone during occupational exposure.

This study was done in a tertiary (state government-owned teaching) hospital in Enugu state, south east, Nigeria. In Zambia, media and health facilities were reliable and effective sources of (training) information related to HIV/AIDS,[16] but our respondents reported very low awareness of HIV PEP through the media and the clinic. More than two-third of our respondents had heard of HIV PEP before this study. More than half of the respondents reported lecturers and textbooks are their reliable sources of information. The very high awareness of the PEP amongst our respondents was confirmed by their reports that PEP is for protection from HIV after exposure and to be talked following accidental occupational exposure. Notwithstanding the high awareness amongst the HCW, we discovered that more than half of them had inadequate knowledge of the PEP. This is also the situation in Lagos teaching hospital.[17] More than half of our respondents knew that HIV PEP time limit is within 72hours. HCW in Osun state and Gombe state, south west and north east of Nigeria respectively, were reported of limited awareness and inadequate knowledge of HIV PEP.[18,19] The situation seems same in other countries, where there was poor awareness and/or inadequate knowledge of HIV PEP among

health workers; India, Ethiopia, Cameroon, Pakistan[10, 20-26] This situation expresses the poor situation of HIV infection control in developing countries.

In Nigeria, most training on PEP and HIV programmes providing access to PEP resources are donor funded.[27] With dwindling donor funding and other competing priorities, it may be impossible to support all health care facilities and HCWs having formal or on the job training on PEP since this is the major avenue for majority of those who have inadequate knowledge of the PEP.[27] This could be the major cause of poor knowledge found across the country.

The good attitude of the respondents to HIV PEP is linked to their conviction that the PEP as reduces the risk of HIV infection. Mathewos et al.[10] gave the same report in Ethiopia, while Singh et al.[26] reported a very poor attitude to PEP in Pakistan. Close to half of the respondents felts that exposed HCW reported incidences. Those that did not report exposure were reported to have 'thought they could handle it themselves, never knew where to report incidence, fear of being tested as positive and stigmatised, avoiding side effected of prophylactic drugs, avoiding the stressful and cumbersome process of report and receipt of help, been too busy to seek for help, known the associated patients as HIV negative, and been ignorant of the PEP. Njemanze[28] included these factors in his study factors Impacting HIV PEP among Healthcare Workers in a hospital in Abuja, Nigeria.

Nearly half of the respondents were exposed to accidental needle or sharp object injury and/or body fluid splashes and this is similar to the situation in Lagos state teaching hospital, [2] majorities of which was needle stick injury. However, the rate of exposure to percutaneous injuries was higher in the only federal teaching hospital in the same research setting, Enugu.[15]

Most (54.0%) of our respondents stated injection prick injury as the procedure in their profession that accidentally exposes them. This means that the risk of HIV among HCWs through occupational exposure is high. This is supported by the study in Botswana among doctors and nurses.[29]

Among those that got exposed, very few of them (39.0%) reported their situation while fewer (21.0%) took the PEP. It can be assumed that even though the respondents are aware they were at risk of HIV infection, it did not compel them to take action of reporting the exposure. This did not correspond with the level of utilization observed in Botswana where 74.8% of those exposed took HIV PEP.[29] We observed that those that did not report their exposure did so because they felt that they were not at risk, do not know where to report, do not want to do HIV test, had prophylaxis, tested negative of HIV after exposure. The least reasons for not reporting were: not wanting to test for HIV, haven taken prophylaxis and haven tested negative of HIV while their major reasons was that they feel 'not at risk of HIV. These reasons corresponds with reasons given by HCWs in southern Nigeria where similar study was carried out.[27] Thus, there is need to improve utilization rate of this life saving service in the institution and in Nigerian health institution.

Accessibility of this service has to be made easy and user friendly in this institution because even though very many of them reported that the service is accessible while meagre number of them were concerned that their confidentiality were breached, and did not receive empathy and recommendable reactions from their caregivers.

Majority of the (respondents) healthcare workers identified public awareness and lack of knowledge as factors influencing the use of HIV PEP. This corresponds to a study done in

Ethiopia, which stated lack of knowledge as the reason that brought down the utilization of HIV PEP.[30] Knowledge and awareness are interrelated factors, that improved public awareness will caused improved public awareness of HIV PEP and the importance hence improved use of the PEP.

Factors stated by most of the respondents as those that reduce occupational HIV exposure (and thereby reduce need for HIV PEP) are, majorly 'careful and protective practices by HCWs' followed by 'enlightenment campaign and awareness creation', and then 'government intervention through provision of steady PEP drugs and facilities.' These factors were among those well illustrated by the study done by Njemanze[28] in factors that impact HIV PEP among HCWs.

5. CONCLUSION

From our study, it can be noted that attitude of these HCWs toward HIV PEP was optimal and more than half agreed that the PEP service in the institution is adequate. However, knowledge among HCWs about HIV PEP was not adequate and the utilization of the services is not optimal. This can lead to many cases of unreported and undiagnosed cases of HIV and therefore put other workers and patients at risk.

With poor knowledge observed in this centre, measures should be put in place to make sure that all HCWs are properly educated and well informed about HIV PEP. There is a great need for health education on the right approach to HIV PEP in this institution and the general population. This will go a long way to help reduce the incidence of HIV infection and improve the utilization of HIV PEP among HCWs in ESUTH.

Healthy HCWs are needed in achieving a healthy nation. Therefore, the right attitude will go a long way in reducing the morbidity and mortality by HIV in Nigeria.

Ethical Approval And Consent

Ethical approval was obtained from the management of the Health and research ethics committee of ESUTH through the Chairman, Medical Advisory Committee (CMAC) to carry out the study in the hospital. Informed consent was obtained from all individual participants included in the study. Confidentially and anonymosity of data from the participants was ensured throughout the study.

Recommendations

1. Regular education and training of HCWs on HIV PEP should be carried out.
2. Hospital management should write and paste protocols for HIV PEP in every ward, clinic, theatre and laboratory in the institution.
3. Drugs for PEP should be made free in this institution.
4. Hospital management should ensure that the HIV PEP drugs are always available.

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Table 1: Socio demographic characteristics of respondents

Factors		Frequency	Percentage (%)
Age	20-25	23	11.5
	26-30	49	24.5
	31-35	49	24.5
	36-40	42	21.0
	41-45	17	8.5
	Above 45	20	10.0
Gender	Male	54	27.0
	Female	146	73.0
Marital Status	Single	63	31.7
	Married	132	65.6
	Separated	2	1.1
	Widowed	3	1.6
Religion	Christianity	200	100
Profession	Nurse	88	44.0
	Medical Laboratory Scientist	15	7.5
	Doctor	53	26.5
	Cleaner/Ward orderly	44	22.0
Number of years in service	Below 1 year	2	1.0
	1-6 years	112	56.0
	7-15 years	73	36.5
	16- 20 years	6	3.0
	Above 20	7	3.5
When was the last time you had an HIV test?	<3 months	43	21.5
	3-6 months	56	28.0
	6-12 months	46	23.0
	> 1year	55	27.5

Table 2: Knowledge of HIV PEP

Question	Responses	Frequency	Percentage (%)
Have you heard of HIV PEP?	Yes	178	89
	No	22	11
If you have heard of PEP, what is your source of information?	Textbook	51	25.5
	Colleagues/friends	31	15.5
	Media	20	10.0
	Lecture	69	34.5
	Seminar	2	1.0
	ART clinic	1	0.5
	Workplace	1	0.5
	No Response	25	12.5
When is it needed?	Before exposure	30	15.0
	After exposure	164	82.0
	During exposure	6	3.0
Are the services rendered in ESUTH	No	29	14.5
	Yes	171	85.5
If yes, where?	ART clinic	193	96.5
	Laboratory	3	1.5
	Heart to heart clinic	1	0.5
	Public Health department	2	1.0
When can it be used?	Accidental occupational exposure?	186	93.0
	After infected blood transfusion?	136	68.0
	After sexual exposure?	134	67.0
	After mother to child transmission?	72	36.0
	After infected organ transplant?	86	43.0
What time limit is it recommended?	Anytime	20	10.5
	Within 24hours	51	25.5
	Within 72hours	103	51.5
	Don't know	26	13.0
What procedure puts you more at risk of contracting HIV infection in your profession?	Injection prick injury	108	54.0
	Blood transfusion	7	3.5
	Emergency condition	1	0.5
	Contact with specimen	17	8.5
	Child delivery	1	0.5
	Disposal of used syringe	3	1.5
	IV access	5	2.5
	Invasive procedures	2	1.0

	Surgical procedure	22	11.0
	Spinal anesthesia	1	0.5
	Phlebotomy	1	0.5
	No response	32	16.0

Table 3: Attitude towards HIV PEP

Question	Response	Frequency	Percentage (%)
Do you think HIV PEP reduces risk of HIV infection	Yes	186	93.0
	No	4	2.0
	Don't know	10	5.0
How will you rate PEP service here?	Poor	4	2.0
	Fair	41	20.5
	Good	117	58.5
	Excellent	38	19.0
Do you think every HCWs exposed report?	Yes	86	43.0
	No	73	36.5
	Don't know	41	20.5
If no, what do you think is the reason for not reporting?	They think they can handle it	36	18.0
	Not knowing where to report	53	26.5
	Stigmatization	30	15.0
	Side effect of the drug and knowing the patient is no infected	4	2.0
	Fear of the result	27	13.5
	The process is stressful and cumbersome	4	2.0
	nonchalant	23	11.5
	the patient is HIV negative	18	9.0
	Ignorance	5	2.5
Supportive measures that are offered to health workers who get exposed to blood or body fluids	Counselling and testing	150	75.0
	Follow up and monitoring	73	36.5
	Personal protection advices	91	45.5
	PEP	19	9.5
Are there factors that influence the utilization of HIV PEP	Yes	185	92.5
	No	15	7.5

Table 4: Utilization of HIV PEP

Question	Response	Frequency	Percentage (%)
Have you been accidentally exposed to needle stick or sharp object injury and/or body fluid splashes?	No	115	57.5
	Yes	85	42.5
What did you do?	Report	78	39.0
	Took PEP	42	21.0
	Got HIV screening	56	28.0
	Wash the wound with detergent and water only	64	32.0
If you did not report, why?	Don't feel I'm at risk	122	61.0
	Don't know who to report to	44	22.0
	Don't want to do HIV test	5	2.5
	I have taken prophylaxis	5	2.5
	Patient is zero negative	10	5.0
How was the reaction of the health care worker who attended you?	Supportive caring and confidentiality	38	90.48
	Confidentiality was not maintained	3	7.14
	Did not show concern about my accidental exposure	1	2.38

Table 5: Factors that Influences the Utilization of PEP

	Factors	Yes, Frequency (%)	No Frequency (%)
What are the factors that reduce occupational HIV exposure	Careful and protective practices by health workers	187 (93.5)	13 (6.5)
	enlightenment campaign creation of awareness and education of health workers	133 (66.5)	67 (33.5)
	Government intervention through provision of steady PEP dugs and facilities	105 (52.5)	95 (47.5)
	Avoid careless sexual practices, risky behaviour and unnecessary attachment to patients	81 (40.5)	119 (59.5)
	Proper treatment and careful follow up of exposed persons	64 (32.0)	136 (68.0)