

# Knowledge and Perception of Pre-Exposure Prophylaxis among Key Populations in Katagum Local Government Area, Bauchi State

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## Abstract

**Background/Objectives:** Nigeria is one of the countries in the sub-Saharan Africa that is most affected by human Immunodeficiency Virus (HIV). Pre-Exposure Prophylaxis (PrEP) has been proven to be an effective intervention for reducing the risk of acquiring and also the potential of preventing new HIV infections. This study assessed the knowledge and perception of PrEP among Key Populations (KPs) at risk of HIV infection in Katagum LGA, Bauchi State. **Materials and Methods:** A descriptive cross-sectional survey design was used and sample size of 184 respondents was calculated using the Cochran formula for quantitative study. Multistage sampling was utilized in selecting the wards, settlement and the respondents from the community. A self-structured questionnaire was utilized for data collection, ethical approval was obtained from the Ministry of Health and consent obtained from respondents. Data were analyzed using descriptive statistics with the aid of IBM SPSS Version 22. **Results:** The results revealed that 82.7% of respondents had very high level of knowledge of PrEP and the major source of information was the nurses 52.8% and only 8% accessed the mass media for information. The perception of PrEP in this study was positive among Key Populations, 94.4% of the respondents perceived PrEP as effective in reducing risk of HIV infection. **Conclusion:** There was good level of knowledge among Key Populations in the study and perception was positive which could be attributed to constant face to face interactions with health care professionals. There is a need to motivate the group to utilize the digital messaging.

**Keywords:** Human Immunodeficiency Virus, Key Populations, Perception, Knowledge, Pre-Exposure Prophylaxis.

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## Introduction

Human Immunodeficiency Virus (HIV) infection, remains a public health tragedy globally as it has great negative impact on the individual, the family and the society. A World Health Organization (WHO) report revealed that an estimated 38.4 million

individuals were HIV positive worldwide, with the WHO African Region having an estimate of 25.6 million positive persons (1). The report further showed that in 2021, the mortality was about 650,000 resulting from HIV related causes with an incidence rate of 1.5 million. Nigeria is one of countries in

the sub Saharan Africa that is most affected by HIV infection, the overall prevalence of infection in adult population was 3.2% in 2020 (2). Epidemiological research indicates that HIV steadily drains the economy as about 40.1 million lives of productive age group have been claimed over the last three decades (1), to a great extent the use of Antiretroviral treatment (ART) has reduced the mortality related to AIDS (3), although the knowledge and access to therapy is not universal.

HIV infections has been on the decline globally, data from a study (4), revealed that the drop has not been consistent over the years and the decline was not defined among Key Populations, as the group and their sexual partners accounted for about 70% of new infections in 2021. The KPs are considered as sex workers, people who inject drugs, men who have sexual relations with men, transgender individuals, prisoners and incarcerated people (5). In 2018, roughly 40,000 new infections were attributable to male-to-male sexual contact, 24% to male-to-female contact, and 7% to injectable drug use (6).

The foremost route of HIV transmission is through heterosexual contact among people of all age groups including both genders globally. However, the use of condoms was practically the simple method of preventing the transmission of HIV infections and other sexually transmitted infections in the early years globally. Currently, the use of PrEP which consists of combined antiretroviral medications among uninfected individuals at high risk for HIV infection and those infected with the virus has proven to be very effective in prevention of HIV (7). PrEP is quite successful at preventing HIV infection, lowers the risk of contracting HIV via intercourse by around 99% and from injecting drugs by at least 74% (8). Condom usage is still crucial for the prevention of other STDs even though PrEP solely protects against HIV, therefore, the efficacy of condom used is emphasized.

The introduction of PrEP as a preventive measure for KPs and people living with HIV

in Nigeria opened avenue of communication between, health care professionals, Community Based Organization (CBO), non-governmental organizations, implementing partners, government and KPs. These stakeholders have utilized various channels such as face to face with individuals, radio adverts and television, social media and peer groups in educating individuals as well as groups (9,10). The most reported route of acquisition of information among this group is face to face with health care professionals, CBO and peer group (11). Various studies have reported moderate to high level of awareness among KP (12,13), while some studies also reported poor knowledge among men who have sex with men (11,14). Perception of PrEP among Key Populations was found to be positive in some studies (15,16,17). The aim of the study was to assess the level of knowledge and the perception of PrEP among KPs in Katagum LGA, Bauchi State.

#### **Material and Methods**

**Research Design:** A descriptive cross-sectional survey design was used to gather data for the study.

**Research Setting:** The study was conducted in Katagum Local Government Area of Bauchi state in Northeast of Nigeria. It is bordered to the north by the states of Kano, Jigawa, Plateau and Taraba, Gombe, Yobe and Kaduna. The locations where the key populations lived were also included such as specific neighborhoods, sex venues, drug use spaces, and migrant support centers.

**Population of Study:** The target population were KPs who were at risk of HIV infection and resided in Katagum, Bauchi state. The inclusion criteria were: KPs who resided in Katagum for the past one year, between age 18- 65 year and consented to participate.

**Sample Size Determination:** The sample size was calculated using Cochran's formula for calculating minimum sample size for descriptive studies as follows;  $n = (Z^2 \times pq/e^2)$ . A total number of 167 was calculated,

an attrition rate of 10% was added given a total of 184 respondents.

**Sampling Technique:** The Multistage sampling technique was used for the selection of the respondents who participated in the study. This consisted of four stages: Stage 1: Purposive sampling was utilized in the selection of Katagum LGA, of Bauchi state which is a district with higher number of the population of interest. Stage 2: Simple random sampling was used to select wards, balloting was used in selecting five wards out of the 11 Wards existing in Katagum LGA, Bauchi State. Stage 3: there were 37 settlements utilized by key population in these selected wards, with the aid of Simple random sampling technique 20 settlements were selected for the study. Stage 4: The first group of respondents were selected by convenience sampling and only about twenty-six (26) respondents consented. The exponential non discriminative snowball sampling technique was utilized to select other respondents. This was done as a result of difficulty in locating other respondents.

**Instrument for Data Collection:** Data were collected using a self-structured questionnaire which was translated into Hausa (mostly spoken language by the respondents) and back to English using forward translation and back translation method by language experts before data analysis. The instrument consisted of three (3) sections: Section A covered the sociodemographic characteristics of the respondents with seven items, section B included knowledge of PrEP with seven items and section C consisted of questions on their perception of PrEP with eight items.

**Validity of the Instrument:** face and content validity of the questionnaire was achieved through the involvement of a statistician and an experienced HIV nurse. The forward and back translation method by experts were also used in validating the questionnaire.

**Reliability of the instrument:** The reliability of the instrument was achieved through a pilot test with 20 KPs from two (2)

settlements not involved in the study. Data were analyzed and the Cronbach's coefficient alpha was calculated at 0.78 which indicated reliability of the instrument.

**Method of Data Collection:** Data collection was preceded by one-day training of two research assistants (nurses) that already have experience in rendering PrEP services at facilities. They were trained on the research process and the ethical issues of confidentiality, anonymity and respect for respondents. Data were collected through face to face interaction at the selected hotspot during distribution of questionnaire. The research process was explained to respondents and adequate information on the aims and ethics of research were explained. Written and oral consent was taken from respondents, questions asked were answered and filled questionnaire were retrieved immediately.

**Method of Data Analysis:** Data analysis was accomplished using statistical package for social sciences (SPSS) software version 22 for windows. Descriptive statistics of frequency and percentages was used for analysis. Scoring of the PrEP levels of knowledge questions was determined by giving one point for each correct answer and zero for incorrect answer or for no response. The maximum possible score was 7 for all the knowledge questions and the mean (mean=4) was used as the cut-off for those with good knowledge (value  $\geq$  mean) and those with poor knowledge ( $<$  mean).

**Ethics Statement:** Approval to conduct the study was granted by Bauchi State Ministry of Health Ethics research committee (Reg. NO: BSMOH/REC/057/2022). The methodology for studies on humans was scrupulously adhered to. The study was completely focused on key populations in Katagum, Bauchi State. Written and oral informed consent was obtained from each respondent, privacy and confidentiality was ensured throughout the process. Anonymity was ensured by assigning numbers to the questionnaire without asking for their personal details. Data were kept under lock.

**Table 1: Respondents characteristics**

<b>Characteristic</b>	<b>Frequency(n)</b>	<b>Percent (%)</b>
<b>Employment status</b>		
Employed	72	48.0
Not employed	78	52.0
Total	150 <sup>+</sup>	100.0
<b>Location</b>		
Urban	141	82.9
Rural	29	17.1
Total	170 <sup>+</sup>	100.0
<b>Age</b>		
15-24	45	24.9
25-34	103	56.9
35-44	27	14.9
45-54	4	2.2
55-64	2	1.1
Total	181	100.0
<b>Gender</b>		
Male	130	73.0
Female	48	27.0
Total	178 <sup>+</sup>	100.0
<b>Highest Educational qualification</b>		
Primary	28	15.9
Secondary	23	13.1
Tertiary	115	65.3
Non formal education	10	5.7
Total	176 <sup>+</sup>	100.0
<b>Key populations category</b>		
MSM	31	18.7
FSW	33	19.9
PWID	45	27.1
Others	57	34.3
Total	166 <sup>+</sup>	100.0
<b>Number of Partners</b>		
.00	30	16.6
1.00	23	12.7
2.00	10	5.5
3.00	11	6.1
4.00	4	2.2
5.00	6	3.3
6 and above	97	53.6
Total	181	100.0

<sup>+</sup> Shortfall due to no response.

**Table 2: Knowledge of PrEP among respondents**

Items	Frequency	%
<b>Do you know what PrEP is?</b>		
Yes	143	80.8
No	34	19.2
<b>What is PrEP used for?</b>		
PrEP is another form of condom	10	6.0
It is a drug used for prevention of HIV in high risk population.	142	85.5
It is a drug used for treatment of HIV	10	6.0
It is a drug used to cure for HIV	4	2.4
<b>Have you ever used PrEP?</b>		
Yes	37	21.5
No	135	78.5
<b>What is the route of its administration?</b>		
Oral	154	91.4
Intravenous	12	6.9
Topical	3	1.7
<b>What is the dose for PrEP?</b>		
Once daily	154	90.1
Twice daily	12	7.0
Thrice daily	5	1.7
<b>Once you are on PrEP you cannot use condom?</b>		
Yes	48	27.4
No	127	72.6

**Table 3: Sources of PrEP information**

Sources of PrEP information	Frequency(n)	Percent (%)
Nurse	86	52.8
Community health worker	19	11.7
Health care Professionals	24	14.7
Mass Media	13	8.0
Institutional channels	7	4.3
Associations	5	3.1
Peer Groups	8	4.9
Partner	1	0.6
<b>Total</b>	<b>163</b>	<b>100.0</b>

**Table 4: Levels of Knowledge of PrEP**

Level	Score	Frequency(n)	Percent (%)
Low	< 50	7	4.7
Good	50 – 70	19	12.7
Very Good	> 70	124	82.7
<b>Total</b>		<b>150</b>	<b>100.0</b>

**Table 5: Respondents' Perception of PrEP**

	Yes		No	
	Freq	%	Freq	%
PrEP can effectively reduce the risk of HIV infection	168	94.4	10	5.6
This medication could reduce the risk of HIV transmission to the partner	158	92.4	13	7.6
The side effects of PrEP can affect your daily life	72	40.7	105	59.3
My partner would think I do not trust him/her, if they find me taking this medication	106	64.2	59	35.8
A lot of my friend would be willing to take PrEP	126	70.4	53	29.6
Are you confident to use free PrEP if you want to	148	83.1	30	16.9
It is a drug that has brought hope to man	153	86.4	24	13.6

**Results**

Table 1 shows the socio demographic data of the respondents. The result shows that among the respondents 141(82.9%) were in the urban areas while 29 (17.1%) were from rural areas. Majority of the respondents were between age group 25-34 103(56.9%). However, male respondents were 130(73.0%) while female respondents were 47(26.0%) only one respondent belonged to other. Also, result from the study shows that majority of the respondents 115(94.3%) had tertiary education while other respondents 10(5.7%) had no formal education. Moreover, 31(18.7%) were MSM while 33(19.9%) were FSW, 45(24.9%) were PWID, however, others were 57(31.5%).

Table 2 shows that a total of 143(80.8%) knew what PrEP is while 34(19.2%) had no knowledge. A total 142(85.5%) understood that PrEP is used for prevention of HIV while 37(21.5%) had used PrEP. Moreover, 154(91.4%) knew the route of administration while a total 154(90.1%) were conversant with the dose. Furthermore, 127 (72.6) understood the need to use PrEP with condom.

Table 3 reveals that a total of 86(52.8%) respondents got information on PrEP from Nurses, 24 (14.7%) other health care professionals, 19 (11.7%) from Community Health Worker, 13(8.0%) from Mass Media while only 1 (0.6%) got information from the partner.

Table 4 shows that; majority of the respondents 124(82.7%) had very good

knowledge of PrEP and only 7(4.7%) had low knowledge of PrEP.

Table 5 reveals the perception of PrEP by respondents, a total 168(94.4%) of the respondents perceived PrEP as effective in reducing risk of HIV infection while 158(92.4%) perceived that this medication could reduce the risk of HIV transmission to the partner. However, a total of 105(59.3%) perceived that the side effects of PrEP can affect daily life while 106(64.2%) believed partner would see the use of drugs as lack of trust of his fidelity.

**Discussion**

The age group with the highest respondents was 25-34, this age group is the active economical viable group which is very curious and adventurous. This group falls within the working class and productive group, the ill health of the group could have a negative effect on the economy of the nation. The result is in tandem with other studies with most of their respondents in the same age group (11,18).

The result showed that majority of the respondents had very good knowledge of PrEP. There is a possibility that the interactions of the KPs with health care professionals and CBO has positive impact on the group as shown by their level of knowledge. Nurses, Non-Governmental Organizations and Community Based Members always have regular meetings with this group to teach and counsel them on the efficacy of PrEP for prevention of HIV

infections. The finding of this study conforms with results from a study involving various part of Nigeria among KPs which revealed good level of knowledge of PrEP (11). Various global studies also revealed high knowledge of PrEP among MSM in Italy, among YMSM in Chicago (US) (19,20). This result contradicts results from other studies in Nigeria, United States and Brazil which revealed poor knowledge of PrEP among various groups of KPs (14, 21, 22).

The source of information on PrEP is very important, it may determine the accuracy of information received and as well affect the perception and use. A majority of the respondents obtained information from nurses and other healthcare professionals. This method of communication allows for questions, answers and motivation of KPs. The finding corroborated a study from Nigeria which revealed that the most preferred source of acquisition of information was face to face with healthcare professionals (11). To a lesser degree, a few numbers of KPs got information from social media, at the health facility where services are rendered to KPs, the high workload of healthcare professionals may not have accommodated mobile messaging. The result is at variance with results from studies in Chicago and Nigeria where majority of respondents acquired information from internet (19,12).

The result showed that majority of the respondents had good perception of PrEP,

perception is a function of information heard and the experiences with the medication which could have affected their feelings and thought. The result is in tandem with other studies from Nigeria, Lesotho, Thailand with respondents having positive perceptions of PrEP (15,16,17). PrEP was perceived differently by the respondents as a pill that brings hope, and a pill that protects an individual from HIV. However, a study involving some African countries including Nigeria had a contrary report of poor perception of PrEP among KPs (23).

### **Conclusion**

PrEP is a safe and effective tool for the prevention of HIV infection, the good knowledge and positive perception PrEP among Key Populations in this study could be a pointer to a probable positive down turn of HIV infection in this group in the future. Majority of the Key Populations acquired information from the nurses and other health care professionals which is an indication of the major responsibility of the healthcare professionals in giving health education to the public. The use of the mass media was poor in the study digital messaging should be encouraged among Key Populations as social media engagement allows for more interaction on PrEP. Educational messages should be scaled up using other communication strategies to disseminate tailored information to Key Populations.

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