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HIV Private Care Services in Nigeria Expose Constraints on Healthcare Systems during the Pandemic

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ABSTRACT

Access to and satisfaction with healthcare services impacts overall quality of life. This paper presents data on sexual identity, gender identity, HIV status, disability status and access points for services as determinants for ease of access to and satisfaction with HIV prevention and ancillary care services in Nigeria. This cross-sectional study collected data between February 7th and 19th 2021 using an online platform. Study participants were 13-years+ and were recruited from nine states. Data were collected on ease of access to HIV prevention ancillary care, and satisfaction with HIV prevention services and ancillary care. Four multivariate regression analyses were conducted to determine associations between the dependent and independent variables after adjusting for confounders. Of 1995 participants, 1600 (80.2%) reported easy access to HIV prevention services and 1468 (73.6%) experienced easy access to ancillary care services. In addition, 1672 (83.8%) reported feeling satisfied with the HIV prevention services they had received and 1561 (78.2%) were satisfied with ancillary care services. People living with disability had significantly lower odds of accessing HIV prevention services with ease (AOR:0.56). Participants who utilized private healthcare facilities were more likely to report easy access to HIV prevention (AOR:1.58) and ancillary (AOR:1.37) care services, as well as satisfaction with HIV prevention (AOR:1.37) and ancillary (AOR:1.38) care. This study provides evidence that improved access to and satisfaction with HIV prevention and ancillary care services provided by private health institutions in Nigeria may reflect the environmental constraints associated with poor healthcare systems governance.

Keywords: HIV, Prevention, Services, Ancillary services, Nigeria, Pandemic, COVID-19, Healthcare, Constraints

I. INTRODUCTION

Health is a multifaceted concept [1]. Health concepts are analysed to improve the design of healthcare services, ensure the delivery of quality healthcare and to guarantee client access to satisfactory services [2]. Access and satisfaction are multidimensional and complex constructs – and subjective, yet important measures to promote and maintain health, prevent and manage diseases, reduce avoidable disability and premature death, and achieve health equity [3, 4]. Access to and satisfaction with healthcare also affects the mental, social and physical health status, and the quality of life [5, 6]. Access to services is a leeway for satisfactory health outcomes [5-7].

Furthermore, access to comprehensive HIV prevention services is critical as countries strive to reduce their HIV incidence. Comprehensive HIV prevention service should include access to HIV testing, pre-exposure prophylaxis, adherence interventions, immediate linkage to care, treatment, and partner services for established HIV infection, sexually transmitted infection screening and treatment, as well as linkage to and access of behavioural risk reduction interventions [8]. Though the global rate of new HIV infections has declined significantly, the decline was not quick enough to reach the global target of less than 500,000 new infections by 2020 [9]. Therefore, more can be done to improve access for adolescent and young people to HIV preventive services worldwide [10, 11].

Access to HIV prevention services is a critical healthcare response need in Nigeria. In 2021, Nigeria had an estimated HIV incidence rate of 0.34 per 1,000 population for all ages, and 0.44 per 1,000 population for adults aged 15 years and above. This resulted in 74,000 new infections. Children under the age of 15 accounted for 26,000 (35.1%) new infections, adult women (age 15 years and above) accounted for 31,000 (41.9%) new infections, and adult males (aged 15 years and above) accounted 17,000 (23%) new infections [12]. The largest number of new infections among the adult population occurs among never-married men and women, followed by female sex workers and men who have sex with men. These combined account for roughly 91% of all new infections amongst the adult population [13].

Indeed, access to ancillary medical services by those who access HIV prevention services is also important. Ancillary care is defined as a service that supports retention in HIV medical care, assists with day-to-day living, and aims to improve the health of people living with HIV in ways that enable them to achieve viral suppression [14]. Access to ancillary medical care services increases access to primary HIV care [15]. For a country like Nigeria where disease burdens are huge, consideration for access to HIV prevention and HIV comorbidity care remains imperative [16, 17].

Access to care is a major determinant of satisfaction [18]. Satisfaction with healthcare use can also complement healthcare access [19]. Clients' satisfaction with healthcare services is the evaluation of a received healthcare service. Satisfaction is informed by multiple variables [20, 21] one of which is receiving stigma and discrimination free services [22]. Gender and sexual minority individuals, people with disability and people living with HIV in Nigeria are often dissatisfied with healthcare services because of poor emotional support and lack of attention paid to patients' preferences [23]; as well as issues surrounding expressed or perceived stigma and discrimination [24].

The aim of the present study was to determine population level factors associated with perceptions of adults in Nigeria on ease of access to and satisfaction with HIV prevention and ancillary care services received in health facilities in Nigeria. This study was based on Pascoe's [20] conceptualisation of patients'(dis)satisfaction with healthcare. Patients'(dis)satisfaction with the structure, process and outcome of healthcare services results from a value judgement that involved a cognitive evaluation of salient characteristics of one's healthcare experience compared with a subjective standard

resulting in an emotional reaction or affective response.

This study aimed to determine associations between sexual identity, gender identity, HIV status, disability status, access points for services (public/private) and ease of access to and satisfaction with HIV prevention and ancillary care services in Nigeria. For this survey, we adopted the Mosadeghrad definition of quality of health care services [25], to design the evaluation process. Efficacious, effective and efficient healthcare services that meet the patients' needs will be easy to access and satisfying.

II. METHODS AND MATERIAL

Ethical considerations: The Institute of Public Health Obafemi Awolowo University Research Ethics Committee (IPHOAU/12/1606) provided approval for study conduct. The information on the online survey included an introduction of the study team, the study objectives, the voluntary nature of their study participation and the confidentiality of their responses. Participants were also informed of the amount of time needed to complete the study questionnaire and the need to tick a checkbox to indicate consent. Only study participant who provided consent could proceed to answer the survey questions.

Patient and public involvement: This study was conceived and designed through collaborative efforts established between a local researcher (MOF) and the Network of Civil Society Organisations working on HIV in Nigeria (Coalition of Civil Society Networks on HIV and AIDS in Nigeria) with funding support from UNAIDS in Nigeria. This was a community monitoring project to assess gaps in the national HIV response and to set priorities for the National HIV response in 2020. The decision on the States for participants' recruitment was reached through consensus following dialogues with community representatives.

Design: This was a cross-sectional study that sought the perspectives of participants on the ease of access to HIV prevention and ancillary care services. Data were generated through an online survey (Survey Monkey®) launched on February 7, 2021 and closed on February 19, 2021. The survey instrument was administered anonymously using close-ended questions. The survey tool can be found as supplement 1. Face-to-face study participants' recruitment was discouraged because of the COVID-19 pandemic. Part of the data from this dataset has been published elsewhere [26].

Recruitment: The participants were 13 years and older who were recruited through crowdsourcing by reaching out to eligible participants using WhatsApp groups and email listservs. Recruitment was done in nine States (Akwa Ibom, Lagos, Benue, Anambra, Imo, Rivers, Kaduna, Delta, Taraba). The number of States was limited by the availability of fund. The nine states were however, the states with the highest number of people living with HIV in the country. The nine states were spread across the six geopolitical zones in Nigeria thereby ensuring diversity of representation of study participants in the survey.

Five data collectors in each of the nine states facilitated the recruitment of study participants. A state focal person coordinated the activities of five data collectors. The data collectors were required to recruit 50 study participants distributed across the three political districts in each state. The target populations were pregnant mothers, mothers within one-year post-partum, adolescents and young persons, female sex workers, men who have sex with other men, injecting drug users, transgender, and members of the general population irrespective of their HIV status.

The data collectors and state focal persons were trained for three days on the study protocol, conducting online surveys, ethical conduct of research and effective communication with peers. The data collectors and state focal persons also conducted

a pilot survey of the study tools to ensure cultural and language appropriateness.

Sample size. This was calculated based on prevalence of 85.6% rate of satisfaction with HIV services in a tertiary health institution in Nigeria [27], a confidence level of 95% for an infinite population size and a precision estimate of 0.05 [28]. The minimum sample size was 1710 participants (190 participants from each of the nine states). The minimum sample size was increased by 10% to 1881 to take care of incomplete responses [29]. From the statistical modelling perspective, 10 participants with complete responses for each of the study variables per state was adequate to perform regression analyses with a minimum probability level (p-value) of 0.05 [30].

Dependent variables

Ease of access to HIV prevention services: A preceding question asked about access to HIV prevention services. The question asked was: which of the following HIV prevention services were provided at the health facility you attended – HIV testing services, HIV self-testing services, Male condoms, Female condoms, Pre-exposure prophylaxis, Post exposure prophylaxis, Voluntary male circumcision. Responses were either 'yes' or 'no'. This was followed by a question about how easy was it to access any of these services. Participants could choose from five options – 'very easy', 'easy', 'neutral', 'difficult', 'very difficult'. For the purposes of this analysis, 'very easy' and 'easy' were merged and categorized as 'easy' while all others were categorized as 'difficult'. The questions were adapted from the COMPASS study used to audit the quality of HIV healthcare service in Malawi [31].

Ease of access to ancillary care: A preceding question assessed whether participants had accessed any of the following HIV ancillary care services: mental health, tuberculosis, malaria, hypertension, diabetes, viral hepatitis and gender-based violence management; and anal cancer, prostate cancer and cervical cancer screening. Participants were asked to check the boxes of services they had access to. Next, participants were asked to check HIV ancillary care services that they wished they had accessed and HIV ancillary care services they had attempted to access in the past. Finally, for participants who had accessed services, were asked: "How easy was it for you to access any of these services". Participants could pick from five options – 'very easy', 'easy', 'neutral', 'difficult', 'very difficult'. For the purposes of this analysis, 'very easy' and 'easy' were merged and categorized as 'easy' while all others were categorized as 'difficult'. The questions were adapted from the COMPASS study used to audit the quality of HIV healthcare service in Malawi [31].

Satisfaction with HIV prevention services and ancillary care: Participants were asked: "How satisfied were you with the quality of HIV prevention service received" and "How satisfied were you with the quality of HIV ancillary care service received". Participants could pick from five options – 'very satisfied', 'satisfied', 'neutral', 'not satisfied', 'extremely not satisfied'. For the purposes of this analysis, 'very easy' and 'easy' were merged and categorized as 'easy' while all others were categorized as 'difficult'. The questions were adapted from the COMPASS study used to audit the quality of HIV healthcare service in Malawi [31].

Independent variables

Sexual identity: Participants identified as lesbian, gay, heterosexual/straight, bisexual, queer or intersexual by ticking a checkbox. Participants also had the option of ticking a checkbox noting 'prefer not to say'. The data on the sexual identity of respondents were extracted for this study analysis. For this study, individuals who identified themselves as lesbian, gay, bisexual, queer or intersexual were categorized as "sexual minority individuals".

Gender identity: Participants identified as male, female or transgender by ticking a checkbox. The data on the gender identity of respondents were extracted for this study analysis were extracted for this study analysis.

HIV status: The HIV status of respondents was assessed by a single question that asked participants to tick the checkbox against their HIV status. The

options were "negative", "positive", "do not know" and "prefer not to report". Participant who preferred not to report their HIV status were excluded from the study but those who identified that they did not know their HIV status were retained [32].

Living with disability: Participants identified their disability status by ticking a 'yes' or 'no' response to a question that asked if the respondent was living with a disability.

Access points to HIV services: Participants were asked if they were receiving services in a private facility, Nigeria government funded facility, faith-based organization funded facility, or facilities funded by Global Fund or the President's Emergency Plan for AIDS Relief (PEPFAR). Participants responded by checking a box against the funder of their service points. They also had the option to indicate 'Don't know' if they were not aware of the funders of their service delivery points. For the analysis, service access points were dichotomized into private (all other options) and public (Nigerian government) facilities.

Confounding variables

Sociodemographic variables: Data on sex at birth (female, male, no response), age at last birthday (in years), education level completed (no formal education, primary, secondary, tertiary), and marital status (single, married, separated/divorced or cohabiting) were collected. Participants had to check a box against theit appropriate sociodemographic profile.

Data analysis: Only the complete data of respondents were extracted as the missing data were missed cases at random. The complete case analysis was therefore, found appropriate [33]. Descriptive statistics were calculated for all the study variables. Four sets of multivariable regression models were developed to determine the associations between each of the four dependent variables and the independent variables. The models were each adjusted for the confounders (sociodemographic variables). Adjusted odd ratios and their 95% confidence intervals (CI) were calculated. The IBM Statistical Package for Social Sciences, software version 23 was used for statistical analysis. Significance was set at $\leq$5%.

III. RESULTS AND DISCUSSION

Complete data from 1995 participants were extracted. The mean age (standard deviation – SD) of participants was 30 years (8.54). The sample included 1218 (61.1%) sexual minority individuals, 112 (5.6%) transgender, 102 (5.1%) people living with disability, 1286 (64.5%) people living with HIV and 902 (45.2%) individuals who accessed HIV services using private facilities. Also, 1600 (80.2%) participants had easy to access HIV prevention services, 1468 (73.6%) had easy to access ancillary care services, 1672 (83.8%) were satisfied with the HIV prevention services and 1561 (78.2%) were satisfied with the ancillary care services.

Table 1 shows that participants living with disability had lower odds of receiving easy access to HIV prevention services compared to those who had no disability (AOR: 0.56; 95% CI: 0.36-0.99). Alternatively, participants who utilized private facilities had significantly higher odds of easy access to HIV prevention services compared to those who utilized public facilities (AOR: 1.58; 95% CI: 1.24-2.02). Sexual identity, gender identity and HIV status were not significantly associated with easy access to HIV prevention services. Other factors significantly associated with higher odds of easy access to HIV prevention services were being older (AOR: 1.04; 95% CI: 1.02-1.06), having secondary level of education (AOR: 1.72; 95% CI: 1.11-2.65) and being married (AOR: 1.42; 95%CI: 1.02-1.95).

In addition, participants who attended private facilities had significantly higher odds of easy access to ancillary care services compared to those who utilized public facilities (AOR: 1.37;95% CI: 1.10-1.70). Sexual identity, gender identity, HIV status and living with disability were not

significantly associated with easy access to access to ancillary care services. Other factors significantly associated with higher odds of easy access to ancillary care services were being older (AOR:1.01; 95% CI: 1.00-1.03), secondary level of education (AOR: 1.81; 95% CI: 1.21-2.69) and being married (AOR: 1.49; 95% CI: 1.12-1.98).

Table 1. Ease of access to HIV prevention services and ancillary care services by adolescents, young, and elderly people in Nigeria

Variables	Total N=1995	HIV prevention services		AOR (95%CI) p-value	Ancillary care services		AOR (95%CI) p-value
		Easy (N=1600) n (%)	Not easy(N=395) n (%)		Easy (N=1468) n (%)	Not easy (N=527) n (%)	
Age	1995 (100.0)	30.7 (8.56)	28.2 (8.15)	1.04 (1.02-1.06)***	30.5 (8.44)	29.4 (8.77)	1.01 (1.00-1.03)*
Sex at birth							
Male	1049 (52.6)	855 (81.5)	194 (18.5)	Ref	790 (75.3)	259 (24.7)	Ref
Female	946 (47.4)	745 (78.8)	201 (21.2)	0.73 (0.38-1.43)	678 (71.7)	268 (28.3)	0.96 (0.52-1.77)
Educational status							
No formal education	149 (7.5)	111 (74.5)	38(25.5)	Ref	101 (67.8)	48 (32.2)	Ref
Primary	99 (5.0)	80 (80.8)	19 (19.2)	1.43 (0.75-2.72)	75 (75.8)	24 (24.2)	1.48 (0.82-2.67)
Secondary	699 (35.0)	578 (82.7)	121 (17.3)	1.72 (1.11-2.65)*	552 (79.0)	147 (21.0)	1.81 (1.21-2.69)***
Tertiary	1048 (52.5)	831 (79.3)	217 (20.7)	1.33 (0.88-2.01)	740 (70.6)	308 (29.4)	1.14 (0.78-1.67)
Marital status							
Single	1138 (57.0)	878 (77.2)	260 (22.8)	Ref	802 (70.5)	336 (29.5)	Ref
Married	655 (32.8)	566 (86.4)	89 (13.6)	1.42 (1.02-1.95)*	525 (80.2)	130 (19.8)	1.49 (1.12-1.98)***
Separated/Divorced	117 (5.9)	89 (76.1)	28 (23.9)	0.72 (0.43-1.19)	75 (64.1)	42 (35.9)	0.66 (0.42-1.03)
Cohabiting	85 (4.3)	67 (78.8)	18 (21.2)	1.07 (0.61-1.89)	66 (77.6)	19 (22.4)	1.46 (0.84-2.53)
Sexual identity							
Heterosexuals	777 (38.9)	631 (31.6)	146 (18.8)	Ref	577 (74.3)	200 (25.7)	Ref
Sexual minorities	1218 (61.1)	969 (48.6)	249 (20.4)	0.94 (0.74-1.21)	891 (73.2)	327 (26.8)	0.97 (0.78-1.21)
Gender identity							
Male	853 (42.8)	667 (78.2)	186 (21.8)	Ref	606 (71.0)	247 (29.0)	Ref
Female	1030 (51.6)	843 (81.8)	187 (18.2)	1.57 (0.80-3.10)	777 (75.4)	253 (24.6)	1.14 (0.61-2.13)
Transgender	112 (5.6)	90 (80.4)	22 (19.6)	1.33 (0.76-2.31)	85 (75.9)	27 (24.1)	1.40 (0.84-2.32)
Living with disability							
No	1893 (94.9)	1530 (80.8)	363 (19.2)	Ref	1402 (74.1)	491 (25.9)	Ref
Yes	102 (5.1)	70 (68.6)	32 (31.4)	0.56 (0.36-0.99)*	66 (64.7)	36 (35.3)	0.69 (0.49-1.08)
HIV status							
Negative	640 33.6)	537 (80.1)	133 (19.9)	Ref	489 (73.0)	181 (27.0)	Ref
Positive	1286 (64.5)	1038 (80.7)	248 (19.3)	0.94 (0.72-1.22)	954 (74.2)	332 (25.8)	0.91 (0.72-1.16)
Don't know	39 (2.0)	25 (64.1)	14 (35.9)	0.47 (0.21-1.04)	25 (64.1)	14 (35.9)	0.71 (0.33-1.57)
Place of access to HIV services							
Public	1038 (53.8)	809 (77.9)	229 (22.1)	Ref	747 (72.0)	291 (28.0)	Ref
Private	902 (46.5)	755 (83.7)	147 (16.3)	1.58 (1.24-2.02)***	693 (76.8)	209 (23.2)	1.37(1.10-1.70)***

*p<0.05, **p<0.01, ***p<0.001

Meanwhile, as illustrated in Table 2, participants who accessed services in private facilities had significantly higher odds of being satisfied with HIV prevention services compared to those who used public/government owned facilities (AOR: 1.37; 95% CI: 1.06-1.78). Sexual identity, gender identity, HIV status and living with disability were not significantly associated with satisfaction with HIV prevention services Also, older participants had significantly higher odds of being satisfied with HIV prevention services (AOR:1.02; 95% CI: 1.02-1.06).

In addition, participants who had accessed private facilities had significantly higher odds of being satisfied with ancillary care services compared to those who accessed care in public facilities (AOR: 1.38; 95% CI: 1.09-1.75). Sexual identity, gender identity, HIV status and living with disability were not significantly associated with satisfaction with access to ancillary care services. Also, participants who were older (AOR: 1.03; 95% CI:1.01-1.04), had secondary level of education (AOR: 1.70; 95% CI: 1.11-2.62) had significantly higher odds of being satisfied with ancillary care services. On the contrary, participants who were separated/divorced had significantly lower odds of being satisfied with ancillary care services compared to those who were single (AOR: 0.55; 95% CI: 0.35-0.87).

Table 2. Client satisfaction with HIV prevention services and ancillary care services by adolescents, young and elderly people in Nigeria

Variables	Total N=1995	HIV prevention services		AOR (95%CI) p-value	Ancillary care services		AOR (95%CI) p-value
		Satisfied N=1672 n (%)	Not satisfied N=323 n (%)		Satisfied N=1561 n (%)	Not satisfied N=434 n (%)	
Age	1995 (100.0)	30.5 (8.53)	28.4 (8.39)	1.02 (1.02-1.06)***	30.5 (8.53)	29.1 (8.48)	1.03 (1.01-1.04)***
Sex at birth							
Male	946 (47.4)	792 (83.7)	154 (16.3)	Ref	725 (76.6)	221 (23.4)	Ref
Female	1049 (52.6)	880 (83.9)	169 (16.1)	0.61 (0.30-1.26)	836 (79.7)	213 (20.3)	1.07 (0.55-2.07)
Educational status							
No formal education	149 (7.5)	123 (82.6)	26 (17.4)	Ref	111 (74.5)	38 (25.5)	Ref
Primary	99(5.0)	84 (84.8)	15 (15.2)	1.23 (0.60-2.51)	70 (70.7)	29 (29.3)	0.81 (0.45-1.45)
Secondary	699(35.0)	596 (85.3)	103 (14.7)	1.30 (0.79-2.11)	577 (82.5)	122 (17.5)	1.70 (1.11-2.62)*
Tertiary	1048(52.5)	869(82.9)	179 (17.1)	1.00 (0.62-1.59)	803 (76.6)	245 (23.4)	1.15 (0.76-1.73)
Marital status							
Single	1138 (57.0)	934 (82.1)	204 (17.9)	Ref	869 (76.4)	269 (23.6)	Ref
Married	655 (32.8)	576 (87.9)	79 (12.1)	1.30 (0.91-1.83)	546 (83.4)	109 (16.6)	1.25 (0.92-1.70)
Separated/Divorced	117 (5.9)	91 (77.8)	26 (22.2)	0.63 (0.38-1.06	80 (68.4)	37 (31.6)	0.55 (0.35-0.87)*
Cohabiting	85 (4.3)	71 (83.5)	14 (16.5)	1.13 (0.61-2.11)	66 (77.6)	19 (22.4)	1.02 (0.58-1.76)
Sexual orientation							
Heterosexuals	77 (38.9)	658 (84.7)	119 (15.3)	Ref	618 (79.5)	159 (20.5)	Ref
Sexual minorities	1218 (61.1)	1014 (83.3)	204 (16.7)	0.90 (0.69-1.17)	943 (77.4)	275 (22.6)	0.88 (0.70-1.12)
Gender identity							
Male	853 (42.8)	709 (83.1)	144 (16.9)	Ref	649 (76.1)	204 (23.9)	Ref
Female	1030 (51.6)	867 (84.2)	163 (15.8)	1.63 (0.77-3.43)	821 (79.7)	209 (20.3)	1.06 (0.54-2.09)
Transgender	112 (5.6)	96 (85.7)	16 (14.3)	1.60 (0.85-3.01)	94 (80.3)	21 (18.8)	1.57 (0.90-2.75)
Living with disability							
No	1893 (94.9)	1595 (84.3)	298 (15.7)	Ref	1487 (78.6)	406 (21.4)	Ref
Yes	102 (5.1)	77 (75.5)	25 (24.5)	0.62 (0.38-1.01)	74 (72.5)	28 (27.5)	0.88 (0.55-1.41)
HIV status							
Negative	670 (33.6)	571 (85.2)	99 (14.8)	Ref	531 (79.3)	139 (20.7)	Ref
Positive	1286 (64.5)	1071 (83.3)	215 (16.7)	0.74 (0.55-1.00)	1005 (78.1)	281 (21.9)	0.80 (0.61-1.03)
Don't know	39 (2.0)	30 (76.9)	9 (23.1)	0.79 (0.29-2.13)	25 (64.1)	14 (35.9)	0.47 (0.21-1.04)
Place of access to HIV services							
Public	1038(53.5)	855 (82.4)	183 (17.6)	Ref	799 (77.0)	239 (23.0)	Ref
Private	902 (46.5)	780 (86.5)	122 (13.5)	1.37 (1.06-1.78)*	736 (81.6)	166 (18.4)	1.38 (1.09-1.75)***

*p<0.05, **p<0.01, ***p<0.001

IV. DISCUSSION AND CONCLUSION

This report presents contributions to current understanding of how recipients of preventive HIV and ancillary healthcare services in Nigeria perceive ease of access to and satisfaction with services. These study findings suggest that there are facility level factors that contribute to ease of access to and satisfaction with preventive HIV and ancillary healthcare services: notably, that services are easier to access and clients are more likely to be satisfied with these when positioned within private, as opposed to public facilities. Sexual identity, gender identity and HIV status were not significantly associated with ease of access to and satisfaction with HIV prevention and ancillary healthcare services in this study. People living with disability, however, appear more likely to report HIV prevention services to be easier to access when compared with those living without disability.

Findings also suggest that access to HIV prevention services and ancillary care services correlate strongly with satisfaction with services, as the same variables were found to be associated with ease of access to services and satisfaction to services received. Patient satisfaction is often used as a proxy to measure their perspectives about their healthcare experience (including access to healthcare services) despite the recognised complexity with measuring satisfaction [34-37]. Our study finding suggests that ease of access to HIV prevention and ancillary care services may be used as proxy measures for clients' satisfaction with healthcare services in Nigeria. This postulation warrants further investigation.

In addition, we found that participants who had chronic health conditions – people living with HIV and people with disability - were not more likely to reported difficulty with access to and dissatisfaction with HIV prevention and ancillary care services than their people not living with HIV or disability. Several studies had indicated that people with chronic conditions are often less satisfied with the quality and access to health services than others because of their frequent use of services and more opportunities to experience [38]. The study findings may indicate that

the quality of care provided in Nigeria is generally poor thereby corroboration prior report [39]. The country ranks 14th of 18 African countries with poor health systems in the world [40-41].

Furthermore, participants in this study rated access to and satisfaction with HIV prevention and ancillary care services received in private health facilities as superior to that received from private facilities. This is contrary to a report from Northern Nigeria where there no difference was found in satisfaction between public and private secondary level hospitals providing antiretroviral services [42]. Moreover, a further report from Eastern Nigeria revealed that clients were more satisfied with public than private facilities providing HIV services [38]. However, the study was national in outlook and was specific for HIV prevention and ancillary care services, which could explain these differences in results.

The persistently inadequacy and low quality of health services in public facilities made the private health sector the option of choice for healthcare consumers in Nigeria [39]. Although the private sector healthcare delivery in low- and middle-income countries is often argued to be more accountable, efficient, medically effective and sustainable, findings indicate that the private sector has lower efficiency and weak regulation with a greater risk of harming patients than the public sector [43]. This is suggestive that in the short-term, public healthcare services can adopt a private healthcare service delivery model to improve client satisfaction with public healthcare services. Despite this, for the medium- to long-term, public healthcare services delivery should be reformed to mitigate the high drug costs, perverse incentives for unnecessary testing and treatment, greater risks of complications and limited service access in the private sector [43].

Moreover, it has been observed that separated/divorced participants appear less likely to show satisfaction with ancillary care services when compared with their single counterparts. Being divorced or separated confers increased risk for poor health outcome by moderating the psychosomatic response to diseases and wellness. Poor social connections down-regulate the psychosomatic response [44]. The present study provides new evidence to suggest that marital status may also regulate this biopsychosocial perception of satisfaction with healthcare delivery.

Nevertheless, poor access to and satisfaction with HIV prevention and ancillary care services reported by young people remains a concern. Prevalence of HIV in Nigeria is increasing only in the population of adolescents and young persons in Nigeria [45]. Poor access to and satisfaction with healthcare services may keep young people away from facilities. This study findings reinforce the ongoing concern with poor access to and satisfaction with HIV prevention and ancillary care services by adolescents and young people in Nigeria [46]. To address the gaps observed, efforts at advocating for youth friendly services that promote easy and satisfying access to preventive HIV and ancillary healthcare services in Nigeria must be intensified. This includes providing HIV and ancillary healthcare through community-led or peer led service providers [44] that proactively address the access to existing and emerging HIV prevention services such as the use of multiple forms of HIV prevention tools [47].

This report presents contributions to current understanding of how recipients of preventive HIV and ancillary healthcare services in Nigeria perceive ease of access to and satisfaction with services. These study findings suggest that there are facility level factors that contribute to ease of access to and satisfaction with preventive HIV and ancillary healthcare services: notably, that services are easier to access and clients are more likely to be satisfied with these when positioned within private, as opposed to public facilities. Sexual identity, gender identity and HIV status were not significantly associated with ease of access to and satisfaction with HIV prevention and ancillary healthcare services in this study. People living with disability, however, appear more likely to

report HIV prevention services to be easier to access when compared with those living without disability.

Despite the contribution this study has made, there are a few study limitations. First, the cross-sectional design limits a cause-effect relationship to be established. Second, we recruited a convenient sample of participants with participants who may have been worse affected by service access inadvertently being excluded because they did not have smartphones or internet access. This limits the generalisability of the study findings to all socioeconomic groups in Nigeria. Also, self-reporting of HIV status may lead to an under-reporting of HIV positivity status [48]. The use of single item questions to measure ease of access and satisfaction with use of healthcare services is also favourable for screening those who are not satisfied with the services, but this may result in an underreporting of those who are satisfied. The results generated from this study, however, support prior reports on the state of the healthcare system in Nigeria. It is acknowledged that multiple factors affect the quality of care and not all were measured in this study. These factors include, among others, personal factors of the provider and the patient and factors pertaining to the healthcare system. Also, the broader environment that affects healthcare service quality, leadership, and its competency to plan, educate and train its staff. We also did not evaluate the availability of resources, the effective management of resources, employees and processes, or the level of collaboration and cooperation among providers.

Nevertheless, this study has a number of strengths. The large sample size, the geographical diversity of the respondents, and the engagement of community advocates in the design and implementation of this study offer multiple opportunities. These include robust sub-group analyses that make the findings applicable to the population that this sample represents. The uptake and use of the study findings for advocacy purposes to drive change, and the application of the findings to the national country HIV response offer additional benefits of the study.

In conclusion, this report provides new evidence to suggest that improved access to and satisfaction with HIV prevention and ancillary care services provided by private health institutions in Nigeria may reflect the environmental constraints associated with poor healthcare systems' governance. This has several implications for services with increased risk for premature morbidity and mortality in a country with high burden of HIV [49]; a growing burden of non-communicable diseases [50]; and a high burden of HIV comorbidity [51-53]. Nigeria can learn lessons from the private health sector and institute these into the public health sector to improve access to HIV prevention and ancillary care services.

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