





HIV Patients' Satisfaction with Pharmaceutical Care at a Nigerian Tertiary Healthcare Facility During the Covid-19 Pandemic

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Abstract

Background: Patients' satisfaction is an important indicator of determining the quality of pharmaceutical care (PC). This study investigated Human Immunodeficiency Virus (HIV) patients' satisfaction with PC at Federal Medical Centre, Keffi-Nigeria and determined the statistical correlation between the respondents' socio-demographic variables and their satisfaction with PC. **Methods:** This cross-sectional survey study involved 351 randomly selected HIV-positive patients receiving PC in the facility. A Likert-type questionnaire was used for the data collection. **Results:** The Cronbach's alpha of the questionnaire was .916. The "overall perception of pharmacists' care or service" had a mean satisfaction score of 4.24 ± 0.749 and "the amount of time spent with the pharmacists" had a mean score of 3.94 ± 0.791 . No significant association was found between socio-demographic variables and overall patients' satisfaction with PC. **Conclusion:** The reliability of the questionnaire was high and the HIV patients had a good satisfaction with the PC they received in the facility.

Keywords

HIV/AIDS, COVID-19, Nigeria, patients' satisfaction, pharmaceutical care

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Background

Globally, as of 2020, 37.7 million people live with Human Immunodeficiency Virus (HIV), and only 28.2 million people out of this figure were accessing antiretroviral therapy (ART).¹ Most cases of HIV infection occur in sub-Saharan Africa, where 39% of new cases are found every year.¹ Currently, Nigeria has an HIV crude prevalence of 1.4%, an improvement from the previous 2.8% reported in 2019 by the United Nations Joint Programme on HIV/AIDS.²

Over the years, the pharmacy profession has evolved. This evolution has been categorized into different models, which include apothecary, drug distribution, clinical pharmacy and pharmaceutical care (PC) model.³ PC had since been defined as the "responsible provision of drug therapy for the purpose

of achieving definite outcomes that will improve a patient's quality of life."⁴ Identification, resolution and prevention of drug-related morbidity and mortality have been regarded as

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the guiding principle in the delivery of PC which may lead to improved therapeutic outcomes and reduced costs of care.⁵

Measurement of patients' satisfaction with PC has become an important indicator, though subjective, of determining the quality of pharmaceutical service delivery.⁶ It evaluates and monitors pharmacists' input in improving patients' overall health and meeting their expectations and preferences.⁷ The benefits of patients' satisfaction with pharmaceutical services include adherence and compliance to medications, improved patient treatment outcomes and maintenance of cordial relationships with the healthcare providers.⁸⁻¹¹ The PC intervention has been reported to be effective in improving the CD4 count of HIV patients, and the reduction and resolution of drug-related problems associated with antiretroviral drug therapy.^{5,12} Similarly, pharmacists' interventions have been demonstrated to play a great role in medication adherence and management of comedications.¹³ In the year 2020, during the first phase of lockdown resulting from the scourge of the novel Coronavirus disease 19 (COVID-19), supply and access to ARVs were disrupted globally, resulting in a 37% decline in referrals for diagnosis and treatment.¹ Drug shortage will affect medication adherence and treatment satisfaction among this category of patients, leading to poor clinical outcomes.¹⁴ Similarly, people with HIV are at increased risk of being infected with COVID-19.¹⁵

Therefore, the study primarily aimed to determine the HIV patients' satisfaction with PC during the COVID-19 pandemic at the Federal Medical Centre (FMC), Keffi, Nigeria. In addition, the study objectives included testing the reliability of the modified research tool, investigating HIV patients' satisfaction with the PC provided at the facility, and determining the statistical association of the respondents' socio-demographic information on their satisfaction with PC. The study is relevant because pharmacists' role in the healthcare systems of low- and middle-income countries is hardly recognized despite their efforts at improving care delivery and continually keeping abreast with the best practices of their profession.

Methods

Description of the Study Setting

FMC Keffi is a tertiary healthcare facility in Nasarawa State, the North-central region of Nigeria. This region has second to the highest prevalence of HIV, at 2.0%, in Nigeria.² The facility caters for the healthcare needs of patients within the state and those on transfer/referral from other facilities in the neighboring states. Nasarawa state is a very cosmopolitan setting which became more obvious due to its proximity to the Federal Capital Territory, Abuja, and coupled with its linkages to different parts of the country. These make the facility to have patients of varying ethnicities, religions, educational and socio-economic statuses.

Research Design

A cross-sectional survey using an interviewer-administered questionnaire was conducted on HIV patients that visited the Pharmacy unit of the Antiretroviral Centre of FMC, Keffi.

Research Instrument

The questionnaire was adopted in the literature^{16,17} with modifications to suit the scope of the study. It consists of 22 items and two sections. The first section elicited the socio-demographic data of the respondents. While the second section contained 15 items that assessed the respondents' satisfaction with PC. The items on patients' satisfaction were grouped into friendly explanation or communication of the pharmacist and the second was toward managing therapy and PC. The items were graded on a 5-point Likert scale with 1 and 5 indicating the lowest and highest levels of satisfaction respectively. The range included *very poor* (=1); *poor* (=2); *good* (=3); *very good* (=4), and *excellent* (=5).

Sample Size Determination and Sampling Technique

A sample size of 351 was determined using the Raosoft online sample size calculator available at <http://www.raosoft.com/samplesize.html>.¹⁸ The calculation was done at a 5% margin of error, 95% confidence level, a response distribution of 50% and with reference to a population size of 4,023 total number of HIV patients that were receiving treatment in the facility as at the time of the study. A convenience sampling technique was used in selecting participants.

Eligibility Criteria

All HIV-positive patients who were older than 18 years, receiving highly active antiretroviral therapy, and were provided pharmaceutical services in the ART pharmacy of the facility and who were willing to give consent and completed the interview process were included in this study. While patients who did not meet these criteria were excluded.

Data Collection Methods

Data were collected using patients' satisfaction with PC questionnaire from consented patients who met the eligibility criteria of this study. The purpose of the study was explained to each participant and their informed consent was sought before the commencement of the interview. The questionnaire was administered to the patients by trained personnel. Data were collected from July 2021 through September 2021.

Data Analysis

The results were expressed as descriptive statistics using numbers and percentages. A Cronbach's alpha of $\geq .7$ was used to measure the instrument's reliability to give a consistent result. Likert-type questions were considered as interval data and the result for each question was expressed as $M + SD$. The analysis was performed using Statistical Package for the Social Sciences (SPSS) version 26. Patients' satisfactions were entered as 5 Likert scales and coded as 1 for "very poor," 2 for "poor," 3 for "good," 4 for "very good," and 5

for “excellent.” The mean values for the perception were interpreted as 1-1.8 “very poor,” 1.81-2.6 “poor,” 2.61-3.4 “good,” 3.41-4.2 “very good” and 4.21-5.0 “excellent.” The mean value of all items gave the overall perception of the respondents. A one-way ANOVA test was used to establish a significant statistical association between the socio-demographic variables and the mean values of overall patients’ satisfaction with PC. A significant statistical difference was considered at $p \leq .05$.

Ethical Consideration

This study was approved by the Health Research and Ethics Committee of the FMC, Keffi-Nigeria (approval no. NHREC/21/12/2012). All participants that can read and write in English provided written informed consent prior to enrolment in the study. While informed consent was obtained verbally before participation for those that cannot read and write in English. The consent was audio-recorded in the presence of an independent witness.

Results

The reliability of the questionnaire, expressed as Cronbach’s alpha, was found to be .916. A total of 351 respondents participated in this study. Most of the respondents, 135 (38.5%) were within the age range of 35-44 years, while the age range of 18-24 years accounted for the least proportion of patients, with 7 (2%) enrollment. More female respondents were in this study, numbering 236 (67.2%). Similarly, regarding marital status, married respondents accounted for the highest number of participants 245 (69.8%), and most of them were predominantly Christians 227 (64.7%) with at least 116 (33.0%) having secondary education.

Most of the patients were diagnosed within the past 6-10 years, 127 (36.2%), while those diagnosed within 1-5 years and above 10 years had an equal number of cases 103 (29.3%). The majority of the respondents, 221 (63.0%), visited the pharmacy for their ARV refill 3-4 times per annum. All other socio-demographic information of the respondents were shown in Table 1.

Overall, respondents were mostly satisfied with the “Overall perception of pharmacists’ care or service” (mean score of 4.24 ± 0.749). Variable responses regarding satisfaction with pharmacists’ care or services were reported by the respondents in this facility, as indicated in Table 2.

There was no significant statistical variation between socio-demographic characteristics and the mean overall patients’ satisfaction with pharmacists’ care or services in the facility, as presented in Table 3.

Discussion

Assessing patients’ satisfaction with PC received is a crucial indicator of the quality of PC rendered in a facility.⁶ Studies measuring satisfaction with PC aids in improving the quality of services and identifying shortcomings in the care delivery.¹⁹

Table 1. Socio-Demographic Information of the Patients Enrolled in the Study, $n = 351$.

Variable	Number	Percentage (%)
Age (years)		
18–24	7	2.0
25–34	77	21.9
35–44	135	38.5
45–54	75	21.4
>54	57	16.2
Gender		
Male	115	32.8
Female	236	67.2
Marital status		
Single	57	16.2
Married	245	69.8
Divorced/widowed	49	14.0
Religion		
Islam	116	33.0
Christianity	227	64.7
Traditional	7	2.0
Others	1	0.3
Highest educational level		
Primary education	85	24.2
Secondary education	116	33.0
Tertiary education	87	24.8
Informal education	7	2.0
None	56	16.0
Duration (years) since diagnosis of HIV		
<1	18	5.1
1–5	103	29.3
6–10	127	36.3
>10	103	29.3
Frequency of refilling medications per annum		
1–2	45	12.8
3–4	221	63.0
5–6	35	10.0
>7	50	14.2

Keys: %= Percentage.

Besides, the questionnaire used in the study has high reliability. This conforms with the findings of similar studies that were carried out in Nigeria.^{20,21}

The high number of females observed in this study was similar to the finding of a study carried out in a Nigerian teaching hospital by Eze et al (2018).²¹ Perhaps this is because women eagerly presented themselves for the study, and indeed, in Nigeria, females have a higher prevalence of HIV than their male counterpart.^{22,23} Furthermore, married respondents were higher in this demography of the respondents, which was in harmony with a study by Okoye et al (2014) in South-Eastern Nigerian hospitals.²⁴ This could be attributed to attempts at avoiding stigmatization and receiving promiscuous looks during the data collection process. Because presenting as a married person could be thought of as the other partner transmitting the disease to her and the interviewee being a “victim of marriage.”

The high satisfaction of the patients with the PC delivered in the facility could be attributed to the fact that the hospital is a tertiary healthcare facility, which is the highest in the hierarchy

Table 2. Patients' Responses to the Various Items on the Likert-Type Questions on Satisfaction with PC in the Facility.

Question	Responses, n (%)					Mean Response (SD)
	Very Poor	Poor	Good	Very Good	Excellent	
Pharmacists interest in your health condition	2 (0.6)	5 (1.4)	81 (23.1)	131 (37.3)	132 (37.6)	4.10 (0.841)
The respect and courtesy showed to you by the pharmacists	0 (0)	2 (0.6)	71 (20.2)	140 (39.9)	138 (39.3)	4.18 (0.767)
Availability of pharmacists to answer your question	1 (0.3)	1 (0.3)	87 (24.8)	137 (39.0)	125 (35.6)	4.09 (0.796)
The privacy of your conversation with the pharmacists	0 (0)	2 (0.6)	91 (25.9)	140 (39.9)	109 (31.1)	4.09 (0.795)
The duration of time it takes to get a prescription filled	3 (0.9)	8 (2.3)	91 (25.9)	140 (39.9)	109 (31.1)	3.98 (0.860)
How frequently do the pharmacists check with you about how well your medication is working?	2 (0.6)	6 (1.7)	97 (27.6)	130 (37.0)	116 (33.0)	4.00 (0.854)
The advice pharmacists gave you about problems that might occur due to your medications	3 (0.9)	1 (0.3)	85 (24.2)	150 (42.7)	112 (31.9)	4.05 (0.806)
Pharmacists' professional appearance or dressing	0 (0)	1 (0.3)	71 (20.2)	145 (41.3)	134 (38.2)	4.17 (0.753)
The amount of time spent with the pharmacists	0 (0)	3 (0.9)	111 (31.6)	140 (39.9)	97 (27.6)	3.94 (0.791)
Pharmacists' instruction on how to take your medication and its storage	1 (0.3)	2 (0.6)	96 (27.4)	114 (32.5)	138 (39.3)	4.10 (0.841)
The way pharmacists work together with your doctor to make sure your medications are best for you	0 (0)	2 (0.6)	101 (28.8)	129 (36.8)	119 (33.9)	4.04 (0.806)
Pharmacists' advice on how to live healthy lifestyle	1 (0.3)	4 (1.1)	103 (29.3)	135 (38.5)	108 (30.8)	3.98 (0.821)
How pharmacists use information about your previous health conditions/ drugs when assessing your drug therapy	1 (0.3)	3 (0.9)	109 (31.1)	138 (39.3)	100 (28.5)	3.95 (0.809)
Information pharmacists gives you about expected outcomes and side effects of your medications	0 (0)	2 (0.6)	105 (29.9)	137 (39.0)	107 (30.5)	3.99 (0.793)
Overall perception of pharmacists' care or service	0 (0)	0 (0)	66 (18.8)	134 (38.2)	151 (43.0)	4.24 (0.749)

Mean satisfaction: 4.06 (very good satisfaction with PC).

PC: pharmaceutical care.

Table 3. Test of Statistical Significance (One-Way ANOVA) of the Variation in the Mean Satisfaction Level of Patients by Socio-Demographic Characteristics at the Facility.

Socio-demographic Variable	Likert Response	N	M (SD)	P-Value
Age (years)	Good	66	3.26 (1.141)	.960
	Very good	134	3.30 (1.004)	
	Excellent	151	3.27 (1.039)	
	Total	351	3.28 (1.043)	
Gender	Good	66	1.65 (0.480)	.878
	Very good	134	1.69 (0.466)	
	Excellent	151	1.67 (0.472)	
	Total	351	1.67 (0.470)	
Marital status	Good	66	1.98 (0.540)	.647
	Very good	134	2.01 (0.569)	
	Excellent	151	1.95 (0.539)	
	Total	351	1.98 (0.550)	
Religion	Good	66	2.67 (0.475)	.529
	Very good	134	2.66 (0.522)	
	Excellent	151	2.60 (0.556)	
	Total	351	2.63 (0.528)	
Educational level	Good	66	2.58 (1.082)	.402
	Very good	134	2.73 (1.049)	
	Excellent	151	2.79 (1.075)	
	Total	351	2.73 (1.066)	
Duration since diagnosis of HIV	Good	66	2.94 (0.875)	.845
	Very good	134	2.87 (0.874)	
	Excellent	151	2.90 (0.885)	
	Total	351	2.17 (0.736)	
Frequency of refilling medications per annum	Good	66	2.17 (0.736)	.340
	Very good	134	2.22 (0.844)	
	Excellent	151	2.33 (0.914)	
	Total	351	2.26 (0.857)	

N, the total number of patients who responded to each Likert scale and p, level of statistical significance calculated using one-way ANOVA.

of Nigerian healthcare institutions.²⁵ As such, the professionalism and training of the pharmacists staffing the unit are excellent. In the same vein, because of the public health concerns associated with HIV/AIDS, the Nigerian government and non-Governmental Organizations devote special attention to HIV patients concerning their care, ARVs, and other services that will ensure patients' adherence to ARVs, retention in care and the reduction of national HIV burden.²⁶ Advertently, HIV patients receive standard and comprehensive care in most facilities nationwide. This is similar to what is obtainable in other parts of the country and Ethiopia, too.^{27–29} Perhaps, this might be responsible for the excellent mean score of "Overall perception of pharmacists' care or service."

The item "The respect and courtesy showed to you by the pharmacists" has a high mean score, this is consistent with studies at hospitals in Ethiopia and South Africa.^{28,30} In contrast, findings from Singapore and Ethiopia indicated that respect and politeness of health care professionals lead to increased patients' satisfaction.^{31–33} Possibly, this must have contributed to the high patients' satisfaction with the PC rendered in the facility.

"The duration of time it takes to get a prescription filled" and "The amount of time spent with the pharmacists" received low mean scores. This can be attributed to the limited number of pharmacists in the ART pharmacy. Because according to the clinic records, the unit has only three resident pharmacists including the head of the unit, four intern pharmacists, two pharmacy technicians, one storekeeper and a volunteer of the Institute of Human Virology, Nigeria. To effectively cater for the patients' needs and to avoid crowding, their visits were scheduled on different clinic days, however, despite this, an average of 200 patients are seen on a clinic day. This will probably be responsible for the pharmacists' hurriedness to reduce the waiting time of the patients in the queue, thereby spending little time with the patients. Conversely, the patients are already exhausted in the process of meeting with the doctors and other healthcare workers before finally meeting the pharmacists. The patients' fatigue might make them unwilling to spend much time with the pharmacists.

The hurriedness of the pharmacists to attend to the patients that are mostly congested in the waiting area might be responsible for the low mean score of "How pharmacists use information about your previous health conditions/drugs when assessing your drug therapy." The congestion of the patients in the pharmacy and doctors' waiting areas highlights the lack of adherence to the physical distancing of the COVID-19 prevention protocol. Inadvertently, this may lead to hospital acquisition of COVID-19 and an increase in the number of COVID-19 patients. Thus adding more burden to the patients and the healthcare system.

The COVID-19 pandemic has disrupted the logistics and supply chain of drugs including ARVs and drugs used in the management and/or prophylaxis of opportunistic infections in HIV patients. This caused the insufficiency of the ARVs resulting in their shortage and staggered refilling for patients. It has been observed from the pharmacy records that before the pandemic, patients with good viral load—interpreted as <1000

copies/mL—that are on second-line regimens (fixed-dose combination of either Abacavir/Lamivudine or Tenofovir/Lamivudine, with the single of either Lopinavir or Atazanavir) were usually given refills of three months. Following the COVID-19 pandemic, the refills were reduced to 1 month and in some instances 10 days. Facility-wise, there was a lack of sufficient buffer stock in the pharmacy store. The other factors responsible for the shortages were the global lockdowns, reduced manufacturing and poor funding of the healthcare system.³⁴

Since the COVID-19 pandemic necessitates infrequent hospital visits and physical distancing, the patients' are at risk of COVID-19 mortality.¹⁵ The patients with the viral load <1000 copies/mL ought to have been given refills for more than 3 months they were usually given before the pandemic. This will aid in minimizing their risk of contracting COVID-19.

Unfortunately, to our knowledge, there was no previous study on patients' satisfaction with the PC in the facility, among this population or any other population, before the COVID-19 pandemic that will warrant comparison with the findings of this study.

The findings in this study cannot be generalized because it was performed only in this facility. Similarly, the study team involved in the data collection was intern pharmacists at the facility, this must have hindered the patients from freely expressing themselves. Even though they were assured of the confidentiality of their responses and how they will not temper with their care. Additionally, the PC and the ARVs are delivered to the patients at no fee. Therefore, this lack of payment for the services would have reduced their expectation of better care.

In-depth qualitative and quantitative studies should be carried out to ascertain the true effect of the COVID-19 pandemic on access to ARVs and other drugs used in the management or prevention of opportunistic infections in HIV patients.

In addition, pharmacists should provide written instructions to the patients and should devote more time to utilizing information about the patients' previous health conditions/drugs when assessing their drugs; this will avoid actual and potential drug therapy problems. Besides, the facility should employ more pharmacists to cater to the volume of patients. Equally, there should be room for privacy and more space in the waiting area to enhance adherence to physical distancing.

Conclusion

The reliability of the questionnaire was found to be high and overall patients' satisfaction with the PC they receive from the pharmacists in the facility was satisfactory. Though, there was no significant statistical association between the socio-demographic information of the patients and their satisfaction with PC.

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