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Evaluation of Patient Experience with Differentiated Service Delivery Programme for People Living with HIV in a Southeastern Nigerian Teaching Hospital

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Abstract

The introduction of the ‘treat-all” guidelines by the World Health Organization that recommend starting antiretroviral therapy (ART) in all persons living with HIV regardless of CD4 count resulted in an increased number of clients at healthcare facilities which invariably creates a heavy workload for the healthcare providers prolongs waiting times for clients and overwhelms the limited hospital resources. A new approach to care, Differentiated Service Delivery, was developed to combat most of these challenges. This study evaluated patient experience with differentiated service delivery for people living with HIV in a southeastern Nigerian teaching hospital. This descriptive cross-sectional study was conducted using self-administered questionnaires among participants who were 18 years of age and above, HIV-positive, and currently receiving ART and enrolled in differentiated service delivery at the healthcare facility. The data obtained was analyzed using the Statistical Package for Social Science (SPSS) version 22. A great number of respondents reported that their providers never ignored complaints about their medical care and that it was never hard for them to get their ART refills when they were needed. The study concluded that participants had good experience with the healthcare facilities as well as the healthcare providers and the only socio-demographic characteristic that showed a significant relationship with patient experience was age.

Introduction

Human Immunodeficiency Virus (HIV) remains a significant global public health issue and a major cause for concern. At the end of 2025, an estimated 41.0 million people were living with HIV worldwide, comprising 1.3 million children aged 0–14 years and 39.7 million adults aged 15 years and older. In the same year, there were about 1.2 million new cases of the disease while around 570,000 people died from AIDS-related illnesses. Despite significant advancements in HIV prevention, diagnosis and treatment, the global burden of HIV persists. [1,2]

Sub-Saharan Africa continues to bear the greatest burden of HIV globally, accounting for a substantial majority of people living with HIV worldwide. Despite the tremendous advances in expanding access to HIV testing and antiretroviral therapy (ART), there are still large gaps in diagnosis, access to treatment and viral suppression. These gaps continue to pose challenges to healthcare systems and highlight the importance of an improved approach to HIV service delivery. [1,2] Nigeria has a high prevalence of HIV; the highest in West and Central Africa. Current UNAIDS statistics show that around 2 million people are living with HIV in Nigeria. [3] There is a need to make sure that HIV services are accessible and responsive to the specific needs of people living with HIV.

In 2015, the World Health Organization (WHO) introduced the ‘Treat All’ approach which recommends that all people living with HIV should initiate antiretroviral therapy, irrespective of CD4 cell count or clinical stage. [4,5] Before this, eligibility was determined by CD4 cell count, clinical stage and clinical circumstances.[6] This extension of ART eligibility has led to an increased number of people in need of long-term HIV treatment, monitoring and support. Therefore, conventional facility-based models of HIV

care places heavy demands on healthcare workers and health facilities, especially in a situation where large numbers of stable patients come regularly for routine medication refills and follow-up.

“Differentiated service delivery (DSD) is a person-centered approach to HIV care that simplifies and adapts services according to the needs and preferences of different groups of people living with HIV, while reducing unnecessary burdens on health systems”. [7,8] DSD can be implemented across the HIV service continuum, from HIV testing, linkage to care, ART initiation, treatment follow-up, adherence support and retention in care. This approach can be adapted to the location of care, the frequency of contact, the type of services provided, and the healthcare provider involved, leading to improved accessibility and continuity of care. [7,8]

The 95-95-95 targets were established by the Joint United Nations Programme on HIV/AIDS to speed up progress towards ending AIDS as a public health issue. The targets aim for 95% of people living with HIV to know their HIV status, 95% of those who know their status to be receiving ART, and 95% of those receiving treatment to achieve viral suppression. In 2025, approximately 88% of people living with HIV globally knew their HIV status, 78% were accessing ART and 74% were virally suppressed, showing that substantial gaps remain before these targets are achieved. [1]

Nigeria has also made considerable progress in the implementation of differentiated service delivery which became very important during the COVID-19 pandemic when disruptions to conventional healthcare services led to challenges with continued access to HIV treatment. Differentiated service delivery models helped to support continuity of ART services during this period. [9]

Patient experience is an important aspect of healthcare quality and provides useful information about how healthcare services are perceived by patients. Assessing patient experience can help spot gaps in service delivery and guide the redesign of healthcare services to better reflect patients’ needs and preferences. [10,11] When healthcare systems are responsive to patients’ needs and preferences, they develop greater confidence in the healthcare system, become more adherent to their treatment and are more willing to provide relevant information to their healthcare providers. [11]

In the light of the increasing implementation of differentiated service delivery models, it is imperative to understand how patients perceive these services, particularly within Nigerian healthcare settings. Therefore, this study aims to evaluate patient experience with differentiated service delivery among people living with HIV attending Abia State University Teaching Hospital, Abia State, Nigeria.

Methods

Study design: A descriptive cross-sectional study using self-administered questionnaires was conducted to evaluate patient experience with differentiated service delivery among people living with HIV in Abia State University Teaching Hospital.

Study site: This study was conducted at the Differentiated Service Delivery sites in Abia State. Currently, the State has three models of Differentiated Service Delivery namely, community pharmacy-based models [7], patient-led community ART groups [6] and health workers/ facility-based models [8]. Abia state is located between lat 4⁰49.30'N-6⁰02'N and between long 7⁰08'E-8⁰04'E in the southeastern part of Nigeria. It has an area of about 5833.77km2, which is approximately 9% of Nigeria's landmass. It is bounded in the north and northeast by Enugu and Ebonyi states respectively, in the south by Rivers state, in the east and southeast by Cross River and Akwa Ibom states respectively and in the west by Imo state [12].

Eligibility criteria: Participants were 18 years of age and above, HIV-positive, and currently receiving ART and enrolled in differentiated service delivery at the healthcare facility. Patients who were not eligible for accessing any of the differentiated service models such as unstable patients were excluded from the study.

Sample size: There were approximately 5000 HIV patients enrolled in differentiated service delivery at the study site. Using Raosoft Online Sample Size Calculator, a sample size of 357 was obtained, assuming a margin of error, confidence level and response distribution of 5%, 95% and 50% respectively. To make provision for possible low participation and withdrawal, an additional 10% sample was added. Thus, a total of 361 questionnaires were distributed to eligible respondents. At the end, 312 copies were completed and returned (response rate = 86.4%).

Study instrument: The study instrument for this study was a 12-item questionnaire that was adapted from a study conducted on "Patient Satisfaction with Healthcare Service Delivery in an ART Treatment Centre in Nigeria". Since the study was also carried out in Nigeria and on HIV positive patients who are currently receiving ART, therefore a questionnaire revalidation was not necessary. [17]

The questionnaire was divided into two sections. The first section elicited responses on the socio-demographic characteristics of patients such as gender, age, marital status, educational status, occupational status and years since diagnosis.

The second section contained different questions about patient experience with the service. It was made up of twelve questions, and a three-point Likert scale was used to measure the participants rating of each question. The Likert scale ranged from 'never' 'sometimes' and 'all the time'.

Data collection: Data collection took place from February 2022 to April 2022. The predominant model of differentiated service delivery being used at the study site was the health worker-managed model where the healthcare worker meets with recipients of care outside of the health facility. Consequently, the questionnaires were given to the healthcare worker in charge of distributing ART to clients that enrolled in differentiated service delivery at the hospital to distribute to patients each time he goes to distribute ART.

Data analysis: The data obtained from this study was analyzed using the Statistical Package for Social Science (SPSS) version 22. Descriptive statistics such as mean, frequencies and percentages were used to summarize the findings. The scores of experiences were summed up and the median was calculated. Values which were greater than the median were considered to imply good experience while those less than the median indicated poor experience. Inferential statistics such as correlation and chi-square were used to determine the association between patient experience and socio-demographic characteristics. All variables with a p-value less than 0.05 were considered to have a significant association with patient experience.

Ethical approval: This study received ethical approval from the Faculty Research Ethics Committee of the Faculty of Pharmaceutical sciences, University of Nigeria, Nsukka with approval number, FPSRE/UNN/22/0010. Informed consent was obtained from all study participants by explaining the objectives of this study to them before enrolment. The informed consent also detailed the voluntary nature of the participation to the participants and assured the participants of confidentiality.

Results

The socio-demographic characteristics of respondents were presented in Table 1. The total number of responses obtained during this study was 312. Majority (51.9%) of the study participants were female. A larger number (33%) of participants were aged 40 years and older while 8.3% were less than 20 years of age. Most of the participants were single (38.1%) while a considerable number (36.5%) were married. A good number of participants had attained secondary level of education. Almost half of the participants (43.6%) were self-employed and 36.9% had been diagnosed 6-10 years earlier.

Table 2 shows the percentage responses provided by the respondents for each question presented on the questionnaire. A three-point Likert scale (‘never’ ‘sometimes’ and ‘all the time’) was used in the second section of the questionnaire to measure the participants rating of each question. A large majority (77.6%) of respondents reported that their providers never ignored complaints about their medical care and that it was never hard for them to get their prescriptions filled when it was needed. Just over 50% of participants reported that interruptions from other patients or phone calls from their provider never happened during their appointments. A comparable proportion of participants (54.8%) indicated that they had no difficulty understanding the responses from their provider when they had inquiries concerning their HIV care. Majority of participants (39.1%) stated that they sometimes found their providers to be accepting and nonjudgmental about their life and healthcare choices. Over 50% of the participants said that their doctors consistently gave them clear explanations about the potential adverse effects of their HIV medications as well as ways to avoid getting sick all the time.

Quite many participants affirmed that their providers made sure that they understood what their laboratory test results such as CD4 count and viral load meant for their health.

The largest number of study participants reported that their providers always explained to them the kind of medical tests they should be getting and how often they should get them. Well over half of the

participants asserted that their providers always suggest ways to help them remember to take their medications and always talked to them about how to avoid passing HIV to other people and to protect themselves from getting infected again with HIV. Very few reported that their providers never drew their attention to this detail.

Depicted in Table 3 is the association between patient experience with the service and socio-demographic characteristics. Majority of the study participants (33.5%) who reported that they had a good experience with the differentiated services were aged between 21-30 years and 88% were female. The single study participants (38.5%) mostly indicated that they had a good experience. Almost half (43.5%) of participants that reported having good experience had attained a tertiary level of education, while 40.6% of the participants were self-employed. Most of the participants that reported having a good experience were diagnosed 6-10 years earlier.

Discussion

This study was conducted to evaluate patient experience with the differentiated service delivery program in Abia State University Teaching Hospital (ABSUTH), Abia State.

Summary of findings

Majority of the study participants were female while the rest were male. The highest number of responses were gotten from participants that were greater than 40 years of age, followed by those between the ages of 31-40, with those less than 20 years of age giving the least response. A larger number of participants were single. A little below this number were married while those that were divorced had the least percentage response. Almost half of the study participants had attained a secondary level of education while a considerable number had attained a tertiary level of education. Very few of them reported having no form of education at all. Majority of the participants reported being self-employed while almost a quarter were government workers. The remaining few were either private sector workers or had no occupation at all. The highest number of participants were diagnosed 6-10 years earlier while a little over a third of respondents were diagnosed 0-5 years earlier. The least response was gotten from respondents with 16-20 years since diagnosis.

A three-point Likert scale (‘never’ ‘sometimes’ and ‘all the time’) was used in the second section of the questionnaire to measure the participants rating of each question. A great number of respondents reported that their providers never ignored complaints about their medical care and that it was never hard for them to get their prescriptions filled when they were needed while very few reported otherwise.

A little over half of respondents revealed that their visits never got interrupted by their provider’s phone calls or other patients. A similar percentage of respondents also reported having no difficulty in understanding their provider’s answers to questions about their HIV care. Majority of participants asserted that they sometimes found their providers to be accepting and nonjudgmental of their life and

healthcare choices while just a little over one-third of participants reported that the providers were always accepting and nonjudgmental.

More than half of the participants reported that their providers always explained the side effects of their HIV medications in a way they could understand and always explained to them how to avoid getting sick all the time. Quite many participants affirmed that their providers made sure that they understood what their laboratory test results such as CD4 count and viral load meant for their health.

The largest number of study participants reported that their providers always explained to them the kind of medical tests they should be getting and how often they should get them. Well over half of the participants asserted that their providers always suggest ways to help them remember to take their medications and always talked to them about how to avoid passing HIV to other people and to protect themselves from getting infected again with HIV. Very few reported that their providers never drew their attention to this detail.

The relationship between socio-demographic characteristics of the patients and their experience was also determined. The study participants that reported that they had a good experience with the differentiated service delivery were mostly female. Majority of participants that reported having good experience were aged between 21-30 years, a substantial number were aged 40 years and older while poor experience was mostly reported by participants who were less than 20 years of age and those aged between 31-40 years.

A larger number of participants that reported good experience had attained a tertiary level of education, however, those participants that attained a secondary level of education mostly reported having a poor experience. More than half of participants with only primary level of education reported having a good experience with the service. With respect to marital status, the single participants gave a higher report of good experience when compared with their married counterparts. The participants that were divorced as well as those that were widowed also reported having good experience but at a lower percentage.

Almost half of participants that reported having a good experience were self-employed, one-quarter were government workers and a little above one-quarter were unemployed. The least percent report of good experience was from private sector employees. Majority of the participants that reported having good experience were diagnosed 6-10 years earlier; a little below this number reported having good experience and were diagnosed 0-5 years earlier. One-quarter of the participants that affirmed having a good experience had been diagnosed 11-15 years earlier while those diagnosed 16-20 years earlier gave the least report of good experience.

However, generally, a greater percentage of study participants reported having good experience with differentiated services offered at the study site.

Table 1 Socio-demographic characteristics of respondents

	Frequency	Percentage
Gender		
Male	150	48.1
Female	162	51.9
Total	312	100.0
Age (years)		
Less than 20	26	8.3
21-30	84	26.9
31-40	99	31.7
Greater than 40	103	33.0
Total	312	100.0
Marital status		
Married	114	36.5
Single	119	38.1
Divorced	33	10.6
Widow/Widower	46	14.7
Total	312	100.0
Educational Status		
None	14	4.5
Primary	42	13.5
Secondary	134	42.9
Tertiary	122	39.1
Total	312	100.0
Occupational Status		
None	60	19.2
Government worker	62	19.9
Self-employed	136	43.6
Private sector employee	54	17.3
Total	312	100.0

Years since diagnosis		
0-5	110	35.3
6-10	115	36.9
11-15	63	20.2
16-20	24	7.7
Total	312	100.0

Table 2. Patient experience with the service

	Never	Sometimes	All the time	Total
If I had a complaint about my medical care, my providers would ignore it.	242 (77.6)	64 (20.5)	6 (1.9)	312 [100]
It was hard for me to get my HIV prescriptions filled when I needed them.	228 (73.1)	76 (24.4)	8 (2.6)	312 [100]
When I saw my service providers about my HIV care, my visits got interrupted (by phone calls or other patients).	157 (50.3)	141 (45.2)	14 (4.5)	312 [100]
When I asked my providers about my HIV care, it was hard to understand their answers.	171 (54.8)	117 (37.5)	24 (7.7)	312 [100]
I found my providers to be accepting and non-judgmental of my life and healthcare choices.	79 (25.3)	122 (39.1)	111 (35.6)	312 [100]
My providers explained the side effects of my HIV medications in a way I could understand.	49 (15.7)	94 (30.1)	169 (54.2)	312 [100]
My providers explained to me how to avoid getting sick.	43 (13.8)	110 (35.3)	159(51.0)	312 [100]
My providers made sure that I understood what my lab test results (such as CD4 and viral load) meant for my health.	28 (9.0)	101 (32.4)	183 (58.7)	312 [100]
When I go for medical care, they were careful checking everything when treating and examining me.	23 (7.4)	89 (28.5)	200 (64.1)	312 [100]
My health providers explained to me what kinds of medical tests I should be getting and how often I should get them.	17 (5.4)	75 (24.0)	220 (70.5)	312 [100]
My health providers suggested ways to help me remember to take my HIV medications.	24 (7.7)	65 (20.8)	223 (71.5)	312 [100]

My health providers talked to me about how to avoid passing HIV to other people and how to protect myself from getting infected again with HIV.	21 (6.7)	68 (21.8)	223 (71.5)	312 [100]

Table 3 Association between patient experience with the service and socio-demographic characteristics

	Poor N (%)	Good N (%)	Total N (%)	p-Value
Gender				
Male	68 (47.9)	82 (48.2)	150 (48.1)	.951
Female	74 (52.1)	88 (48.2)	162 (51.9)	
Total	142 [100]	170 [100]	312 [100]	
Age (years)				
Less than 20	14 (9.9)	12 (7.1)	26 (8.3)	.030
21-30	27 (19.0)	57 (33.5)	84 (26.9)	
31-40	52 (36.6)	47 (27.6)	99 (31.7)	
Greater than 40	49 (34.5)	54 (31.8)	103 (33.0)	
Total	142 [100]	170 [100]	312 [100]	
Marital status				
Married	54 (38.0)	60 (35.3)	114 (36.5)	.696
Single	53 (37.3)	66 (38.8)	119 (38.1)	
Divorced	17 (12.0)	16 (9.4)	33 (10.6)	
Widow/Widower	18 (12.7)	28 (16.5)	46 (14.7)	
Total	142 [100]	170 [100]	312 [100]	
Educational status				
None	9 (6.3)	5 (2.9)	14 (4.5)	.123
Primary	17 (12.0)	25 (14.7)	42 (13.5)	
Secondary	68 (47.9)	66 (38.8)	134 (42.9)	
Tertiary	48 (33.8)	74 (43.5)	122 (39.1)	
Total	142 [100]	170 [100]	312 [100]	
Occupational status				
None	24 (16.9)	36 (21.2)	60 (19.2)	
Government worker	27 (19.0)	35 (20.6)	62 (19.9)	

Self-employed				
Private sector employee	67 (47.2)	69 (40.6)	136 (43.6)	.653
Total	24 (16.9)	30 (17.6)	54 (17.3)	
	142 [100]	170 [100]	312 [100]	
Years since diagnosis				
0-5	50 (35.2)	60 (35.3)	110 (35.3)	
6-10	54 (38.0)	61 (35.9)	115 (36.9)	
11-15	28 (19.7)	35 (20.6)	63 (20.2)	.966
16-20	10 (7.0)	14 (8.2)	24 (7.7)	
Total	142 [100]	170 [100]	312 [100]	

Comparison of Results

This study employed a self-administered questionnaire for data collection. This contrasts with other similar works by Belay et al [13], Prust et al [14], Mukumbang et al [15] and Akosile et al [16], all of which adopted a semi-structured interview guide for data collection.

Many respondents in a study conducted in Northwest Ethiopia by Belay et al were female, the same applied for a work by Prust et al, Mukumbang et al and Akosile et al. This finding is consistent with the results of this study as more female respondents were also recorded. This may be attributed to the higher prevalence of HIV infection in females than in males globally. [1, 2]

A larger number of study participants in Mukumbang's work [15] were aged between 36-45 years and were single. The results of Akosile's work [16] showed a higher number of respondents aged between 30-45 years and were married. This is comparable with the results of this study which showed a higher frequency of respondents aged 40 years and older and were single.

Furthermore, Belay et al got the highest responses from respondents who do not have any level of education and were mostly unskilled workers while Akosile et al [16] recorded the highest response from respondents with a secondary level of education and were mostly traders. This work is in line with Akosile's [16] findings as the highest were from respondents with a secondary level of education and were mostly self-employed. The mean years since diagnosis in Prust's [14] and Belay's works [13] were 5.8 years and 10.1 years respectively which corresponds with the findings of this study where the most frequent number of years since diagnosis was 6-10 years.

Majority of the participants of Prust's study [14] reported reduced waiting times and reduced time spent at appointments while most participants in Mukumbang's study reported that thy experienced "quick

service concerning their ART". This agrees with the findings of this study as more than half of participants asserted that it was never hard for them to get their ART refills when they were needed. Many respondents from Akosile's study confirmed that the differentiated service delivery program permitted orderliness in ART dispensing procedure leading to reduced waiting times. [14-16]

Regarding the attitude of healthcare providers towards clients, a considerable number of participants in Mukumbang's study affirmed that they had a good and interactive relationship with the healthcare workers and were much involved in their care as the providers created an environment where they were able to ask questions if need be. Most participants in the work of Belay et al mentioned the good attitudes and behaviours of healthcare workers towards them with only a few reporting some healthcare providers who were non-caring, disrespectful and provided inadequate counselling. These findings are consistent with the results of this study since quite a large number of respondents revealed that the attitudes of the providers were also good, although majority of respondents asserted that their providers were not always accepting and nonjudgmental of their life and healthcare choices. [13, 15]

Participants in Akosile's [16] study were mostly on the community pharmacy ART (CPART) delivery model and hence complained about not having the opportunity to discuss health concerns with physicians and to ask questions if need be. This is contrary to the findings of this study as more than half of respondents reported that their providers never ignored complaints about their medical care. [16]

None of the aforementioned research works determined the relationship between socio-demographic characteristics and patient experience. However, the results of this study showed that age was the only socio-demographic variable that showed a significant relationship with patient experience.

Limitations of the study

Firstly, the major limitation of this questionnaire-based study was that the answers provided by the respondents may not be a true reflection of what they have in mind, therefore the data they provide may not give their actual experience.

Secondly, the results of this study generalized; not distinguishing them into different models, hence, this research work lacked specificity.

Finally, the distribution and retrieval of questionnaires took a long time because the questionnaires were given to one healthcare worker to distribute it across all ART distribution points he visits.

Conclusion

Majority of the respondents reported having shorter waiting times during ART refills and when they visit the healthcare facility for medical tests and clinical appointments. Therefore, they had good experience with the healthcare facility.

They also confirmed having a good experience with the healthcare providers as they implied that the providers were friendly, elaborate, nonjudgmental, and gave unambiguous answers to questions about their medical care.

No other socio-demographic characteristic showed a significant relationship with patient experience except age. Therefore, it can be inferred that the patient's mental maturity, which is most likely a function of their age, is reflected in their understanding of the disease condition, as well as their access to and use of available services.

Recommendations

The adoption of different models of differentiated service delivery across all healthcare facilities offering HIV care should be encouraged as it ensures accessibility to ART and shortens the waiting time of clients. It also reduces the workload of healthcare workers.

More public campaigns should be carried out to eliminate stigma and discrimination of people living with HIV so that they can comfortably access care without fear of discrimination.

Future studies on patients with differentiated service delivery program should focus on the specific models of DSD being assessed.

Declarations

Ethical approval and consent to participate

This study received ethical approval from the Faculty Research Ethics Committee of the Faculty of Pharmaceutical sciences, University of Nigeria, Nsukka with approval number, FPSRE/UNN/22/0010. Informed consent was obtained from all study participants by explaining the objectives of this study to them before enrolment. The informed consent also detailed the voluntary nature of the participation to the participants and assured the participants of confidentiality. This study was conducted in accordance with the ethical principles of the Declaration of Helsinki of the World Medical Association.

Competing interests

The authors declare no competing interests.

Consent for publication

Not applicable.

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Author Contribution

AI, MOA and POU conceived and designed the study and developed the research protocol. AI, OLO, IMO, BO and GE collected the data and performed the data analysis and interpretation of the findings. OLO, IMO, BO and GE wrote the main manuscript text while AI and OLO prepared the tables. All authors contributed to the interpretation of the results, reviewed the manuscript, and approved the final version.

Data Availability

The data used in this study may be available from the corresponding author on reasonable request.

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