

# Factors Influencing the Status of Adherence to Second Clinic Visit Among Clients Newly Diagnosed with HIV in Northern Uganda: A Mixed-Methods Study

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**Background:** The “test-and-treat” policy may adversely affect adherence to clinic visits of clients newly diagnosed with HIV due to unpreparedness to commence treatment. However, few studies have examined the factors influencing the status of adherence to second clinic visit among clients newly diagnosed with HIV. We examined the factors influencing the status of adherence to second clinic visit among clients newly diagnosed with HIV in Apac District, northern Uganda.

**Methods:** This was a mixed-methods study conducted among 292 systematically sampled clients newly diagnosed with HIV for the survey and 15 purposively sampled clients for the in-depth interview from July to August 2020. Quantitative data were collected using a structured questionnaire, while qualitative data were collected using an interview guide. Quantitative data were analyzed descriptively while qualitative data were analyzed thematically.

**Results:** The mean age of the study participants were 39.5±11 years and their age ranged from 18 to 72 years. Close to three-quarters of study participants adhered to their second clinic visit 74% (214/292). Factors that influenced participants’ adherence to the second clinic visit were the adequate HIV pre/post-test counseling positive attitude of clients towards HIV-positive diagnosis, family support, and long waiting time.

**Conclusion:** More than two-thirds of clients newly diagnosed with HIV in Apac District, northern Uganda adhered to their second clinic visit. HIV/AIDS service providers should strengthen HIV pre/post-test counselling, social support systems for persons living with HIV/AIDS, and reduce clients’ waiting time to improve adherence to second clinic visit among clients newly diagnosed with HIV.

**Keywords:** adherence, clinic, treatment, factors, HIV/AIDS

## Background

With 38.4 million people living with HIV as of 2022, HIV/AIDS remains a global public health challenge, with sub-Saharan Africa being the most disproportionately affected region.<sup>1</sup> Of all people living with HIV, 85% knew their status, 75% were accessing treatment, and 68% were virally suppressed in 2022.<sup>1</sup> In Uganda, there are still 1.4 million people living with HIV, and of these, 81% knew their status, 96% were accessing treatment, and 92% were virally suppressed in 2022.<sup>2</sup>

The test-and-treat policy was adopted as a strategic measure to accelerate progress toward achieving the UNAIDS targets by 2030.<sup>3</sup> This policy requires that all those who test positive for HIV should be initiated on highly active antiretroviral therapy (ART) within seven days of diagnosis.<sup>3</sup> However, initiation of clients newly diagnosed with HIV on ART has always been done on the same day of diagnosis under this policy in actual practice. The immediate initiation of

ART may contribute to missed clinic visit and loss to follow-up due to insufficient time for psychosocial readiness and informed decision-making to initiate ART thus unsuppressed viral load and treatment failure.<sup>4–6</sup>

Previous studies examining adherence to clinic visit among adults with HIV infection reported a substantial proportion of missed clinic visit, with rates ranging from, 26% to 59%.<sup>7–9</sup> Other studies also documented the factors influencing adherence to general clinic visit such as stigma and discrimination, patients' self-efficacy, patient load, waiting time, distance to healthcare facility, and social support.<sup>7,10,11</sup> However, most of these studies have been quantitative, so the voices of participants may not have been heard to provide contextual drivers of adherence to clinic visit. Furthermore, these studies concentrated on all clinic visit, with little emphasis on adherence to second clinic visit. Adherence to second clinic visit is crucial because it is a proxy for how well a newly diagnosed HIV-positive client is prepared to commence treatment, and remain in care.<sup>12</sup>

Based on previous studies,<sup>7,9,12</sup> we hypothesized that adherence to second clinic visit is low in this test-and-treat era in rural parts of Uganda, such as Apac District where the healthcare systems is generally weaker.<sup>13</sup> At least 8690 people living with HIV are enrolled on ART in Apac District, and about 1094 of these (13%) were reported as missing their clinic visit.<sup>14</sup> However, there is limited information on adherence to second clinic visit in this context. Information on the factors influencing the status of adherence to second clinic visit among clients newly diagnosed with HIV may be valuable to researchers, policymakers, and service providers for the targeted design of interventions to address the problem. The purpose of this study was to examine the factors influencing the status of adherence to second clinic visit among clients newly diagnosed with HIV in Apac District, northern Uganda.

## Methods

### Study Design

We used an explanatory-sequential mixed-methods design<sup>15</sup> to collect data from July to August 2020. A mixed-method approach was used to increase the breadth and depth of understanding the phenomenon under study.<sup>15</sup> A cross-sectional survey was used to assess the status and factors influencing adherence to second clinic visit while a descriptive qualitative design was used to further corroborate and strengthen the quantitative data. The two sets of data were analyzed separately and data integration<sup>16</sup> was done during discussion of the results to highlight areas of convergence and divergence in findings.

### Study Site and Population

The study was conducted among HIV-positive clients ( $\geq 18$  years of age) diagnosed after the introduction of the HIV test-and-treat policy in 2017 in Apac General Hospital, Apac District, northern Uganda which is located 327 kilometres by road to the capital city, Kampala. The hospital has a catchment population of 500,000 people and it offers curative, preventive, outpatient, and inpatient services healthcare services including for HIV/AIDS clients.<sup>13</sup> We selected this study setting because of the high patient volume and the rural setting, where we hypothesized that compliance with clinic visit may be poor.

### Sample Size and Sampling Criteria

Quantitative sample size was calculated using the Kish-Leslie formula for simple proportions,<sup>17</sup> where the level of precision ( $e$ ) was 0.05, the z-score ( $z$ ) was 1.96, and the prevalence rate ( $p$ ) was 0.3.<sup>9</sup> The calculated sample size ( $n$ ) was 322 HIV-positive clients. Meanwhile, the sample size for qualitative data followed the principle of information power.<sup>18</sup> By consensus, a sample size of 15 HIV-positive clients was deemed sufficient to supplement the quantitative data.

We sampled different participants of the same population (parallel sampling)<sup>15,19</sup> for the qualitative and quantitative arms of the study. Within the quantitative arm of the study, we used systematic random sampling to select the participants. A sampling interval of three was calculated and every third prospective participant in the sampling frame was selected to participate in the study on each day of data collection until the calculated sample size was reached. Purposive sampling was used to select participants for the qualitative arm of the study. Participants with the ability to express themselves were targeted during purposive sampling.

## Data Collection Procedures

Survey data were collected using a pre-tested interviewer-administered questionnaire. The questionnaires were translated from English to the local dialect of the study setting and back-translated to English to ensure accuracy and consistency. We collected data on socio-demographic characteristics, patient-related factors (religious beliefs, cultural beliefs, family support, community support, attitude towards HIV-positive diagnosis, and fear of discrimination), and facility-related factors (pre/post-test counselling, waiting time, side effects of ART, distance to the healthcare facility, and adequacy of ART) influencing adherence to the second clinic visit.

Participants rated how these factors influenced their adherence to second clinic visit on a 5-point Likert scale as follows: “1 = not at all”, “2 = a little”, “3 = neutral”, “4 = strongly”, and “5 = very strongly”. We then regrouped 1, 2, and 3 as “disagree” and 4 and 5 as “agree”. Adherence to second clinic visit was abstracted from clinic register and categorized as a binary of 1=adherent and 2 = non-adherent. Adherence was defined as returning for the second clinic visit after initiation on ART within seven days of diagnosis. Data were collected by three second year students pursuing Bachelors of Midwifery, Public Health, and Community Psychology at Lira University who were trained on study protocol and tool. The interviews were conducted in the either English or local dialect and they lasted for 20–35 minutes.

Qualitative data were collected using in-depth interviews. The interview guide was designed to elicit information about factors influencing adherence to second clinic visit. We asked the participants to tell us more about themselves before who asked and probed questions about perceived factors that influenced their decisions to adhere to their second clinic visit. A quiet place was identified for the in-depth interviews and data collected by the same field data collectors who collected the quantitative data. The interviews were conducted in the local dialect and they lasted for 30 to 60 minutes. Responses from the participants were audio-recorded using a smartphone voice recorder, and additional field notes were taken.

## Data Management and Analysis

At the end of each field day, the researcher checked all filled questionnaires for validity and completeness. Inconsistent and incomplete questionnaires were recalled and clarification was sought from the field data collectors. Double data entry was done into SPSS version 14 and data were cleaned before commencing analysis. Qualitative data were transcribed verbatim into Microsoft Word, translated, and verified against the audio recordings by one of the authors to clarify any unclear information.

After assessing the assumption of normality, continuous variables were summarized as mean and standard deviation. Categorical variables were analyzed as frequencies and percentages. Qualitative data were manually analyzed thematically following Braun and Clarke’s (2006) thematic analysis.<sup>20</sup> Semantic data coding was independently done by two of the authors and themes generated inductively. The final themes were based on the frequency of codes and the sufficiency of data extracts to back up the codes. Discrepancies in codes and themes were resolved through group discussions involving the coders.

## Ethical Considerations

The study was conducted under the 2013 Declaration of Helsinki. The research protocol was reviewed and approved by the Gulu University Research and Ethics Committee (GUREC/01/02) and the Uganda National Council for Science and Technology (RESCLEAAR/01). Administrative clearances were obtained from relevant officers. Written informed consent was obtained from all participants to participate in the study including consent to publish anonymized responses. Privacy and confidentiality were maintained by conducting interviews in a private setting, using pseudonyms, and password-protection entered data. The study participants were allowed to withdraw from the study at any time without any consequences.

## Results

### Quantitative Findings

Out of the 322 clients newly diagnosed with HIV contacted to participate in the study, 292 accepted to participate, representing a response rate of 91%. The 9% who declined to participate in the study cited lack of time to participate in the interview and fear of divulging personal information.

### Socio-Demographic Characteristics of Newly Diagnosed HIV Clients in Apac District (N=292)

The mean age of participants was 38.5 years with a standard deviation of  $\pm 13.1$  years. The majority of the participants were females (59.6%), married (51.7%), subsistence farmers (79.5%), and had attained primary education (70.2%), as shown in Table 1.

### Adherence to Second Clinic Visit Among Newly Diagnosed HIV Clients in Apac District (N=292)

Nearly three-quarters 74% (214/292) of the participants interviewed attended their second clinic visit after starting ART within seven days of diagnosis. The majority of the study participants who were adherent to their second clinic visit were: subsistence farmers (77.3% [167/216]), those who attained a primary level of education (70.4% [152/216]), female participants (59.3% [128/216]), and those who were married (50.9% [110/216]).

### Patient-Related Factors Influencing Adherence to Second Clinic Visit Among of Newly Diagnosed HIV Clients in Apac District (N=292)

Most of the participants agreed that their decision to adhere to their second clinic visit was influenced by their attitude towards HIV-positive diagnosis (66.8%) and family support (61.5%) (Table 2)

**Table 1** Socio-Demographic Characteristics of Newly Diagnosed HIV Clients in Apac District (N = 292), July–August 2020

Characteristics	Frequency (n)	Percent (%)
<b>Age</b>		
18–24	51	17.5
25–35	76	26
>35	165	56.5
<b>Gender</b>		
Male	118	40.4
Female	174	59.6
<b>Marital status</b>		
Single	48	16.5
Married	151	51.7
Widowed	38	13
Divorced	55	18.8
<b>Education</b>		
No education	39	13.4
Primary	205	70.2
Secondary	44	15.1
Tertiary	4	1.3
<b>Occupation</b>		
Subsistence farmers	232	79.5
Civil servant	16	5.5
Business	24	8.2
Others	20	6.8

**Table 2** Patient-Related Factors Influencing Second Visit Appointment Among Newly Diagnosed HIV Clients in Apac District (N = 292), July–August 2020

Variable	Frequency (f)	Percent (%)
<b>Religious beliefs</b>		
Agree	15	5.1
Disagree	277	94.9
<b>Cultural beliefs</b>		
Agree	18	6.2
Disagree	274	93.8
<b>Family support</b>		
Agree	190	65.1
Disagree	102	34.9
<b>Community support</b>		
Agree	67	22.9
Disagree	225	77.1
<b>Attitude towards diagnosis</b>		
Agree	195	66.8
Disagree	97	33.2
<b>Fear of discrimination</b>		
Agree	49	16.8
Disagree	243	83.2

### Facility-Related Factors Influencing Adherence to Second Clinic Visit Among Newly Diagnosed HIV Clients in Apac District (N=292)

More than two-thirds of the study participants agreed that adequate HIV pre- (72.9%) and post- (73.3%) HIV counselling influenced their decision to adhere to their second clinic visit (Table 3).

## Qualitative Findings

We had in-depth interviews with 15 participants for the qualitative arm of the study to further explore the factors influencing adherence to second clinic visit among study participants. The mean age of the study participants was 41.5 ±10.4 years and the majority of them were subsistence farmers (86.7%), females (53.3%), and married (47%).

### Adherence to Second Clinic Visit Among Newly Diagnosed HIV Clients in Apac District (N=15)

Most of the participants reported that they returned for their second clinic visit after starting ART within seven days of diagnosis. They highlighted how their lives instantly changed after being diagnosed with the virus. These participants expressed their shock and fear of ART although they reported that it was imperative to start medication and keep their appointments. This is exemplified by quotes from some of these participants:

... I didn't know what to expect, I was worried that the doctors will not give me the care I needed. I was treated with a lot of respect and I received my drug and headed home with a lot of hope. I told myself I will come back when they need me here. 37-year-old male

**Table 3** Facility-Related Factors Influencing Adherence to Second Visit Among Newly Diagnosed HIV Clients in Apac District (N = 292), July–August 2020

Variable	Frequency (f)	Percent (%)
<b>Waiting time</b>		
Agree	113	38.7
Disagree	179	61.3
<b>Distance to facility</b>		
Agree	141	48.3
Disagree	151	51.7
<b>Adequacy of pre-test counselling</b>		
Agree	213	72.9
Disagree	79	27.1
<b>Adequacy of post-test counselling</b>		
Agree	214	73.3
Disagree	78	26.7
<b>Adequacy of ART medicine</b>		
Agree	73	25
Disagree	219	75
<b>Side effects of ART</b>		
Agree	59	20.2
Disagree	233	79.8

I was originally anxious, but my husband encouraged me to come to health facility. The nurse who attended to me was good to me, she encouraged [counselled] and told me that life has to continue. I decided that I will keep all my appointment and take my drugs faithfully. 46-year-old female

### Factors Influencing Adherence to Second Clinic Visit Among Study Participants

After group discussion, we identified 15 codes under “factors influencing adherence to second-clinic visit.” Overall, three themes—social support, waiting time, and quality counselling were identified.

#### Theme 1: Family Support

The majority of the study participants reported that they received different forms of support from their close friends and relatives in the form of reminders, moral support, and counselling, which enabled them to adhere to their clinic visit after their HIV-positive diagnosis. These results were epitomized by some of the word extracts from our participants below:

My wife encourages me and always advises me to take medication. She even reminded me of my second appointment. 29-year-old married man

My family has always supported me from day one when I was diagnosed positive. I rely a lot on them when things get difficult for me. 32-year-old married man

I gave my father my results and he counselled me and advised me that it is now the right time for me to get myself on medication and he also mentioned some of the people in our village also surviving with the virus. 20-year-old single girl

## Theme 2: Waiting Time

The majority of our study participants also expressed their dissatisfaction with the long waiting time at the clinic. The long waiting time was associated with large number of clients, the few healthcare providers working at the clinic, and the unprofessionalism of the staff. For example, a 24-year-old married man who missed his second clinic visit expressed his dissatisfaction regarding the long waiting time during clinic visit:

I always feel so bad when I come early in the morning to the hospital to get medication and again I get it late. It really makes me feel so bad because, at times instead of the medical workers serving us, some of them can just be talking on the phone. 24-year-old married man

Another middle-aged married man who missed his second clinic visit expressed his concerns about the long waiting time at the facility;

For sure this is not good when you come here early in the morning and then we go back in the evening that is the only factor affecting me but otherwise.... [Emotions]. Middle-aged married man

## Theme 3: Quality Counselling

The quality of counselling offered before and after the HIV test was another big factor in determining whether most of the participants would adhere to their second visit. The participants felt that adequate counselling helped them overcome their fear and quickly accept their HIV-positive status. This is exemplified by quotes from some of these participants:

When I came, they sweet-talked [counselled] me. I gained a lot of confidence because the counselling was very good for me. They told me I can stay for long even when I have the virus. That encouraged me to follow my appointments. 34-year-old peasant

I never expected to be living with the virus at my age. I lost hope but the doctors helped me a lot. They talked (counselled) to me about how the disease is not the end of life but an opportunity to see life differently. I am now okay with it. I just want to keep my children. 52-year-old single mother

## Discussion

We aimed to examine the factors influencing the status of adherence to second clinic visit among clients newly diagnosed with HIV in Apac District, northern Uganda. We found that the majority of our study participants adhered to their second clinic visit. The factors that influenced adherence to second clinic visit were the adequacy of HIV pre/post-test counselling, positive attitude towards HIV-positive diagnosis, family support, and long waiting time.

We found that nearly 3 in 4 clients newly diagnosed with HIV adhered to their second clinic visit. Likewise, our qualitative results revealed that the majority of participants adhered to their second clinic visits. This finding is similar to a study conducted in the United States of America where 74% of the clients maintained their HIV medical visit.<sup>7</sup> However, our results are dissimilar to the results of studies conducted in the Tororo and Moroto districts,<sup>9,21</sup> where adherence to clinic visit stood at 33% and 42%, respectively. This variability could be because our study only focused on newly diagnosed HIV-positive clients while the other studies looked at all HIV clients initiated in care. The suboptimal adherence to HIV clinic visit in this study against the 95% target calls for more effort to strengthen the implementation of the HIV test-and-treat policy.

Results from both quantitative and qualitative data showed that family support was a key factor that influenced participants' decisions to adhere to their second clinic visit. This finding is plausible because disclosure of HIV-positive status tends to start with close family members, who then play key roles in encouraging these people to commence treatment and keep their appointments.<sup>22</sup> These results are consistent with those reported by other studies conducted among HIV clients in parts of the United States of America and Uganda.<sup>23–25</sup> This result underscores the importance of social support in HIV care and management and the need to strengthen social support for persons living with HIV/AIDS.



Quality of counseling was yet another important factor influencing adherence to second clinic visit that came up during our survey and in-depth interview. Although this finding is contrary to that reported by a study in Kenya,<sup>26</sup> which did not find any benefits of counselling to adherence to clinic visit among HIV clients, our finding is consistent with a study among HIV clients in Uganda<sup>27</sup> which found that quality counselling improves HIV linkages and management in care. The disparity between findings could be attributed to the use of lay counsellors in the Kenyan study, who may be less skilled in counselling. Our result highlights the need to strengthen the capacity of HIV care providers and build infrastructure to promote the uptake of HIV pre-and post-test counseling.

Although the majority of participants in our survey disagreed that waiting time was one of the factors that influenced their decision to adhere to their second visit clinic visit, this factor was identified as a major factor during our in-depth interview. Our qualitative finding is consistent with a study conducted in Alabama, Birmingham<sup>28</sup> and Zambia<sup>29</sup> which found long waiting time as one of the factors that influence adherence to HIV clinic visit and subsequently ART adherence. These mixed findings are a basis to further examine the role of waiting time in adherence to clinic visit.

The limitations of our study were the small sample size and the interviewer-administered Likert scale-based approach to determine the factors influencing adherence to second-clinic visit from the quantitative arm of our study. This could have underpowered our study and introduced social desirability bias. These limitations were mitigated by triangulating the factors influencing adherence to second clinic visit through in-depth interviews with purposively sampled participants who did not participate in the survey. The triangulation strengthened our results and contributed to a comprehensive understanding of the research phenomenon.

## Conclusion

More than three-quarters of clients newly diagnosed with HIV in Apac District, northern Uganda adhered to their second clinic visit. HIV pre/post-test counselling, positive attitude of clients towards HIV-positive diagnosis, family support, and long waiting time. The Ministry of Health, through the HIV/AIDS service providers, should strengthen HIV pre/post-test counselling, and social support systems for persons living with HIV/AIDS, and reduce clients' facility waiting times to improve adherence to second clinic visit among clients newly diagnosed with HIV.

## Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

## Acknowledgments

We acknowledge all those who accepted to participate in this study and the staff at Apac General Hospital. We also acknowledge the technical support offered by Prof. Celestino Obua, Assoc. Prof. Edward Kumakech, Dr. Edith Wakida, Dr. Moses Ocan, and Dr. Andrew Kirya during data analysis and drafting of the manuscript.

## Funding

Research reported in this publication was supported by the Fogarty International Center (US Department of State's Office of the US Global AIDS Coordinator and Health Diplomacy [S/GAC] and the President's Emergency Plan for AIDS Relief [PEPFAR]) of the National Institutes of Health under Award Number R25TW011210. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

## Disclosure

The authors declare that they have no competing interests.

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