Prevalence and factors associated with late presentation for HIV care among adult men at a large HIV clinic in Eastern Uganda: A cross-sectional study

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ABSTRACT

Introduction: In Uganda, men diagnosed with HIV still present late for care. Understanding the drivers of late presentation among men is a critical step towards achieving the full potential of HIV treatment scale-up. This study aimed to determine the prevalence and factors associated with late presentation for HIV care among adult men in Jinja District, Eastern Uganda. **Methods:** We conducted a cross-sectional study in Jinja District from October to November 2020. We defined late presentation for HIV/AIDS care as persons presenting for care with a CD4 cell count below 350 cells/µl or presenting with an AIDS defining event, regardless of the CD4 cell count. We used semi-structured questionnaires to interview 394 HIV positive adult men receiving care at Family Hope Centre, and reviewed patient files to collect data on baseline CD4 cell count. We used modified Poisson regression analysis to determine factors associated with late presentation for HIV care. **Results:** The proportion of adult men who presented late for HIV care was 313/394 (79.4%), 95% CI: [0.754,0.834]. Men were less likely to present late for care if aged 25-34 years; [Adj. PR 0.13; 95%CI: 0.03-0.60], 35-49 years; [Adj. PR 0.47; 95%CI: 0.24-0.91] or had been supported by family; [Adj. PR 0.36; 95%CI: 0.18-0.73] compared to their counterparts. **Conclusion:** This study highlights a notably high rate of late HIV care presentation among men in the facility's catchment area. To address this issue, a comprehensive approach is necessary. Key strategies should include developing services specifically designed for young adults and those without familial support, as these groups are more likely to experience delays. Incorporating family counseling into treatment programs can provide crucial support for newly diagnosed individuals. Encouraging open conversations about HIV status and reshaping perceptions of masculinity to promote health-seeking behaviors will also help reduce stigma. Future research should focus on cultural and behavioral factors influencing delayed care, particularly among younger men and those without family support, while evaluating the effectiveness of specialized services in improving outcomes.

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Introduction

Late presentation for care among people living with HIV/AIDS remains a significant problem in Sub-Saharan Africa (SSA) with a prevalence of 35–89% [1],[2] and plays a major role in AIDS related in-hospital deaths of affected individuals [3]. In South Africa and Kenya, 78% and 66% of patients were reported to present late with a CD4 count of ≤500 cells/mm³ [4] and ≤350 cells/mm³ [5] respectively. Ethiopian studies have reported 67% and 60% late presentation with CD4 counts <200 cells/mm³ [6],[7].

Factors associated with late presentation for HIV care include older age [8], living with families, frequent alcohol use [1],[9], fear of stigma, having symptoms at the time of HIV diagnosis, presence of chronic illnesses [1] and socio-economic status. In addition, men are reported to more likely present late for care compared to women [9],[10],[11]which could partly be attributed to men's poor health seeking behaviour. Studies in SSA have reported that compared with women, men are less likely to get tested for HIV and receive treatment, and more likely to die once they begin treatment [12],[13]. It is also reported that men do not seek testing and counselling services on a routine basis, thus leading to late diagnosis of HIV when they are already in late stage disease progression [14].

As one of the ways to improve early initiation to care, the World Health Organization (WHO) recommended immediate initiation of Antiretroviral Therapy (ART) for everyone living with HIV [15] and most national guidelines including those in Uganda adopted this recommendation [16]. In line with this, the country continued to implement various policies and national guidelines that include: the Uganda National AIDS Policy and the HIV Counselling and Testing (HCT) policy. In addition, testing all men aged 25 years and above at high yield testing points coupled with same day ART initiation has been put in place in several districts [17]. Despite the several strategies, approximately more than half of adult men newly initiated on ART in Jinja District were reported to present late for care in 2019. This study therefore set out to determine the prevalence and factors associated with men's late presentation for HIV care in Jinja District.

Methods

Study setting and design

This was a cross-sectional study that employed quantitative methods of data collection. The study was conducted in Jinja District, Eastern Uganda between October and November 2020 at Family Hope Centre, a private healthcare facility in the district supported by the Children's Aids Fund Uganda (CAFU). It's a medium-sized healthcare facility that serves a diverse population from both urban and rural areas within its catchment area. The catchment area extends across several communities in Jinja District, encompassing both local residents and individuals from surrounding areas who seek care at the facility. Around 11,597 persons living with HIV receive care from the center, along with other facilities like TASO Jinja and the AIDS Information Centre [18]. The centre provides various services to its clients including; Antiretroviral therapy (ART), Tuberculosis/HIV, Prevention of Mother-To-Child Transmission (PMTCT), Early Infant Diagnosis (EID) as well as community outreach and complementary services for sexual and reproductive health (SRN) and Maternal Child Health (MCH). The Centre was purposively selected because at the time of the study, its new clients were tested to ascertain baseline CD4 cell count unlike the government health facilities.

Study population

We conducted interviews among adult men who were enrolled on ART at Family Hope Centre between January 2018 and June 2020. Clients were included in the study if they were aged 18 years and above at the time of enrolment to HIV care and active in care at the time of the study. Being "Active in care" refered to individuals who were engaged in treatment/receiving ART and follow-up at the facility at the time of the study.

Clients were excluded if they were too ill and weak to respond to questions at the time of the study. Clients were considered to be too ill or weak if they or their caretakers informed the researchers via a phone call that the client was not physically healthy to come to facility to participate in the study.

Sampling criteria and sample size estimation

Participants were recruited using simple random sampling technique. An electronic list from Family Hope Centre of all male clients enrolled on ART was

used as the sampling frame. A final list was generated with client ART numbers and contact information. Selected study participants were then contacted via mobile phones and if they consented to participate in the study, were invited to report to the health facility for the interviews. Those with no contact information were traced by the help of linkage facilitators and peer supporters.

A sample size of 410 participants was estimated using the Kish Leslie formula (1965) as follows; $n=Z^2pq/d^2$ assuming 40% of enrolled adult male clients had presented late for HIV care (p) [19], with an acceptable error (d) of 5% at 95% CI and a 10% non-response rate.

Data collection procedures

Three Research Assistants fluent in English and Lusoga, with at least a Bachelor's degree in any health-related discipline were trained for two days by the Principal Investigator (PI). Pretesting of data collection tools was done for one day at two health centre level IV facilities in the district and adjustments were done to the data collection tool. The pre-test data was not included in the final results. Face to face interviews using structured questionnaires were conducted among study participants receiving care at Family Hope Centre, and data abstraction forms were used to collect data on baseline CD4 cell count from patient individual files.

Study variables

The dependent variable was presentation for HIV care which was measured as a binary outcome; late presentation for HIV care (having enrolled on ART with a CD4 cell count of <350 cells) and early presentation for HIV care (having enrolled on ART with a CD4 cell count of 350 cells/µl and above). This classification was based on a definition established in a previous study [20].

For the independent variables, the study adopted Andersen's Behavioural model of health services utilization which focuses on three core factors to explain healthcare utilization: predisposing, enabling and need factors.

The independent variables included: Pre-disposing factors such as age, residence and highest educational level attained at presentation for HIV care. Enabling factors such as marital status, employment status, alcohol use and frequency of alcohol use at presentation for HIV care. Need factors such as presence of signs and symptoms (perceived health status) and perceived ART side effects at presentation for HIV care.

Participants were asked about the site of HIV testing, whether they had been counselled before and after HIV testing, given HIV results the same day they were tested, same day ART initiation and if they had faced any challenges accessing HIV services. Participants were also asked if they had perceived HIV as a stigmatizing disease, experienced any form of stigma and if they had any support of others at presentation for HIV care.

Participants' beliefs in masculinity norms were also assessed. Measures that were used to capture masculine norms were developed from a study that did a scoping review of qualitative studies across 10 countries in sub-Saharan Africa on the role of masculine norms in men's HIV care engagement [21]. From this study, key themes included: the intersection of HIV stigma and masculine norms, masculine norms related to strength and men's role as a provider as a facilitator to HIV care, as well as men's self-reliance and agency as a barrier to HIV care.

For this study, we focused on masculine norms related to strength and men's self-reliance and agency. Five statements/items were used to represent these norms. These included: "men should not seek treatment early", "men should not go to the doctor unless their situation is serious", "seeking treatment is a sign of weakness", "men should not ask help from others" and "men should always be independent." Participants reported their level of identification with each statement/item on a 5-point Likert scale. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). Items for each participant were summed together, with higher scores indicating high belief in masculinity norms [22]. This scale showed good internal consistency (Cronbach's alpha = 0.778).

Data management and analysis

Data were cross-checked for missing information and irregularities daily. Data were entered into the SPSS statistics software version 23.0 and then exported to STATA version 14 for analysis. Descriptive statistics were used to present participant characteristics. We summarized the categorical variables as proportions and continuous variables such as age was summarized as mean with its

standard deviation and then later categorized. At bivariate analysis modified Poisson regression with robust standard errors was carried out to estimate prevalence ratios (PR), and their 95% confidence intervals (CI) to examine the associations between late presentation for HIV care and independent variables.

Independent variables with a p<0.2 at bivariate analysis were included in the multivariable model. We tested for multicollinearity before considering factors for the multivariable analysis and used the stepwise method in model building while monitoring the Akaike Information Criterion (AIC) of the model, until a lowest AIC of 1.067 was obtained. PRs and their 95% confidence intervals were used to assess the strength of association. A p-value of p<0.05 was used to determine statistical significance.

Ethical considerations

We obtained ethical approval from Makerere University School of Public Health Research and Ethics Committee (FWA00011353). We also obtained administrative authorization from the Chief Administrative Officer, District Health Officer of Jinja district, and the management of Family Hope Centre. All study participants either gave written informed consent or used a thumbprint before interviews.

Results

Characteristics of study participants

More than half of the participants 225/394 (57.1%) presented for HIV care when they were aged 35-49 years; the median age (IQR) was 40 years (18-72). Majority 332/394 (84.3%) were married and most of them 245/394 (62.2%) were residing in urban areas at that time. Less than half of the participants 172/394 (43.7%) had attained a secondary level of education and 186/394 (47.2%) were Anglican. More than half 306/394 (77.7%) were employed at presentation for HIV care (Table 1).

Proportion of adult men who presented late for HIV care

Overall, the proportion of adult men who presented late for HIV care at Family Hope Centre was 313/394 (79.4%), [95% CI: 0.754,0.834].

Factors associated with late presentation for HIV care among adult men

Men were less likely to present late for HIV care if they were; aged 25-34 years [Adj. PR 0.13; 95%CI: 0.03-0.60], 35-49 years [Adj. PR 0.47; 95%CI: 0.24-0.91] compared to those aged 18-25 years and having been supported by family [Adj. PR 0.36; 95%CI: 0.18-0.73] compared to those who received support from the community outside the family (Table 2 (a) and 2 (b)).

There was evidence of confounding in several variables, including age (particularly in the 25-34 years and ≥50 years groups), religion, and alcohol intake, as indicated by the greater than 10% change in the prevalence ratios between the unadjusted and adjusted values.

Discussion

This study aimed to determine the prevalence and factors associated with men's late presentation for HIV care in Jinja District. Our findings showed a high overall prevalence of late presentation. Factors found to be associated with late presentation included age and source of support at the time of HIV diagnosis.

The prevalence of late presentation in this study was higher than the 40% used in the sample size calculation. This disparity may be attributed to differences in how the outcome variable was measured. In the previous research, the categorization of WHO clinical stages was dichotomized into non-severe (stages 1 and 2) and severe (stages 3 and 4), with clinic presentation classified as early or late based on these stages [19]. In contrast, our study used CD4 cell count for categorization which may have captured a broader group of individuals, leading to a higher reported prevalence. Additionally, variations in the population, healthcare access, and diagnostic practices between the two studies could further account for this difference in findings.

However, our finding is similar to what was reported by other studies conducted in the African region [23],[24],[25] which found late presentation for HIV care to be exceptionally high among males compared to their female counterparts. Another study conducted in rural Kenya [14] reported that men had 1.4 times higher odds of presenting to the

clinic late in the course of HIV infection compared to women. These findings support the notion that men have poor health seeking behaviours. This could also be due to competing working hours and/or seeking care might be seen as a threat to masculine norms. Masculine norms that have been found to serve as barriers to care engagement include strength and self-reliance, emotional inexpressiveness and sexual success with women [21].

One of the most noticeable barriers to early presentation for HIV care in a study among adult men in Eastern Uganda [26] was the fear of losing masculine respect ability. Men expressed fear of being marked HIV positive and shamed as a result of being seen presenting at an HIV treatment center. A study in Dar es Salaam, Tanzania [27]also reported a similar finding, where it was found that men avoided going to the treatment clinics because doing so would amount to making one's HIV status known. Since society expects men to be wiser and exercise self-control in sexual decision making, being seen at an HIV clinic is interpreted as a failure in the man's sense of judgment, which undermines the respect and approval by others [28].

Participant's age was associated with late presentation for HIV care with adult men aged (25-34) and (35-49) years being less likely to present late compared to those aged (18-24) years. This could be due to the several strategies employed by the Ugandan government to test all men aged 25 years and above at high yield testing points coupled with same day ART initiation under the test and treat policy in order to increase the number of males enrolled on ART early in the course of infection [20]. In addition, a study in Malawi and Uganda [29]found that young male adolescents resisted getting tested for HIV as they felt it signaled lack of self-confidence and an acknowledgement of their vulnerability, traits that conflicted with their male youth identity. This could also be one of the reasons they present late for HIV care.

Participants' source of support was significantly associated with late presentation for HIV care. Men who received support from their families were less likely to present late for HIV care compared to those who received support from friends or the community outside the family. This finding is supported by a study conducted in Eastern Uganda [30] which found that respondents who did not receive support from their families were less likely to access HIV care services than those who received support from their families. A possible explanation could be that families provide transportation to the health facilities, emotional support among others. Healthcare workers should conduct private counselling sessions with family members of newly diagnosed HIV positive clients to elicit emotional support.

While this study determined key factors associated with late presentation for HIV care among adult men, it had some limitations. It being a cross-sectional study, we could not determine the cause-effect relationship; non-response by some selected participants may have induced a selection bias; and questions were based on past experiences which might have resulted in recall bias. However, the latter limitation was minimized by including participants who had enrolled into care between January 2018 and June 2020 and reviewing patients' individual files. This was a facility-based study, therefore those that did not register at all and those that had dropped out were not included in the study so the findings cannot be generalized to all adult men living with HIV. The study only included clients receiving care at a private facility and therefore, the findings cannot be generalizable to those accessing care from public health facilities where different factors could influence late presentation for HIV care.

We also recognize that excluding participants who were too ill to participate may have introduced selection bias, particularly as this could lead to the exclusion of individuals with more advanced stages of the disease. However, this was minimized by employing simple random sampling technique which enabled reaching out to a wide range of participants and assessing their eligibility based on the defined inclusion criteria. Lastly, it's important to note that the confidence intervals (CIs) of the associated factors are relatively wide which suggests a degree of uncertainty in these estimates and indicates that the precision of the findings may be limited. Therefore, caution should be exercised when drawing conclusions from these variables, and future studies with larger sample sizes are recommended to enhance the precision and robustness of these findings.

Despite these limitations, the study had a number of strengths: it contributes to scientific evidence on late presentation for HIV care among adult men; the large sample size (410) and high response rate of

96.1%; the variety of data collection tools used gave fairly robust data; use of primary data; use of patients' individual files to confirm the date of enrolment into care and CD4 cell count.

Conclusion

Addressing the high rate of late HIV care presentation among adult men at Family Hope Centre, Jinja requires a multifaceted approach. HIV program managers and service providers must prioritize the development of men-friendly services that target young adults (18-24) and those with non-relative support, as these groups are more likely to delay seeking care. HIV treatment service providers need to leverage family support in HIV care programs by implementing family counseling initiatives that can help strengthen the role of family members in supporting newly diagnosed clients throughout their treatment journey. Additionally, fostering supportive social environments where men can openly discuss their HIV status and re-negotiate masculinities aligned with health-seeking behaviors will be crucial in reducing stigma and encouraging early care engagement. Future research should also focus on understanding the cultural and behavioral factors influencing late presentation, particularly in young men and those supported by non-relatives. Furthermore, evaluating the effectiveness of men-friendly services will be key to identifying successful strategies that can be implemented more broadly to improve HIV care outcomes for men.

What is already known about the topic

- Late presentation for care among people living with HIV (PLHIV) in both developed and developing countries remains a major challenge
- Late presentation for HIV/AIDS care is defined as persons presenting for care with a CD4 cell count below 350 cells/µl or presenting with an AIDS defining event, regardless of the CD4 cell count

What this study adds

- Late Presentation for HIV care is high among men across all age groups which adds to the evidence that men have poor health seeking behaviours
- Men aged (25-49) years and those receiving family support after HIV diagnosis are less likely to present late for HIV care compared to their counterparts

Competing Interest

The authors of this work declare no competing interest

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Authors´ contributions

SN, JN[1], SNK & ARK wrote the study protocol. SN carried out the investigation and supervised the data collection process. SN & JN[2] conducted the data analysis and wrote the initial manuscript. JN[1], SNK & ARK reviewed drafts of the manuscript. The manuscript was revised and approved by all authors.

Tables

Table 1: Baseline characteristics of study participants at presentation for HIV care (N=394)

Table 2: Socio-demographic and health system factors associated with late presentation for HIV care among adult men at Family Hope Centre, Jinja district

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Table 1. Baseline characteristics of study participants at presentation for HIV care (N=394)	
Characteristic	**n (%)**
Age (Median=40, IQR=18,72)	
18–24 years	21 (5.3)
25–34 years	88 (22.4)
35–49 years	225 (57.1)
≥ 50 years	60 (15.2)
Marital Status	
Single	47 (11.9)
Married/cohabiting	332 (84.3)
Separated/widowed	15 (3.8)
Place of residence	
Urban	245 (62.2)
Rural	149 (37.8)
Highest education level attained	
None	14 (3.6)
Primary	131 (33.3)
Secondary	172 (43.7)
Tertiary	77 (19.5)
Religion	
Catholic	104 (26.4)
Anglican	186 (47.2)
Others*	104 (26.4)
Employment status (Yes)	306 (77.7)
Average monthly income (Uganda shillings)	
<100,000	39 (12.7)
100,000–500,000	247 (80.5)
>500,000	21 (6.8)
Alcohol intake	
Yes	149 (37.8)
No	245 (62.2)
Frequency of alcohol intake (N=149)	
Sometimes (1–3 times/week)	113 (75.8)
Frequently (4+ times/week)	36 (24.2)
HIV testing facility	
Government	53 (13.4)
Private	341 (86.6)
Received ARVs same day (Yes)	233 (59.1)
Source of support	
Community	9 (5.0)
Family	139 (77.2)
Friends	32 (17.8)
Belief in masculinity norms	
Low belief	314 (79.7)
Fair belief	60 (15.2)
High belief	20 (5.1)
* Muslim (81/394), Born Again (18/394), Seventh Day Adventist (2/394), Orthodox (1/394)	

Table 2: Socio-demographic and health system factors associated with late presentation for HIV care among adult men at Family Hope Centre, Jinja district

Characteristic	Late Presentation for HIV Care			Unadjusted PR [95%CI]	Adjusted PR [95%CI]
	Yes N=313 n (%)	No N=81 n (%)	Total N=394 n (%)		
Age group					
18-24 years	12 (57.1)	9 (42.9)	21 (5.3)	1.00	1.00
25-34 years	77 (87.5)	11 (12.5)	88 (22.4)	0.29 [0.13-0.61]	0.13 [0.03-0.60]
35-49 years	175 (77.8)	50 (22.2)	225 (57.1)	0.51 [0.29-0.90]	0.47 [0.24-0.91]
≥ 50 years	49 (81.7)	11 (18.3)	60 (15.2)	0.42 [0.20-0.88]	0.33 [0.10-1.10]
Marital status					
Single	37 (78.7)	10 (21.3)	47 (11.9)	1.00	
Married/cohabiting	264 (79.5)	68 (20.5)	332 (84.3)	0.96 [0.53-1.74]	
Separated/widowed	12 (80.0)	3 (20.0)	15 (3.8)	0.94 [0.29-2.98]	
Place of residence					
Urban	192 (78.4)	53 (21.6)	245 (62.2)	1.00	
Rural	121 (81.2)	28 (18.8)	147 (37.8)	0.87 [0.58-1.31]	
Highest education level attained					
None	11 (78.6)	3 (21.4)	14 (3.6)	1.00	
Primary	102 (77.9)	29 (22.1)	131 (33.3)	1.03 [0.36-2.97]	
Secondary	141 (81.9)	31 (18.0)	172 (43.7)	0.84 [0.29-2.41]	
Tertiary	59 (76.6)	18 (23.4)	77 (19.5)	1.09 [0.37-3.22]	
Religion					
Catholic	73 (70.2)	31 (29.8)	104 (26.4)	1.00	1.00
Anglican	151 (81.2)	35 (18.8)	186 (47.2)	0.63 [0.41-0.96]	1.15 [0.54-2.46]
Others*	89 (85.6)	15 (14.4)	104 (26.4)	0.48 [0.27-0.84]	0.85 [0.33-2.15]
Employment status					
Yes	244 (79.7)	62 (20.3)	306 (77.7)	1.00	
No	69 (78.4)	19 (21.6)	88 (22.4)	1.07 [0.68-1.68]	
Average monthly income (Uganda Shillings)					
<100,000	32 (82.1)	7 (17.9)	39 (12.7)	1.00	
100,000-500,000	199 (80.6)	48 (19.4)	247 (80.5)	1.08 [0.53-2.22]	
>500,000	14 (66.7)	7 (33.3)	21 (6.8)	1.86 [0.75-4.59]	
Health System Factors					
HIV testing facility					
Government	36 (67.9)	17 (32.1)	53 (13.4)	1.00	1.00
Private	277 (81.2)	64 (18.8)	341 (86.6)	0.59 [0.37-0.92]	0.59 [0.31-1.12]
Received ARVs same day					
Yes	174 (74.7)	59 (25.3)	233 (59.1)	1.00	1.00
No	139 (86.3)	22 (13.7)	161 (40.9)	0.54 [0.35-0.84]	0.64 [0.32-1.29]
Counselled before HIV test					
Yes	299 (79.9)	75 (20.1)	375 (95.2)	1.00	1.00
No	14 (70.0)	6 (30.0)	20 (5.1)	1.49 [0.74-3.01]	
Counselled after HIV test					
Yes	306 (79.5)	79 (20.5)	385 (97.7)	1.00	
No	7 (77.8)	2 (22.2)	9 (2.3)	1.08 [0.31-3.74]	

Received HIV results same day					
Yes	281 (79.4)	73 (20.6)	354 (89.8)	1.00	
No	32 (80.0)	8 (20.0)	40 (10.2)	0.97 [0.50-1.86]	
Presence of chronic illness					
Yes	58 (79.5)	15 (20.5)	73 (18.5)	1.00	
No	255 (79.4)	66 (20.6)	321 (81.5)	1.001 [0.61-1.65]	
Experienced stigma					
Yes	80 (84.2)	15 (15.8)	95 (24.1)	1.00	
No	233 (77.9)	66 (22.1)	299 (75.9)	1.39 [0.84-2.33]	
Perceived ARVs had side effects					
Yes	142 (78.9)	38 (21.1)	180 (45.7)	1.00	
No	171 (79.9)	43 (20.1)	214 (54.3)	0.95 [0.64-1.40]	