



Determinants of turn-up for HIV care among lactating mothers with infants at Panyadoli Health IV, Kiryandongo district. A cross-sectional study.

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Abstract

Background

In Uganda, the impact of low turn-up on Lactating mothers with Infants is significant, as delays in ART adherence increase maternal viral load by 20%. The purpose of the study was to assess the Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadoli Health IV, Kiryandongo District.

Methods

A descriptive cross-sectional study design employing quantitative methods of data collection was conducted at Panyadoli Health IV, Kiryandongo District. In a duration of 5 days, 45 lactating mothers were selected using a simple random sampling method. A structured questionnaire was used to collect data, consisting of closed-ended questions. The data collected was analyzed manually, and findings were entered into a Microsoft Excel 2013, which was then presented in the form of tables, pie-charts, and graphs.

Results

The Majority of the respondents, 24(53%), were 18-30 years old. Less than half of the respondents, 16(36%), had secondary education. More than half of the respondents, 26(58%), were married, on individual determinants; 73% of mothers lacked partner support, 84% experienced stigma, 45% cited caregiving duties as a barrier to clinic attendance, and the majority 62% faced challenges due to pre-existing infant health conditions. Health facility-related determinants included lack of appointment reminders (73%), medication stock-outs (80%), and judgmental attitudes from health workers (58%). Socio-economic determinants included long distances to clinics (47%), high medication costs (67%), transport challenges (56%), and lack of support systems (51%).

Conclusion

Lack of partner support, stigma, caregiving responsibilities, medication stock-outs, long distances to clinics, and negative health worker attitudes were key factors affecting ART clinic attendance among lactating mothers with infants.

Recommendation

There is a need to strengthen partner and community support systems, improve drug availability, implement effective reminder systems, address stigma and staff attitudes, education, and advocacy to enhance ART adherence among lactating mothers.

Keywords: Lactating Mothers, Turn-Up, Panyadoli Health IV, Kiryandongo District.

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Background

Low turn-up refers to delays in attending scheduled clinical visits without prior cancellation or rescheduling (Mukhtar, 2021). Among Lactating mothers with Infants aged 0-18

months, such delays significantly compromise maternal health and the success of preventing mother-to-child transmission (PMTCT) of HIV (Le Roux, 2021). Missing ART appointments can lead to uncontrolled viral load in



mothers, increasing the risk of transmission to the infant through breastfeeding (Hunt et al., 2024).

Globally, low turn-up among Lactating mothers with Infants affects 67% of their ability to receive critical interventions such as infant prophylaxis and growth monitoring (Duri et al., 2022). Transportation challenges reported by 50% of mothers in low-income regions result in missed opportunities for health education and nutritional counseling, leading to 30% of infants being malnourished or exposed to higher health risks (Hwang et al., 2021).

In Asia, long waiting times and inconvenient clinic schedules, which affect 60% of Lactating mothers with Infants, exacerbate stress and fatigue (Muhamud, 2024). This has led to emotional distress and reduced motivation to continue ART, increasing the risk of treatment failure and maternal health deterioration (Langher et al., 2019). In Thailand, it is found that mothers experiencing delays are 40% more likely to develop advanced opportunistic infections due to inconsistent ART adherence, impacting their ability to care for their infants (Sornillo et al., 2023).

In Sub-Saharan Africa, 59% of pregnant mothers are reported to miss their clinic appointment annually (Etoori, 2020). Missed appointments result in delays in infant HIV testing, with 35% of lactating mothers reporting missed opportunities for early diagnosis and initiation of treatment for their infants (Mburu, 2021). Furthermore, socio-economic challenges such as a lack of transport funds, which affect 45% of mothers, lead to higher rates of maternal morbidity as healthcare interventions are postponed. In Nigeria, delays have been linked to increased infant mortality rates due to the lack of timely prophylaxis and care (Anyasodor et al., 2023).

In East Africa, low turn-up among lactating mothers affects PMTCT outcomes with delays in receiving ART leading to a 25% increase in maternal viral load, which compromises breastfeeding safety (Chrapah, 2024). Personal emergencies and logistical challenges reported by 30% and 25% of mothers, respectively, lead to inconsistent follow-ups resulting in late detection of complications such as mastitis or inadequate milk production, which negatively affect infant nutrition and growth (Heyman et al., 2019).

In Uganda, the impact of low turn-up on Lactating mothers with Infants is significant, as delays in ART adherence increase maternal viral load by 20% leading to a 15% higher risk of transmission to infants (Nanyeenya et al., 2024). In

Kiryandongo District, approximately 50% of mothers who delay their appointments report weakened health due to unmanaged opportunistic infections, reducing their ability to breastfeed effectively (Kiryandongo District Health Annual Records, 2024). Addressing these challenges is crucial to improving maternal health and ensuring the success of PMTCT programs.

Methodology

Study Design

A descriptive cross-sectional study design employing a quantitative research method was used to obtain data. Quantitative methods involved the use of structured tools such as questionnaires to gather numerical data.

Study Setting

The study was conducted at Panyadoli Health Centre IV, a government-owned public health facility located in Kiryandongo District, Western Uganda. The health Centre is situated approximately 225 kilometers northwest of Kampala, the capital city of Uganda, along the Gulu–Kampala highway. Panyadoli Health Centre IV offers a range of services, including maternal and child health, general outpatient and inpatient care, antiretroviral therapy (ART), family planning, and emergency obstetric services. The facility has a bed capacity of 120 and employs approximately 109 healthcare workers, including medical officers, clinical officers, midwives, nurses, and laboratory technicians, ensuring multidisciplinary care. It serves a diverse population, including residents of Kiryandongo District, neighboring districts such as Nakasongola, Masindi, and refugees from the Kiryandongo Refugee Settlement.

Study Population.

The study targeted lactating mothers with infants at Panyadoli Health Centre IV, Kiryandongo District, during the time of data collection.

Sample Size Determination

The sample size was derived from Krejcie and Morgan's sample size determination, Table 1

Note: N was the Population Size, S was the Sample size

S- was the Sample size and

N- was Population Size



Table 1: Krejce and Morgan's sample size determination

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	45	190	123	420	201	1400	302	8000	367
55	49	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: N is for population size, which is 50, and S is the sample size, which is 45

Sampling Procedure

The study used a simple random sampling technique. This technique was chosen because it ensured that the sample was representative of the study population and helped reduce bias in the sample. To obtain the participants, the researcher prepared pieces of paper of similar size labeled with P and Q. Respondents were requested to pick papers from an enclosed box on each day of data collection, and those who picked papers labeled with P were considered to participate.

Inclusion Criteria

Lactating mothers aged 18 years and above, and literate, who can read and write.

Definition of Variables

Dependent Variables

Determinants of turn-up for HIV care among lactating mothers with Infants, and this meant the variable that was being predicted and did not change.

Independent Variables

Individual-related determinants of turn-up for HIV care among lactating mothers with infants are influenced by

factors such as emotional and practical support, maternal knowledge and awareness, stigma and disclosure, forgetfulness, caregiving responsibilities, cultural norms, and the health status of the mother.

Health facility-related determinants are shaped by factors such as the quality and availability of healthcare services, the attitude of healthcare providers, and the accessibility and waiting time at the clinic.

Socio-economic-related determinants are affected by factors like financial constraints, income levels, healthcare costs, geographical accessibility, education levels, the presence of a supportive partner or family, peer support from other HIV-positive mothers, community stigma and discrimination, and the availability of childcare support.

Research Instruments

The researcher used a structured questionnaire, which was written in English and contained closed-ended questions related to the study objectives. The questionnaire consisted of four sections: socio-demographic data, individual-related determinants, health facility-related determinants, and socio-economic-related determinants.



Data Collection Procedure

The purpose of the study was explained, and the researcher was introduced by the In-charge of the ART clinic to the lactating mothers with infants to collect data over five days until a sample of 45 respondents was reached, sampling 10 respondents each day. Verbal permission and informed consent were sought from the respondents, and the purpose of the research was clearly explained. Respondents were assured of confidentiality and requested to cooperate in completing the researcher-administered questionnaire.

Data Management and Data Analysis

Data Management

After data collection, each questionnaire was checked for completeness and accuracy. The collected data were then coded and cleaned before analysis. Accurate and filled questionnaires were stored in a lockable cabin to ensure maximum safety and confidentiality.

Data Analysis and Presentation

Data was analyzed manually using Microsoft Excel and Word (version 2013), and the findings were entered into a computer using Microsoft Excel. The data was presented in the form of frequency tables, graphs, and pie charts.

Quality Control

Validity

This was done by setting questions according to the research objectives and ensuring they aligned with the intentions of the research study topic under the guidance of the research supervisor. Validity helped in measuring the accuracy of results within the study, facilitating the formulation of proper interventions to address the research problem.

Reliability

The questionnaires were pre-tested at a nearby Kiryandongo Health Centre IV on 10 lactating mothers with infants before being used at the study site to ensure consistency and dependability of the research instruments. It was then re-pretested on 4 mothers to ensure no errors.

Ethical Considerations

All respondents were provided with a written informed consent after receiving a detailed description of the study. Eligible participants consented in privacy, and no incentives were given. Anonymity of the respondents was ensured at all stages of data collection and analysis.

RESULTS

Socio-demographic characteristics

Table 2 shows the socio-demographic characteristics of the respondents. n=45

Variable	Category	Frequency(f)	Percentage (%)
Age	18-30 years	24	53
	31-42 years	12	27
	43-45 years	9	20
Level of education	No formal education	9	20
	Primary education	10	22
	Secondary education	16	36
	Diploma	10	22
Marital status	Married	26	58
	Unmarried	11	24
	Divorced	8	18
	Widow	0	0

From table 2, majority of the respondents 24(53%) were 18-30 years, 12(27%) were 31-42 years while the minority 9(20%) were 43-45 years. Less than half of the respondents, 16(36%), had secondary education, 10(22%) had attained a

diploma and primary education respectively, and above while the least 9(20%) had no formal education. More than half of the respondents 26(58%) were married, 11(24%) were unmarried and the least 8(18%) were divorced.



Individual-Related Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadoli Health IV, Kiryandongo District

Table 3 shows the understanding of the importance of regular ART clinic attendance and support from their family or partners to attend their clinic appointments.

Variable	Response	Frequency (n=45)	Percentage (%)
support from their family or partners to attend their clinic appointment	Yes	12	27
	No	33	73
	Unsure	0	0
Understanding the importance of regular ART clinic attendance	Yes	22	49
	No	18	40
	Not very sure	5	11

From table 3, the majority of the respondents, 33(73%), usually got no support from their partners to attend clinic appointments, while the minority, 12(27%), received support from their partners to attend clinic appointments. The majority of the respondents, 22(49%), fully understood the importance of regular ART clinic attendance, 18(40%) disagreed, while the minority, 5(11%), were not sure.

Text 1 shows how often respondents faced stigma due to their HIV status

The majority of respondents, 38(84%), always faced stigma due to their HIV status, while a minority, 7(16%), sometimes faced stigma due to their HIV status.

Figure 1 Showing how often caregiving duties made it hard for respondents to attend clinic visits, n=45

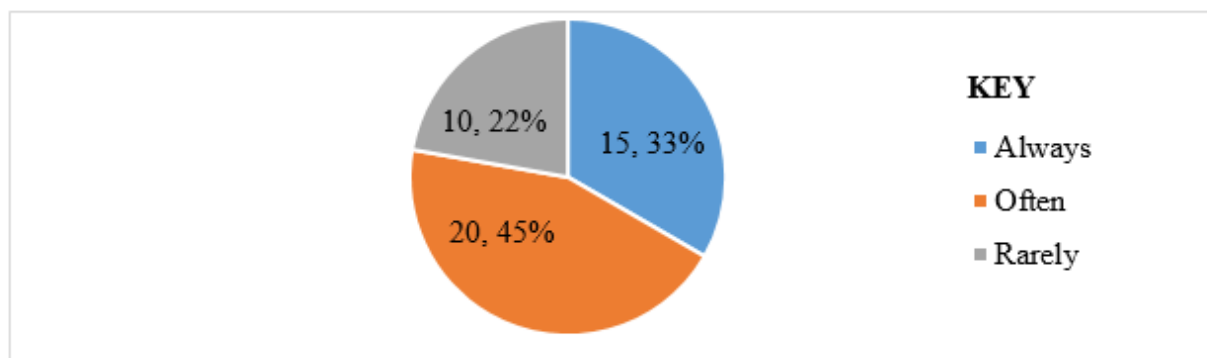


Figure 1 shows that the majority of the respondents, 20(45%), mentioned that caregiving duties often made it hard for them to attend clinic visits, 15(33%) said it was always hard for them, while a minority, 10(22%), said rarely did it happened to them.

Table 4 shows that respondents and their infants suffered from pre-existing conditions.

N=45

Variable	Frequency (f)	Percentage (%)
Yes	28	62
No	17	38
Not sure	0	0

The majority of the respondents, 28(62%), suffered from pre-existing health conditions with their infants, while the minority, 17(38%), had no pre-existing conditions.

Health Facility-Related Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadolli Health IV, Kiryandongo District

Table 5 shows the health facility-related factors

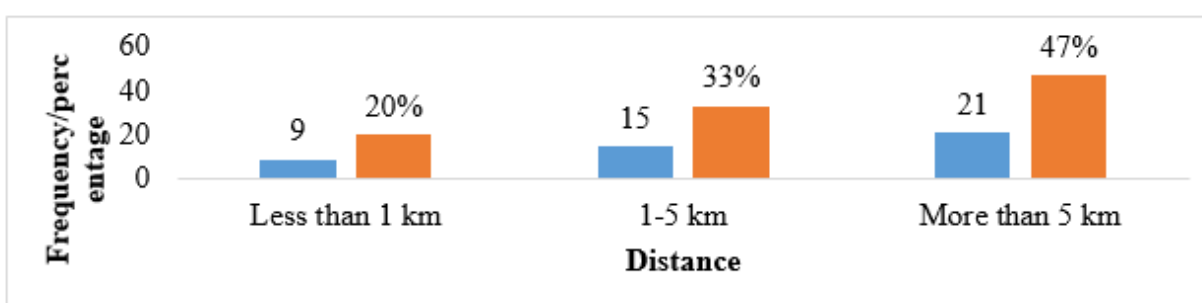
Category	Variable	Frequency(n=45)	Percentage (%)
Whether respondents receive reminders for their ART appointments	Phone/SMS	3	7
	Personal reminder	9	20
	No reminder	33	73
Challenges faced with clinic operating hours	Clashes with work	25	56
	No weekend and evening services	20	44
	No challenge	0	0
Whether respondents missed appointments due to a lack of ART medication	Yes	36	80
	No	9	20
Attitude of health workers at the clinic	Supportive and welcoming	11	24
	Neutral	8	18
	Judgmental	26	58
Effects of staffing levels on respondents' experience	Adequate and provide good care	9	20
	Sometimes rush	15	33
	Overcrowding and poor care	21	47

From table 5, more than half of the respondents, 33(73%), received no reminders for their ART appointments, 9(20%) got personal reminders, while a minority, 3(7%) got phone SMS. The majority, 25(56%) of the respondents faced challenges with clinic operating hours clashing with their work, while a minority, 20(44%), mentioned that there were no weekend and evening services. A significant number, 36(80%) of the respondents missed appointments due to a lack of ART medication at the clinic, while a minority,

9(20%) disagreed. The majority, 26 (58%) of the respondents faced a judgmental attitude from health workers, 11(24%) said they were supportive and welcoming, while a minority, 8(18%) were neutral. Nearly half 21, 47%) of the respondents said staffing levels led to overcrowding and poor care, 15(33%) mentioned that it sometimes led to rushing, while a minority, 9(20%), mentioned that staffing was adequate and provided good care.

Socio-Economic-Related Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadolli Health IV, Kiryandongo District

Figure 2 Showing the distance of the nearest ART clinic from respondents' homes. n=45



From figure 2, nearly half 21(47%) of the respondents lived more than 5 km from the nearest ART clinic, 15(33%) lived 1-5 km from the nearest ART clinic, while a minority 9(20%) lived less than 1 km from the nearest ART clinic.

Text 2: Showing whether the cost of medications impacted respondents' clinic visits

The majority, 30(67%) of the respondents mentioned that the cost of medications impacted their clinic visits, while a minority, 15(33%) disagreed.

Table 6 shows how supported respondents are in attending ART clinic appointments.

Variable	Frequency(n=45)	Percentage (%)
What supported respondents in attending ART clinic appointments		
Partner or family	9	20
Peer support group	13	29
No support system	23	51

From table 6, the majority, 25(56%) of the respondents faced transport challenges as challenges in attending ART appointments, 11(24%) mentioned medical or clinic fees, while a minority, 9(20%) faced no financial challenges.

Over half 23(51%) of the respondents had no support system in attending ART appointments, 13(29%) were supported by their peer support group, while the least 9(20%) had partner or family support.

Table 7 shows how community stigma affected respondents' ART visits, n=45

Variable	Frequency(f)	Percentage (%)
No effect	12	27
Sometimes avoid visits	18	40
Frequently avoid visits	15	33



Nearly half (40%) of the respondents said community stigma sometimes made them avoid ART visits, 15 (33%) frequently avoided ART visits, while the least, 12 (27%), mentioned that it had no effect.

DISCUSSION

Individual-Related Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadoli Health IV, Kiryandongo District

Regarding support, most respondents (73%) usually received no support from their partners to attend clinic appointments. This might have contributed to respondents' failure to effectively adhere to ART clinic visits whenever required. The findings of the study were similar to the study done by McLeish et al. (2022), where findings showed that mothers missed scheduled appointments due to a lack of practical or emotional support from family members or partners.

Close to half (49%) of the respondents fully understood the importance of regular ART clinic attendance. This might have promoted good practices and regular attendance at ART clinics for services. The findings of the study are in line with the study done by Theunissen (2020), where findings showed that Lactating mothers with Infants did not fully understand the importance of regular ART clinic visits. Concerning status, a good portion (84%) of the respondents always faced stigma due to their HIV status. This might have affected respondents' self-esteem, hindering them from effectively adhering to ART clinic visits as required. The findings of the study are in alignment with the study done by Chamberlin et al. (2022), where findings revealed that mothers who did not disclose their HIV status to their partners or families were twice as likely to miss clinic appointments due to perceived stigma.

Further findings revealed that nearly half (45%) of the respondents mentioned that caregiving duties often made it hard for them to attend clinic visits. This might have prevented respondents from seeking ART services, which contributed to poor ART adherence. The findings of the study are in agreement with the study done by Sylvia (2017), where findings showed that lactating mothers with Infants cited household chores and caregiving duties as reasons for missing appointments.

About other conditions, the majority (62%) of the respondents suffered from pre-existing health conditions with their infants. This might have hindered respondents from properly adhering to ART medication, since they could have thought that they were too weak to swallow too many drugs. The findings of the study are in agreement with the

study done by Leonard (2023), where findings revealed that Lactating mothers with Infants aged 35 years and above reported missing appointments due to health complications of their pre-existing diseases.

Health Facility-Related Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadoli Health IV, Kiryandongo District

Concerning reminders, most (73%) of the respondents received no reminders for their ART appointments. This might have contributed to respondents missing their ART appointment visits. The findings of the study are in agreement with the study done by Hoosen (2021), where findings revealed that lactating mothers with infants missed their appointments in facilities without effective reminder systems.

Additionally, the majority of respondents, 25(56%), faced challenges with clinic operating hours clashing with their work. This might have prevented respondents from seeking ART services, since they were often engaged at work. The findings of the study were in agreement with the study done by Lowane (2019), where findings revealed that HIV-positive mothers missed their appointments due to inconvenient clinic hours.

Furthermore, the majority of respondents, 36(80%), missed appointments due to a lack of ART medication at the clinic. This might have discouraged respondents and contributed to their missing some clinic appointments, eventually leading to poor adherence practices. The findings of the study align with the study done by Altomonte (2016), where findings showed that lactating mothers with Infants skipped appointments when they anticipated that ART medications would be unavailable.

Concerning attitude, the majority of respondents (58%) faced a judgmental attitude from health workers. This might have discouraged respondents from seeking ART services at the facility. The findings of the study are in agreement with the study done by Lusaka (2018), where findings revealed that lactating mothers with Infants avoided health facilities where they perceived providers as unsupportive or judgmental.

In other study findings from the field, nearly half of respondents (47%) said staffing levels led to overcrowding and poor care. This might have contributed to long waiting times and also less attention given to respondents during



ART clinics. The findings of the study concur with the study done by Martin (2019), where findings showed that lactating mothers felt neglected and missed appointments in facilities with high patient-to-provider ratios.

Socio-Economic-Related Determinants of Turn-Up for HIV Care among Lactating Mothers with Infants at Panyadoli Health IV, Kiryandongo District

Regarding distance, nearly half (47%) of the respondents lived more than 5 km from the nearest ART clinic. Long distances might have created a barrier that prevented respondents from easily accessing ART services. The findings of the study were in agreement with the study done by lactating mothers with Infants living in rural areas, who missed appointments due to long travel distances and lack of affordable transport.

Concerning the cost, the majority (67%) of the respondents mentioned that the cost of medications impacted their clinic visits. This might have led to respondents' failure to currently follow their doses, which might have contributed to complications. The findings of the study agree with the study done by Kahungu et al. (2018), where findings revealed lactating mothers with Infants delayed their ART visits due to inability to pay associated service fees or purchase supplementary medications..

Further findings revealed that more than 56% faced transport challenges in attending ART appointments. This could be because respondents lived very far from the ART clinics, which could have contributed to them missing clinic appointments. The findings of the study are in alignment with the study done by Otieno (2020), where findings revealed that mothers missed or delayed ART appointments due to transportation costs and inability to afford childcare during clinic visits.

In other findings, slightly more than half (51%) of the respondents had no support system in attending ART appointments. This might have made respondents miss their clinic appointments, especially in times when they forgot due to many engagements. The findings of the study are contrary to the study done by Matenga et al. (2024), where findings showed that lactating mothers with Infants who had a supportive partner or family member attending ART appointments with them adhered better to their treatment schedules.

Study findings revealed that less than half (40%) of the respondents said community stigma sometimes made them avoid ART visits. This might have prevented respondents

from appropriately seeking ART services. The findings of the study were in agreement with the study done by Karugaba et al. (2022), where findings revealed that lactating mothers with Infants avoided ART appointments due to fear of being stigmatized by their communities.

Conclusion

Regarding individual-related factors, many of them lacked partner support, faced stigma due to their HIV status, struggled with caregiving duties, and had pre-existing health conditions affecting either themselves or their infants. While some mothers understood the importance of regular ART clinic attendance.

Limitations of the study

The cross-sectional design limited the ability to establish causal relationships between the identified determinants and ART clinic attendance.

Data was collected from a single health facility, which affects the generalizability of the findings to other regions. The limited sample size reduced the power to detect less common but relevant factors influencing ART adherence.

Recommendation

To Health Workers: Strengthen counselling services to address stigma and improve understanding of the importance of ART adherence. Adopt a more empathetic and supportive approach when interacting with lactating mothers to encourage clinic attendance.

To Health Facility Administrators

Ensure consistent availability of ART medications to prevent discouragement among patients. Adjust clinic hours to be more flexible and convenient for working mothers. Improve staffing levels to reduce overcrowding and enhance the quality of care provided.

To Government and Policy Makers: Provide transportation support or outreach services for mothers living far from health facilities. Subsidize ART-related costs to reduce the financial burden on lactating mothers.

To Partners and Family Members: Offer emotional and logistical support to mothers attending ART clinics. Participate in health education sessions to understand the importance of adherence and regular clinic visits.

Keywords: Determinants, Health Facility- Determinants, HIV-Positive Lactating Mothers, Individual-Related Determinants, Low Turn-Up, Kiryandongo



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May God richly bless them all.

List of Abbreviations

HIMS:	Health Information Management System
LMICs:	low- and middle-income countries
MOH:	Ministry of Health
UHPAB:	Uganda Health Professions Assessment Board
WHO:	World Health Organisation

Source of funding

The study had no funding.

Conflict of interest

The authors declare no conflict of interest

Data availability

Data is available upon request from the author

Author biography

Rebecca Tusiime, a student pursuing a Diploma in Midwifery at Mildmay Uganda School of Nursing and Midwifery

Author contributions

Hasifa Nansereko, Supervisor, Mildmay Uganda School of Nursing and Midwifery

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