A CROSS SECTIONAL STUDY ABOUT FACTORS ASSOCIATED WITH HEALTH FACILITY DELIVERIES AMONG WOMEN OF REPRODUCTIVE AGE IN THE CATCHMENT AREAS OF KALISIZO HOSPITAL, KYOTERA DISTRICT.

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Abstract

Background
This study aims to determine the factors associated with health facility deliveries among women of reproductive age in the catchment areas of Kalisizo Hospital, Kyocera

Methodology
This study was conducted in Kyotera, southwest of Masaka, around Kalisizo Hospital.
The study population included all mothers (15-49 years) who had attended antenatal care.
This study used cross-sectional, mixed methods.

Results
Women in older age groups 25-29years (APR = 2.339 95% CI:0.120 - 8.56) and 30-34years (APR = 2.676 95% CI:0.600 - 12.38) had a higher likelihood of health facility deliveries compared to adolescents aged 15-19years (APR = 0.499 95% CI:0.050 - .999). Mothers who delayed setting off for delivery after experiencing increased labor pains were more likely to have health facility deliveries (APR = 8.455 95% CI:3.024 - 23.636) compared to those who immediately set off when they felt labor pains. Most of the participants who had no MCH visits by community health workers in their households were less likely to have health facility deliveries compared to those with such visits (APR= 48.462 95% CI:6.511 - 360.714). Factors such as delays in mothers deciding to have a health facility delivery or reaching the health facility in time, skills gaps among birth attendants in the provision of emergency obstetric and newborn care services (EMONC), and more community behavioral practices related to decisions on health facility deliveries.

Conclusion
Mother's attendance of ANC during pregnancy, marital status, and mother's gravidity/parity, availability of skilled birth attendants, MCH visits by community health workers, the experience of complications during and after labor, and set off time during labor to delivery place were significant determinants of health facility deliveries.

Recommendation
Programs promoting health facility births in similar settings should prioritize boosting ANC attendance, MCH visits by community health workers, and improving the experiences of mothers at maternal and antenatal wards.

Keywords: Health facility deliveries, women, Reproductive age, catchment areas,Submitted: 2023-09-08, Accepted: 2023-09-12

1. Background of the study.

According to studies, this persistent occurrence of maternal deaths is a result of avoidable factors such as delays in mothers deciding to have a health facility delivery or reaching the health facility in time, lack of partner support during labor, skills gaps among birth attendants in the provision of emergency obstetric and new-born care services and (EMONC) and many more community behavioral practices related to decisions on health facility deliveries. Bitakwitse et al., 2019; Morukileng et al., 2022) (Mukunya et al., 2019) revealed that mothers who had previously given birth at home were 40 times more likely to give birth at home again than those who previously gave birth at a health facility and this was associated with many more maternal deaths and other risks of pregnancy and childbirth which normally end up undocumented.

Therefore, this study seeks to assess the factors associated with health facility deliveries among mothers living in the catchment areas of Kalisizo Hospital, Kyotera district, Uganda.

2. Methodology.

2.1. Study design

This study used a cross-sectional, mixed methods approach to better understand the factors associated with health facility deliveries among mothers of reproductive age in the catchment areas of Kalisizo Hospital

2.2. Study area.

This study was conducted in Kyotera which lies approximately 44 kilometers by road, southwest of Masaka, the largest city in the sub-region. The district has 13 sub-counties, 66 parishes, 334 villages, and 13 government-supported health facilities with an estimated population of Pregnant women (15 - 49 years) at 12,517 as reported in the financial year 2016/2017.

The study area for this study was around Kalisizo Hospital which serves about 77,857 people annually both around and within Kyotera district. The estimated expected number of pregnant women attending antenatal care at the health facility is 3,893 for 2022 as seen from the projected 2014 district National Housing Population Census.

The study was carried out in July 2023.

2.3. Study population.

The study population included all mothers (15-49 years) who had attended antenatal care at Kalisizo Hospital, and delivered a child 0–12 months old (alive or died as a stillbirth/neonate); within the last 1 year before the first day of data collection in Kyotera district.

2.4. Sampling Techniques.

The researcher used a two-stage sampling approach; firstly, to identify major villages with mothers who attended antenatal care at the hospital (clusters) in catchment areas of Kalisizo Hospital.

Secondly, with the help of the village health teams, households with a child 0–12 months old before the first day of data collection were listed. If the number of eligible households in a village was more than 30, simple random sampling using computer-generated random numbers was applied to recruit the target number of households. If the number of eligible households was less than 30, a nearby cluster was then annexed. If a household had more than one eligible woman, the one with the youngest child was recruited and interviewed to reduce recall bias.

2.5. Study variables.

2.5.1. Dependent variable.

To assess the factors associated with health facility deliveries the outcome (delivery place) variable was dichotomized into health facility delivery coded as Yes; (1), defined as any birth that occurred inside a health facility, be it private or government and non-facility delivery coded as No; (0); defined as a birth that occurred outside the health facility including at home, with traditional birth attendants or on the way to the health facility for delivery.

2.5.2. *Independent variables.*

This study hypothesized factors associated with health facility childbirth practices using a conceptual framework influenced by Andersen's behavioral model of health service use. According to the conceptual framework, the independent variables were divided into three categories; predisposing factors (socio-demographic factors), enabling factors (e.g., availability of health workers during childbirth), and healthcare needs factors such as MCH visits by community health workers, experience of a stillbirth among others.

2.6. *Data Collection and Tools.*

A structured questionnaire was used to collect quantitative data on mother's social demographics, predisposing, enabling, and need factors for their decisions on health facility delivery.

For qualitative data, a Focus Group Discussion guide developed with reference from the Childbirth Experience Questionnaire was used to further understand respondents' unique responses and opinions on their choice of health facility delivery.

The tools were developed in English and translated into Luganda, the local language of the study area. The Luganda questionnaire was then translated into English, and both questionnaire copies were compared for consistency.

Trained research assistants interviewed mothers using the local language paper questionnaire and Focus Discussion Group guide, and recorded responses on the English questionnaires. The questionnaire captured de-identifiable data on the mothers' predisposing, enabling, and need factors associated with health facility deliveries.

2.7. *Data Analysis.*

Quantitative data management and analysis was carried out using STATA version 14.0. Descriptive statistics were generated for each independent variable. Frequencies and proportions were used to summarize categorical variables, while mean and standard deviation were used to summarize continuous variables.

At the bivariable level, the Pearson Chi-Square ($x2$) test was used to check the significance of the association between each independent variable and the dependent variable. Statistical significance was obtained using a 95% Confidence Interval (CI) at $p < 0.05$.

To assess the factors associated with health facility deliveries, covariates with a p-value ≤ 0.1 in bivariate analysis and those with biological plausibility were considered in the final model building at the multivariate level.

At a multivariable level, a stepwise modified Poisson regression model was fitted to access the factors associated with health facility childbirth. Multicollinearity among the independent variables was checked using the correlation matrix and a correlation less than 0.4, indicated no multicollinearity among the included independent variables.

The adjusted prevalence ratios (APR) were reported with a 95% confidence interval and variables with a p-value <0.05, were considered as the factors that are statistically significantly associated with health facility childbirth.

Pearson chi-square goodness of fit test was used to determine the goodness of fit of each of the final models and a p-value <0.05 indicated that the model fits the data.

For qualitative data, discussions were audiotaped with the consent of the study participants, and the records were transcribed and translated with pseudonyms attached to each respondent. Using Nvivo 12 data analysis software, themes from the Focused Group Discussions were categorized under "predisposing factors", "enabling factors", and "need factors" to reflect the interviewees' statements. The researcher then discussed emerging categories drawing themes and interpretations based on group consensus.

Both deductive and inductive coding approaches were applied.

Guided by the conceptual framework and the discussion guides, pre-defined initial codes were developed (open coding) before data collection. Then, each code was further analyzed and disaggregated into categories and sub-themes (deductive axial coding). Iteratively, through reading the data, all data was subsequently classified into one of the codes. Additional codes were

added while reading the data, categories, and sub-categories that had not been previously identified (inductive approach).

Data was triangulated from responses obtained from Focused Group Discussions to compare them with responses from the different community groups. The categories and the concepts that emerged from the discussions were verified by consistently linking the emerging categories with the data received from the other groups of informants to improve the trustworthiness of the qualitative data analysis. Quotes were used to enhance credibility and substantiate the narrative with participants' own words.

2.8. Data Presentation.

Results were presented using graphs, and tables and reported using both crude and adjusted prevalence ratios at 95% confidence intervals. This formed the basis for the interpretation, conclusion, and recommendations.

2.9. Data Quality Control, Validity and Reliability.

The instrument was checked for completeness, clarity, and logical sequence and relevant adjustments were made before data collection. Pretesting included 56 participants constituting 10% of the total sample size to make sure the questionnaire was understandable to the research population.

Research assistants were trained on how to administer instruments for the study and the principal investigator supervised the assistants. Data entry was done by research assistants and validated by the researcher for any inconsistencies. Data was analyzed to find out if the research objectives were obtained.

2.10. Sample Size Determination.

To obtain the sample size for the quantitative study, catchment areas with poor maternal health indicators were selected, and the sample size was calculated using the proportion of deliveries at the hospital. To obtain the number of clusters, the researcher used the Bennett S.Woods T,(1991) formula for clustered cross-sectional studies, and the overall sample size was determined using the Kish Leslie formula for cross-sectional studies with the following assumptions; an alpha (α) of 0.05, a sampling error of 5%, a nonresponse rate of 10%, and a statistically conservative 76.6% proportion of mothers that conduct childbirth delivery at a health facility in Uganda (Sserwanja, Mukunya, et al., 2021a) since there was limited published data about Kalisizo hospital childbirth delivery service demand. The researcher used a design effect of 2.0 to cater for potential differential clustering by catchment in the villages of the Kalisizo, Kyotera district. To determine the number of clusters;

C = P (1 − P) $D/$ S2b

Where; C= Number of clusters needed

P= Estimated prevalence of outcome of interest

D= Design Effect

S= Level of precision

B= Estimated number of respondents per cluster=0.766(1-0.766)2

0.05230

C = 4.78

Approximately five clusters will be considered for this study.

2.11. Determine the sample size.

z^2p (1 − p)N=e2

Where; Z= Standard normal value at α level of significance

P= Estimated prevalence of the health facility childbirth delivery e= maximum error the investigator is willing to allow N=1.96* 0.766 (1-0.766)

0.05^2

N=275

Catering for a 10% non-response;

=275*0.1

=27.5

Hence, 303 participants were selected to participate in this study.

Furthermore, for the qualitative study, a phenomenological qualitative research approach was used based on the Andersen and Newman Framework for health service utilization model. Mothers' and community's experiences and perspectives on health facility deliveries were captured

through focused group discussions to answer the research questions in detail.

Four different groups of participants were selected for the Focused Group discussions as data saturation was reached according to (Tiruneh et al., 2021) to gain as much insight and understanding as possible about maternal healthcare services from the community's perspective that is to say;

-women of reproductive age (15-49 years) who have given birth in the last year before the date of data collection,

-members of their social support system, such as their husbands, and close relatives among others who care for them during the time of delivery.

-religious and/or community leaders

-health facility and village health workers.

To ensure the yielding of a wider range of perspectives from various groups of stakeholders, maximum variation sampling schemes were used. Kalisizo Town Council parishes were subdivided into better-performing and low-performing clusters in terms of maternal health service utilization based on routine administrative data obtained from the Kyotera district or Kalisizo Town Council health department. Accordingly, two of the study parishes were classified as better-performing, and the other two as low-performing parishes. In each parish, villages, the smallest administrative unit, were selected based on the feasibility of convening Focused Group Discussion participants and the availability of Village Health Workers in each village.

Lastly, from each village, study participants were recruited with the assistance of Village Health Workers based on pre-set selection criteria that include having lived experiences of maternal health services in the last year, being recognized as influential and motivator of health facility child delivery in the community, and being a community volunteer.

Focus group discussions were used to explore information about the social context and discussions on the differences among participants. The size of the Focused Group Discussion ranged from 6–8 participants to elicit group-level perceptions by facilitating active interaction.

2.12. Inclusion Criteria.

All mothers aged 15-49 years who attended antenatal care from Kalisizo Hospital with a child of 0–12 months old (alive or died as a still-birth/neonate) and have stayed in the community for a minimum of one year and consented to be a respondent in the study.

For the qualitative study, targeted participants who have stayed in the catchment areas of Kalisizo Hospital for a minimum of one year and can listen and communicate in English or Luganda were included in the study after their consent.

2.13. Exclusion criteria.

Mothers with an active mental or physical illness, renowned drunkards in the community, and those away from the household for the next 3 days within the study period were excluded from the study.

2.14. Ethical Consideration.

Before the commencement of the study, ethical approval to conduct this study was sought from the Research Ethics Committee (TASO) under the Uganda National Council for Science and Technology. Before conducting interviews, letters of information were given to participants, and written informed consent was obtained from them. Participants were assured of voluntary participation, confidentiality, anonymity, and freedom to withdraw from the study at any time.

3. Results

3.1. Socio-demographic and economic characteristics.

A total of 303 participants were included in the study analysis. The majority of the women were aged between 20-29 years (53.2%) with a mean age of 26.4 (SD = 5.8). Many were married/living with their partners (75.2%) and resided in Kalisizo rural sub-county (60.2%). Additionally, by ethnicity, the majority (76.9%) were Baganda, had primary education as their highest level of education (48.2%), their household living size ranging between four to five people (43.2%), 63.7% of

them had been pregnant more than two times in their lifetime as shown in Table 1;

Table 1: Socio-demographic and economic characteristics of participants in the catchment areas of Kalisizo Hospital, Kyotera district, Uganda, 2023 (n = 303).

Factors associated with health facility deliveries among women of reproductive age in the catchment areas of Kalisizo Hospital, Kyotera district.

At the bivariate level, a stepwise modified Poisson regression model was fitted and using the Crude prevalence ratios, ANC visits, healthcare provider involvement during ANC and delivery, time for set off for labor, delivery experiences, mother's gravidity, experience of delivery complications, MCH visits by community health workers at their households, and marital as factors were statistically significantly associated with health facility deliveries.

At the multivariate level, after adjusting for extraneous variables, factors that were statistically significantly associated with health facility delivery were determined using the Adjusted Prevalence Ratios and P-values for statistical significance of associations. Women's marital status, gravidity, experience of delivery complications, MCH visits by community health workers, ANC attendance, person who conducted mother's ANC checkup, time to set off for labor, person who conducted delivery, mother's child delivery experience showed a significant difference in the likelihood of health facility deliveries

Women in older age groups 25-29years (APR = 2.339 95% CI:0.120 - 8.56) and 30-34years (APR = 2.676 95% CI:0.600 - 12.38) had a higher likelihood of health facility deliveries compared to adolescents aged 15-19years (APR = 0.499 95% CI:0.050 - .999) and younger youths aged 20-24 (APR =0.638 95% CI:1.786 - 1.765). The study highlighted that women who lived with their spouses as married had a higher prevalence of health facility delivery (12.809) compared to single women (0.005).

Furthermore, women who did not have any ANC visits for their recent pregnancy were significantly less likely to have health facility deliveries compared to those who had at least one ANC visit. This was explained by the presence of skilled health workers during ANC and delivery as it significantly increased the likelihood of health facility deliveries.

Mothers who delayed setting off for delivery after experiencing severe and unbearable labor pains or increased labor pains were more likely to have health facility deliveries (APR = 8.455 95% CI:3.024 - 23.636) compared to those who immediately set off when they felt labor pains. Women with previous child delivery experiences are more likely to have health facility deliveries compared to those without any prior experience. Experience of delivery complications during and after pregnancy, a factor depicting perceived need remained significant in multivariable analysis and the study showed that women who experienced delivery complications are more likely to have health facility deliveries compared to those without complications (APR = 0.120 95% CI:0.041 - 0.354). Most of the participants who had no MCH visits by community health workers in their households were less likely to have health facility deliveries compared to those with such visits (APR = 48.462 95% CI:6.511 - 360.714).

4. QUALITATIVE DATA ANALYSIS RESULTS.

4.1. Background characteristics.

Of the 30 participants interviewed in the catchment areas of Kalisizo Hospital, 90% were females who had delivered before and 10% were males who were their spouses/partners at home. The background characteristics of the participants of the Focus Group Discussions (FDGs) are discussed in Table 5

Collaborating with the quantitative findings, various perspectives on mothers using a health facility for delivery were made of different themes and sub-themes with greater details provided;

4.2. Antenatal care visits.

The participants unanimously agreed across all groups that women start attending antenatal care

Table 1: Socio-demographic and economic characteristics ofparticipants in the catchment areas ofKalisizo Hospital, Kyoteradistrict, Uganda, 2023 (n = 303).

Variables	Category	Frequency(n)	Percent (%)
Age in years	**Mean (26.4)**	**SD (±5.8)**	
	15-19	36	11.9
	20-24	79	26.1
	25-29	82	27.1
	30-34	43	14.2
	35-39	49	16.2
	40-45	14	4.6
Marital status			
	Cohabiting	2	0.7
	Married	228	75.2
	Separate	1	.3
	Single	72	23.8
Residence			
	Kalisizo Rural Sub county	183	60.4
	Kalisizo Town Council	120	39.6
Ethnicity			
.	Muganda	233	76.9
	Mugishu	2	0.7
	Munyankole	48	15.8
	Musoga	8	2.6
	Mutooro	7	2.3
	Others	5	1.7
Education status			
	Not educated	18	5.9
	Primary education	146	48.2
	Secondary education	108	35.6
	Tertiary education	31	10.2
Mother's household living size	**Mean (5.0)**	**SD (3.5)**	
	1-3 people	110	36.3
	4-5 people	131	43.2
	6 and above people	62	20.5
Mother's gravidity	**Mean (3.2)**	**SD (2.6)**	
	1-2 pregnancies	110	36.3
	3-4 pregnancies	107	35.3
	5-6 pregnancies	82	27.1
	Above	4	1.3
Mother's number of living children	**Mean (2.2)**	**SD (2.4)**	
	1-2 Children	**133**	43.9
	2-3 Children	83	27.4
	4-5 Children	79	26.1
	More than 5 children	8	2.6

Notes: [a]Others ethnicity; Banyarwanda,

Table 2: **Factors associated with health facility deliveries among women in reproductive age in the catchment areas of Kalisizo Hospital, Kyotera district at multivariable level, using a stepwise modifted Poisson regression model.**

Characteristics	Crude prevalence ratios,CPR (95%CI), (N = 303)	P-value	Adjusted prevalence ratio,APR (95%CI), (N = 303)	P-value
Age		0.356		0.269
40-45	1		1	
35-39	0.99 (0.90–1.10)		0.001 (0.030 – 0.467)	
30-34	1.48 (1.24–1.78)		2.676 (.600 - 12.38)	
25-29	2.03 (1.71–2.41)		2.339 (.120 - 8.56)	
20-24	0.91 (0.80–1.04)		0.638 (1.786 - 1.765)	
15-19	0.39 (0.24–0.62)		0.499 (.050 - .999)	
Marital status		0.010*		0.003*
Cohabiting	1		1	
Married	5.113 (0.300-5.460)		12.809 (0.080 - 20.006)	
Separated	.020 (0.244- 1.648)		0.812 (0.343 - 1.920)	
Single	1.135 (1.00 – 3.895)		0.005 (0.000 - 0.012)	
Mother's gravidity		0.044*		0.040*
More than 6 pregnancies	1		1	
5-6 pregnancies	8.692 (0.080 – 12.3)		2.715 (0.080 - 9.080)	
3-4 pregnancies	2.621 (0.000-9.9)		0.349 (0.006 - 0.600)	
1-2 pregnancies	1.10 (0.000 – 1.70)		13.871 (0.001 - 50.001)	
ANC visit at least once for their recent pregnancy		0.047*		0.010*
Yes	1		1	
No	37.047(0.090-44.766)		.000 (0.000 - 0.999)	
Person who conducted mother's ANC checkup		0.009		0.039*
Nurse	1		1	
Midwife	3.522 (1.33 -8.009)		4.148 (1.010 - 17.029)	
Doctor	1.854(5.030–11.222)		1.379 (0.392 - 4.854)	

checkups in the second trimester of their pregnancy.

"… I delayed going for antenatal care checkup due to fear of being noticed pregnant again by health workers and community members since even last year I was pregnant and gave birth to twins through a cesarean section" (35-year-old mother, Belinda).

". . . . Usually when I don't have any sickness or complication during pregnancy, I find it inconveniencing to go for frequent antenatal visits and thus, I only go for an antenatal checkup to get an antenatal card that will be used during my delivery" (22year mother, Kalwanga).

4.3. Childbirth experiences before, during, and after labor.

Respondents who didn't have a health facility delivery articulated that this happened occasionally when the mothers didn't make it to the health facility in time after labor started due to delays in decision-making about the delivery place, and

Table 3: **Factors associated with health facility deliveries among women in reproductive age in the catchment areas of Kalisizo Hospital, Kyotera district at multivariable level, using a stepwise modifted Poisson regression model.**

Characteristics	Crude prevalence ratios,CPR (95%CI), (N = 303)	P-value	Adjusted prevalence ratio,APR (95%CI), (N = 303)	P-value
Time to set off for delivery		0.560		0.000*
Immediately when I felt labor pains	1			
After a few hours labor pains were bearable	61.870 (.050 – 187.0)		1.520 (.635 - 8.435)	
After a few hours labor pains had increased	10.416 (.018 – 14.160)		(3.024 - 23.636)	
Person who conducted delivery		0.040*		0.000*
Non-health professional	1		1	
Nurse	64.649 (0.360 – 80.5)		0.001 (0.000 - 0.015)	
Midwife	30.174 (1.000 – 35.800)		2.211 (0.080 - 6.0)	
Doctor	9.191 (0.060 - 0.280)		0.210 (0.10 - 0.510)	
Mother's childdelivery experience		0.000*		0.000*
Yes	1		1	
No	0.035 (0.000 – 8.052)		67.596 (19.463-234.769)	
Mother's experience at yourdelivery site		0.018*		0.000*
Yes	1		1	
No	1.249 (0.010 – 4.032)		67.596 (19.463 -234.769)	

short labor time among others. This is illustrated below;

". . . I helped a friend's daughter give birth at a nearby bushy area because I was waiting for her husband to come with a boda (motorcycle) as our means of transport to the delivery site. Labor pains intensified and the mother told me to aid her in delivering the baby who later ended up dying as we were going to the hospital after delivery" (40year old, Local Council One chairwoman, Bulinda)." . . . after confirming the fetus's well-being through a hospital scan during

antenatal care, I chose a traditional birth attendant because I had no pregnancy complications and I had had two previous births normally. This is because of my community's perception that only the first or second child is delivered in a hospital to familiarize the body with the delivery process and subsequent births can occur elsewhere" (23-year-old mother, Nniinzi).

Participants frequently mentioned that mothers who chose to give birth at a health facility for their first child but discontinued for subsequent deliveries were a result of cultural, religious, and psy-

Table 4: **Factors associated with health facility deliveries among women in reproductive age in the catchment areas of Kalisizo Hospital, Kyotera district at multivariable level, using a stepwise modifted Poisson regression model.**

Characteristics	Crude prevalence ratios,CPR (95%CI), (N = 303)	P-value	Adjusted prevalence ratio,APR (95%CI), (N = 303)	P-value
Experience of delivery complications		.002*		.000*
Yes	1		1	
No	0.880 (0.233 - 0.566)		0.120(0.041 - 0.354)	
MCH visits by community health workers at them households		.016*	0.000*	
Yes	1		1	
No	32.218(0.100–50.33)		48.462(6.511- 360.714)	

Table 5: Showing the **background characteristics of the participants of the Focus GroupDiscussions (FDGs).**

	Males		Females		Total	
	N	%	N	%	N	%
Age (years)						
15-19	0	0	5	17	5	17
20-35	0	0	12	40	12	40
35-49	3	10.0	10	33.3	13	43.3
Residence					oi	
Kalisizo Town council sub- County	0	0	15	50	15	50
Kalisizo rural sub-county	3	10	12	40	15	50
Occupation of participants						
Farmer	3	10	26	86.70	29	96.7
Student	0	0	1	3.30	1	3.30

chosocial factors, financial factors, and child complications experienced during pregnancy as highlighted below;

".. . My daughter-in-law used a non-health facility during this recent pregnancy because when we went to the health facility for delivery, we were asked for money to buy all the requirements that are needed by the mother going into delivery such as Mama Kits, gloves among others, and without them no health worker wanted to attend to her yet she was in labor" (46year mother, Kalwanga).

". . . At my in-law's place, I was told my unborn child exhibited symptoms of being born with neonatal jaundice and, they preferred I deliver at a non-health facility where they believed the condition would be immediately treated or managed when the baby was born" (19year old mother, Nniinzi).

"I gave birth from home and as a new mother I was told that I had to keep my baby's cord and placenta if I wanted to give birth again in my relationship with my spouse yet these are not usually

given back to the mother at health facilities when they give birth" (16year mother, Kalwanga).

"... during my time when my wife was seeking antenatal care, the health workers requested us to pay for the sonogram checkup which we could not afford even if we were at a government health facility. This experience of health workers charging us during antenatal checkup caused us to choose a traditional birth attendant for delivery before were referred to the hospital due to severe bleeding" (38-year-old, husband, Matale).

4.4. Presence of transport means to the health facilities.

Respondents from all groups mentioned that the distance to health centers was less than 6 km for the people in the catchment areas of Kalisizo Hospital and it was easier to go to the health facilities when women started labor. The mothers explained that if they lack funds, they can approach their neighbors who would offer as much money as they can to support them in getting a health facility delivery.

"...Pregnant women's transport means to any health facility in our villages are motorcycles (boda boda), which are uncomfortable sometimes, especially for women who go to the health facility when in labor as a result of delays in decision making to health care by women" (32years Village health worker, Belinda).

4.5. Availability of skilled health workers during labor.

Mothers in all groups agreed that they had access to both private and public health facilities for delivery around the catchment areas of Kalisizo Hospital. The facilities have at least a registered midwife at any time the mother comes for labor as explained below;

"... I brought my daughter-in-law to Kalisizo Hospital for delivery at night and when I arrived at the maternity ward, she was assessed by the midwife and I was told she needed an emergency cesarean section. The doctor was called and we were moved to the theatre for delivery immediately" (42-year-old mother-in-law, Bulinda).

4.6. MCH visits by community health workers.

Mothers reported that MCH visits are crucial in educating mothers and their social support person about the process of delivery, and common complications experienced by women during and after labor. However, a large number of them had not visited them.

"... We don't conduct MCH visits anymore at the household level because we have a lot to do for projects that support our work such as HIV and malaria projects" (44year VHT, Nniinzi)

5. Discussion.

Factors that were statistically significant with a higher likelihood of health facility deliveries were the mother's attendance of ANC during pregnancy, marital status, and mother's gravidity/parity. These findings around predisposing factors of health facility delivery that of previous studies Sserwanja, Mukunya, et al., 2021a; Sserwanja, Musaba, et al., 2021b), (Bitakwitse et al., 2019; Morukileng et al., 2022), (Mukunya et al., 2019). Mothers who had not attended ANC during their pregnancy had more than 3-4 pregnancies and those who stayed single, separated, or cohabiting had higher odds of a non-health facility delivery compared to their counterparts.

Qualitative results highlighted mothers attended their first ANC visit in the second trimester. This was a result of them having multiple gravidas, having no complications during pregnancy, and thus, the presence of prevalence of non-health facility deliveries in their communities.

The availability of skilled health workers during labor was the only significant enabling factor in this study. This is an important factor in health facility delivery among mothers in another similar study (Namujju et al., 2018).

Mothers who delivered in the presence of only nurses who were usually not skilled in child delivery had increased odds of a non-health facility delivery compared to their counterparts who delivered in the presence of more skilled health pro-

fessionals such as doctors and midwives attending to them.

Qualitatively, mothers experienced good delivery experiences because of the availability of skilled health workers at both antenatal and delivery. This increased the likelihood of their choice of health facility deliveries on their recent pregnancy.

Mothers who had delayed to set off to go to the health facility for delivery had not had MCH visits by community health workers and those who had not experienced complications had increased prevalence of a non-health facility delivery compared to their counterparts. This finding suggests that they should be included in programs that promote health facility birth as reported in other studies (Horwood et al., 2020; Tesfaye et al., 2019).

6. Conclusion.

This study describes the quantitative and qualitative factors that are associated with health facility deliveries among mothers in a rural setting in Uganda living in the catchment areas of Kalisizo Hospital, Kyotera district. Mother's attendance of ANC during pregnancy, marital status, and mother's gravidity/parity, availability of skilled birth attendants, MCH visits by community health workers, experience of complications during and after labor, set off time during labor to the delivery place were significant determinants of health facility deliveries.

7. Recommendation.

Findings further elicit opportunities to reduce non-health facility deliveries. Interventions and messaging could focus on educating women about early attendance of ANC right from the first trimester, unmarried women, Community Health Worker involvement, and the use of specialized health workers in maternity departments at health facilities.

Programs promoting health facility births in similar settings should prioritize boosting ANC attendance, MCH visits by community health

workers, improving the experiences of mothers at maternal and antenatal wards, and training health workers to manage emergencies to improve the outcome of delivery. This research also calls for multi-sector approaches involving poverty eradication and girl-child education when addressing issues such as health facility births

8. Acknowledgment.

9. List of Abbreviations.

ANC Antenatal care
SDG Sustainable Developmental Goal
TASO The AIDs Support Organization
UNFPA United Nations Population Fund Authority
UBOS Uganda Bureau of Statistics
UNICEF United Nations Children's Fund
WHO World Health Organization
MoH Ministry of Health
MCH Maternal Child Health

10. Source of funding.

11. Conflict of interest.

The author declares no conflict of interest.

12. Publisher details.

13. References.

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