

Determining the Frequency and Influential Factors Impacting Antenatal Care Service Utilization Among Pregnant Women in Attendance at Mutara Health Centre III, Mitooma District, Uganda

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ABSTRACT

Antenatal care (ANC) plays a pivotal role in curbing maternal mortality rates. This investigation sought to gauge the prevalence of and factors influencing antenatal care service utilization among pregnant women visiting Mutara Health Centre III's antenatal care clinic. The study involved 200 pregnant women in a cross-sectional analysis, employing an interview questionnaire to assess ANC service utilization determinants. Statistical Package for Social Sciences software was utilized for data analysis. The prevalence was determined by comparing the actual ANC attendance (from mid-July 2022 to mid-August 2022) against the projected monthly ANC attendance (300). The resulting attendance rate of 66.67% was categorized as inadequate, falling below the globally recommended coverage of 80%. Demographic findings revealed that the majority (57.5%) were peasants, while 47.5% of their partners had primary education. Alarming, 62.5% lacked knowledge regarding the appropriate timing for seeking ANC. Key conclusions drawn were that the attendance rate for ANC was notably low, coupled with inadequate knowledge among pregnant women about ANC and a prevalence of low socioeconomic status. Recommendations included tailored education programs for expectant mothers on ANC services by healthcare personnel at Mutara Health Centre III, public awareness campaigns by the Mitooma district health officer emphasizing the benefits of ANC attendance, governmental strategies to improve the livelihoods of those served by the health center, and a proposed study to assess maternal mortality prevalence specifically at Mutara Health Centre III.

Keywords: Antenatal care, Pregnant women, maternal mortality, Healthcare workers.

INTRODUCTION

Antenatal care is a planned program of medical management of pregnant women directed towards making pregnancy and labour a safe and satisfying experience [1, 2]. The aims of antenatal care include; monitoring the progress of pregnancy to ensure maternal health and normal fetal development, recognizing deviation from normal and providing management or treatment as required ensuring privacy at all times, to ensuring that the woman reaches the end of the pregnancy physically and emotionally prepared for

her delivery, preparing the mother for breastfeeding and giving advice about appropriate preparation for lactation and nutrition to the mother. Others include offering advice on parenthood either in a planned program or on an individual basis taking into consideration the client's concerns and building up a trusting relationship between the family (mother and her partner) and healthcare worker which will encourage them/her to share their anxieties and fears about pregnancy [3-5]. Globally the coverage of antenatal

care is at 87.1% [6] and the coverage of deliveries by a skilled birth attendant range from 59% in the WHO African region to over 90% in America, Europe and the Western Pacific [7]. Whereas utilization of attending at least four antenatal care visits in the East African region was 52.44% (95% CI: 52.13, 52.74), with the highest attending at least four or more antenatal care visit visits in Zimbabwe 75.72% and the lowest attending at least four or more antenatal care visit visits in Ethiopia 31.82% [8]. In Uganda according to the Uganda Demographic Health Survey in 2016 the antenatal coverage was at 60% for at least four antenatal care visits throughout the pregnancy period [9]. Reduction in the death of mothers due to pregnancy and pregnancy-related conditions is the core aim of antenatal care globally [10, 11]. More so, antenatal care also reduces the incidence of mother-to-child transmission of HIV (MTCT). MTCT is one of the easiest ways of HIV transmission [12-15]. During ANC, pregnant women are given some drugs that help to nourish them and the unborn babies. This minimizes the risk of some diseases like anemia and other congenital abnormalities [16-18]. The global rate of maternal mortality is still unacceptably high with estimates for 2017 showing that

Gonz some 810 women die every day from pregnancy or childbirth-related complications around the world “high despite the antenatal care coverage” and the maternal mortality ratio in the least developed countries is as high as 415 per 100 000 births, versus 12 per 100 000 in Europe and Northern America and 7 in Australia and New Zealand [7]. Uganda’s maternal mortality ratio, though on a reducing trend remains unacceptably high at 336 per 100,000 live births [19]. Different countries in conjunction with the World Health Organization including Uganda, have tried to sensitize the public about the benefits of utilizing antenatal care service and it has also been availed to the public at no cost [19]. However, with all these efforts, the maternal mortality rate has remained high in different countries including Uganda. However, no study has been conducted at Mutara Health Centre III about the turnover rate for antenatal care services as well as factors affecting the utilization of antenatal care services among pregnant women. Thus, this study was designed to determine the prevalence and factors affecting the utilization of antenatal care service among pregnant women attending the antenatal care clinic at Mutara Health Centre III.

METHODOLOGY

Study design

The study was cross-sectional and it involved quantitative data collection methods on the prevalence and factors affecting antenatal care service utilization among pregnant women attending antenatal care clinic at Mutara Health Centre III Mitooma district, Uganda.

Area of Study

The study was conducted at Mutara Health Centre III Mitooma District, Uganda.

Study population

The study population was pregnant women attending antenatal care clinic at Mutara Health Centre III Mitooma district, Uganda.

Inclusion criteria

All pregnant women who were attending antenatal care service at Mutara Health Centre III.

Exclusion criteria

All pregnant women who declined consent to participate in the study.

Sample size determination

The sample size will be determined using Kish Leslie [20] formula:

$$n = z^2 p (1-p) / e^2$$

Where:

n=Estimated minimum sample required

p= Proportion of a characteristic in a sample (92.57% (Steele et al. [21])

z=1.96 (for 96% confidence interval)

e=Margin of error set at 5%

$$n = 1.96^2 * 0.9257(1-0.9257) / 0.05^2$$

n= 101 participants

However, all 200 pregnant mothers who attended ANC from mid-July 2022 to mid-August 2022 were interviewed for the effectiveness of the study.

Sampling technique

The first come first serve sampling technique was used to sample pregnant women to participate in the study.

Data collection method

An interview questionnaire was developed by the principal investigator which was used as a data collection tool. It consisted of closed and open-ended questions and was designed in line with the specific objectives of the study. Questionnaires were checked for mistakes and missing data before the participants left the study site to allow for re-filling of missing data. Questionnaires were also coded for easy checking and preventing losses.

Data analysis

Data collected was coded and subjected to computer analysis using a statistical package for social sciences (SPSS, version 16.0) and results were then presented in tables. The total number of participants was taken as the numerator and the projected monthly attendance of antenatal

Prevalence of antenatal care service attendance (n=200)

The study involved 200(66.7%) pregnant women from mid-July 2022 to mid-August 2022 300 which is the monthly projected

care (300) at Mutara health centre III was taken as the denominator for the prevalence of antenatal care attendance. And then rated to be low or adequate in reference to the data about global coverage of antenatal care 87.1% by UNICEF [6]. Therefore, attendance less than 80 was rated as low and attendance of 80 and above was rated as adequate.

Quality control

Reliability of the questionnaire was improved by pre-testing to ensure that it is very appropriate, and then data was collected by the researcher himself and the research assistants to ensure quality control.

Ethical consideration

Before initiating the research, an informed consent was sought from the participants clearly stating the benefits of the study with an assurance to them that there were no risks involved in the study, their identities would not be disclosed and participation was involuntary.

RESULTS

antenatal care attendance at Mutara Health Centre III. The majority had attended (2-3) visits 120(60%). The details are in Tables 1 and 2 below.

Table 1: ANC coverage at Mutara Health Centre III

ANC attendance	Monthly projected attendance	ANC Percentage (%)
200	300	66.7

Table 2: ANC coverage at different ANC visits

ANC visits	Frequency (n)	Percentage of (n/300)
1 visit	60	30
(2-3) visits	120	60
4 and above visits	20	10

Socio-economic factors affecting antenatal care attendance (n=200)

Several dependents, level of education of the partner, occupation and marital status were the significant socio-economic factors at ($p < 0.05$) from linear regression

analysis. Majority; had 2 dependents 90(45%), primary level of education for the partners 95(47.5%), 115(57.5%) were peasants and 190(95%) were married. The details are in Tables 3, 4, 5 and 6.

Table 3: Frequency table of socio-economic factors

Variable	Frequency (n)	Percentage (%)	
Number of dependents	1	15	7.5
	2	90	45.5
	3	45	22.5
	>= 4	50	25
Attitude of the partner	Encouraging and supportive	150	75
	Discourages me	45	22.5
	Don't know	5	2.5
Education level of the partner	No formal education	0	0
	Primary level	95	47.5
	Secondary level	65	32.5
	Tertiary/ university	40	20
Occupation	Peasant	115	57.5
	Business woman	65	32.5
	Civil servant	20	10
Distance to the health facility (km)	(1-5 km)	142	71
	(6-10 km)	48	24
	>10 km	10	5
Marital status	Married	190	95
	Single	10	5
	Divorced	0	0

Table 4: Significance of the relationship between ANC attendance and socio-economic factors from chi-square tests

Socio-economic factors	<i>p</i> -value
Number of dependents	0.000
Attitude of the partner	0.000
The education level of the partner	0.000
Occupation	0.000
Distance to the health facility	0.000
Marital status	0.000

Table 5: Significance of the relationship between ANC attendance and socio-economic factors from bivariate correlation analysis

Socio-economic factors	<i>p</i> -value
Number of dependents	0.000
Attitude of the partner	0.000
Education level of the partner	0.000
Occupation	0.000
Distance to the health facility	0.000

Table 6: Linear regression analysis showing the correlation coefficients and significance of socio-economic factors on ANC attendance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-.164	.182		-.902	.368	-.522	.194
	Number of dependents	.206	.074	.324	2.796	.006	.061	.352
	Attitude of the partner	-.155	.127	-.129	-1.223	.223	-.405	.095
	Education level of the partner	.239	.086	.308	2.782	.006	.069	.408
	Occupation	.313	.088	.350	3.545	.000	.139	.488
	Distance to the health facility (km)	-.214	.133	-.203	-1.605	.110	-.476	.049
	Marital status	.737	.178	.268	4.128	.000	.385	1.089

Maternal related factors affecting antenatal care attendance (n=200)

Numbers of deliveries and knowing the right time to seek antenatal care were the significant maternal related factors at ($p < 0.05$) from linear regression analysis.

Majority of the participants had 3 deliveries 73(36.7%) and they didn't know the right time to seek for antenatal care 125(62.5%). The details are in table 7, 8, 9 and 10.

Table 7: Frequency table of maternal related factors

Variable		Frequency (n)	Percentage (%)
Age (years)	(15-19 years)	22	11
	(20-29 years)	110	55
	(30-35 years)	57	28.5
	>35 years	11	5.5
Education level	No formal education	5	2.5
	Primary	112	56
	Secondary	65	32.5
	Tertiary / university	18	9
Number of deliveries	0	3	1.5
	1	35	17.5
	2	70	35
	3	73	36.5
	>= 4	19	9.5
Knew the role of antenatal care	Knew	143	71.5
	Didn't know	57	28.5
Knew the right time to seek for antenatal care	Knew	75	37.5
	Didn't know	125	62.5
Number of times to attend antenatal care	knew	33	16.5
	Didn't know	167	83.5

Table 8: Significance of the relationship between ANC attendance and maternal related factors from Chi-square tests

Maternal related factors	p-value
Age	0.000
Education level	0.000
Number of deliveries	0.000
Knew the role of ANC	0.000
Knew the right time to seek ANC	0.000
Number of times to attend ANC	0.000

Table 9: Significance of the relationship between ANC attendance and maternal related factors from bivariate correlation analysis

Maternal related factors	p-value
Age	0.000
Education level	0.000
Number of deliveries	0.000
Knew the role of ANC	0.000
Knew the right time to seek ANC	0.000
Number of times to attend ANC	0.000

Table 10: Linear regression analysis showing the correlation coefficients and significance of maternal related factors on ANC attendance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error				Beta	Lower Bound
1	(Constant)	-.131	.171		-.765	.445	-.468	.206
	Age (years)	.045	.067	.083	.677	.499	-.087	.177
	Education level	.067	.087	.077	.767	.444	-.104	.238
	Number of deliveries	.331	.077	.512	4.314	.000	.180	.482
	Knew the role of ANC	-.031	.081	-.023	-.381	.704	-.192	.130
	Knew the right time to seek for ANC	.359	.090	.290	3.994	.000	.182	.537
	Number of times to attend ANC	-.013	.103	-.008	-.122	.903	-.215	.190

Health facility-related factors affecting antenatal care attendance (n=200)

Time taken to be served from the time of arrival at the health facility was the significant health facility-related factor at ($p < 0.05$) from linear regression analysis.

The majority of the participants 115(57.5%) responded that they are served one hour from the time they reach the health facility. The details are in Tables 11, 12, 13 and 14.

Table 11: Frequency table of health facility-related factors

Variable		Frequency (n)	Percentage (%)
Time taken to be served	Less than 30 minutes	65	32.5
	1 hour	115	57.5
	2-5 hours	20	10
	More than 5 hours	0	0
Attitude of healthcare workers	Good	8	4
	Bad	192	96
Education to pregnant mothers about ANC	Yes	160	80
	No	40	20

Table 12: Significance of the relationship between the health facility related factors and ANC attendance from chi-square tests

Health facility related factors	p-value
Time taken to be served	0.000
Attitude of health care workers	0.000
Education to pregnant mothers about ANC	0.000

Table 13: Significance of the relationship between health facility related factors and ANC attendance from bivariate correlation analysis

Health facility related factors	p-value
Time taken to be served	0.000
Attitude of health care workers	0.000
Education to pregnant mothers about ANC	0.000

Table 14: Linear regression analysis showing correlation coefficients and significance of health facility related factors on ANC attendance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error				Lower Bound	Upper Bound
1	(Constant)	-.034	.112		-.306	.760	-.255	.186
	Time taken to be served	.932	.023	.950	40.976	.000	.887	.976
	Attitude of healthcare workers	.076	.057	.025	1.317	.189	-.038	.189
	Education to pregnant mothers about ANC	.027	.034	.018	.801	.424	-.040	.094

DISCUSSION

Prevalence of antenatal care attendance among pregnant mothers

This study found that the prevalence of antenatal care attendance was low. This can be attributed to several factors such as late initiation of antenatal care, missing appointments, lack of knowledge about the benefits of antenatal care and low socioeconomic status. Other studies similar to this are a study in West Africa by Dadjo et al. [22]), in South-western Ethiopia by Belay et al. [23]), in Bunyoro and Bugisu sub regions by Atuhaire & Mugisha, [24]), among communities on lake victoria in Uganda by Ssetaala et al., [25]) and in Kanungu district by Steele et al., [21]) which also shown that the prevalence of antenatal care attendance was low. This similarity can be attributed to a number of reasons like late initiation of antenatal care, missing of appointments, lack of knowledge about antenatal care and low socio-economic status. A different study in Western Jamaica revealed that the attendance of antenatal care by pregnant mothers was adequate [26]. This difference can be attributed to factors like high socio-economic status and adequate knowledge about benefits of antenatal care among the participants of the study.

Socio-economic factors affecting antenatal care attendance among pregnant mothers

This study found out that among the socio-economic factors that were significant at ($p < 0.05$) were; number of dependents, level of education of the partner, occupation and marital status. Despite the majority having 2 dependents and being married, also most of them were peasants “with a step to a better occupation increasing the likelihood of ANC attendance by 31.3%” which could have impacted negatively on them economically and the level of education for the majority of their partners was primary level “where by a step in better quality of education increased the likelihood of ANC attendance by 23.9%” which could also have affected the timely decision making in attending antenatal care thus contributing to low antenatal care attendance at Mutara health centre III. In comparison to other studies, a study in

Nepal in 2018 found that mothers with high socioeconomic status are more likely to complete their required antenatal care visits than those with low socioeconomic status [27]. Also, another study in Uganda found that mothers with high socioeconomic status were more likely to have hospital delivery than those with low socioeconomic status [24]. This can be attributed to the fact that these mothers can pay their transport fees to the antenatal care centers. A contrast study in Nepal in 2018 found that the level of education of the partners does not significantly affect the attendance of pregnant women [27]. This can be attributed to differences in the characteristics of the participants.

Maternal-related factors affecting antenatal care attendance among pregnant mothers

This study found that the significant maternal-related factors at ($p < 0.05$) were the number of previous deliveries the pregnant woman had and knowing the right time to seek antenatal care. The majority of the participants had 3 previous deliveries and the minority had no previous deliveries with a positive correlation between the increase in the number of deliveries and ANC attendance “An increase in one delivery increased the likelihood of ANC attendance by 33.1%”. However, majority of the participants lacked knowledge about the right time to seek for antenatal care “where by knowing the right time increases the likely of antenatal care attendance by 35.9%”. This lack of knowledge about the right time to seek for antenatal care can be implicated to the low antenatal care attendance at Mutara health centre III. A contrast study that was done in Nepal about the previous number of deliveries, it found out that mothers with 3 children and above had a reduced turn over for antenatal care compared to their counter parts with 1 to 2 children [27]. This can be attributed to pregnant mothers' perception about the quality of services they get from healthcare facilities. A study that was done in upcountry areas of Uganda in 2015 found that almost half of the participants

did not know the recommended number of antenatal care visits [28] and this can be attributed to their education level in support by a study in Nepal which shown that women with up to the secondary level of education and a 3 times likely hood of completing at least 4 antenatal care visits compared to those who had completed primary level [27].

Health facility-related factors affecting antenatal care attendance among pregnant mothers

In this study, the significant health facility-related factor was the time taken to be served ($p < 0.05$). The majority of the participants responded that they served one hour from the time they reached the

The prevalence of antenatal care attendance was low among pregnant mothers attending antenatal care clinic at Mutara health centre III. Low socioeconomic status was the socioeconomic factors affecting utilization of antenatal care service among pregnant mothers attending antenatal care clinic at Mutara health centre III. Insufficient knowledge about antenatal care was the major maternal related factor affecting utilization of antenatal care service among pregnant mothers attending antenatal care clinic at Mutara health centre III. There was no negative significant finding in the health facility related factors affecting utilization of antenatal care service among

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health facility, with attendance to pregnant mothers within one hour increasing the likelihood of antenatal care attendance by 93.2%. The low turnover rate at Mutara Health Centre III can be attributed to other health facility-related factors that were not determined in this study like the mode of educating pregnant mothers about antenatal care. A contrast study in Jinja Regional Referral in 2018 found that the majority of the participants could be served within 2-5 minutes from the time of arrival at the health facility [29]. This can be attributed to the health facility being a regional referral with a large number of pregnant mothers attending antenatal care from there.

CONCLUSION

pregnant mothers attending antenatal care clinic at Mutara health centre III.

Recommendations

The healthcare workers at Mutara health centre III should design news methods of educating pregnant mothers about the benefits of antenatal care. The office of the district health officer of Mitooma district should sensitize the public about the benefits of antenatal care. The government should educate the people living around Mutara Health Centre III on how they can improve their livelihood to have a high socioeconomic status. A study should be conducted to determine the prevalence of maternal mortality at Mutara Health Centre III.

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