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Research Article

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Factors Influencing Late Utilization of First Antenatal Care Services Among Pregnant Women in Rwanda

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Abstract

Background: *Early antenatal care (ANC) attendance promotes early detection and treatment of pregnant complications. The late utilization of ANC refers to seeking ANC services after twelve weeks of pregnancy. The research aimed to examine the factors behind late ANC services utilization among pregnant women in Rwanda.*

Methods: *This research was a cross-sectional study using quantitative approach. The study population included pregnant women seeking ANC services from seven health centers from Mugonero District Hospital. Sample size of 140 respondents was selected using a two-stage randomized cluster sampling procedure from the study population. Data were collected through structured questionnaire, coded and analyzed using SPSS.*

Results: *The majority (62.1%) pregnant women were married, (58.6%) had more than 3 children, 57.1% attended primary education, and 92.9% were unemployed. The prevalence of late ANC utilization was 57.1%. The odds of attending ANC lately was 2.8 times higher among pregnant women with primary education compared to mothers with tertiary education (AOR = 2.8, 95% CI: [1.32 -3.90]), unemployed mothers have been found to timely attend ANC compared to employed mothers (AOR = 0.13, 95% CI: [0.06 - 1.42]). Mothers who paid themselves transport cost were most likely to late attend ANC compared to mothers who did not pay transport (AOR = 1.90, 95% CI: [1.25-2.18]). Mothers who previously received poor ANC services at health center were most likely to late attend ANC (AOR = 2.0, 95% CI: [1.82-3.16]).*

Conclusion: *The late antenatal care attendance remains high in the study area indicating that the importance of early initiation is not yet fully understood at the community level. Therefore, an approach that involves all stakeholders should be used to address the matter at hand.*

Keywords: Late Utilization of Antenatal Care, Antenatal Care in Rwanda, Pregnant Women

Introduction

Antenatal care coverage is an indicator of access and utilization of health care during pregnancy. Antenatal care is defined as the routine care of pregnant women provided between conception and the onset of labour. Antenatal care is an opportunity to provide care for prevention and management of existing and potential causes of maternal and newborn mortality and morbidity. The new WHO antenatal care model recommends that the first antenatal care visit takes place within the first trimester (i.e, gestational age of <12 weeks) and an additional seven visits are recommended [1]. Antenatal care constitutes screening for health and socio-economic conditions likely to increase the possibility of specific adverse pregnancy outcomes, providing therapeutic interventions known to be effective; and educating pregnant women about planning for safe birth, emergencies during pregnancy and how to deal with them [2].

The estimated worldwide coverage of early antenatal care visits increased from 40•9% in 1990 to 58•6% in 2013, corresponding to a 43•3% increase. Overall coverage in the developing regions was 48•1% in 2013 compared with 84•8% in the developed regions. In 2013, the estimated coverage of early antenatal care visits was 24•0% in low-income countries compared with 81•9% in high-income countries [3]. In African, below70% of pregnant women get antenatal care services once or twice during pregnancy [1]. Maternal and new-born deaths should be eradicated if women get timely advices from professional health care service provider [4].

In Rwanda, according to the RDHS 2015, only 44% of pregnant women get antenatal care standardized 4 times; 56% get their first visit in first term. However, this percentage significantly increased from 13% to 35% respectively in 2005 and 2010. Rwanda Demographic Health Survey report show that 31% of women had their first visit at the fourth or fifth month of pregnancy; 11% began at the sixth or seventh month, and 1% began at the eighth month or after. The middle period of pregnancy at the first ANC visit was 3.9 months for the country as a whole (3.8 months and 3.9 months in urban and rural areas, respectively) [5].

Although Rwanda has done some favorable strides in ANC services where 99% of ANC services are provided by qualified health care providers at health facilities, increased ANC package at health centers, having Community Health Workers in charge of maternal and child health promotion in each village; still first antenatal care service utilization/attendance remains at low coverage in Rwanda. Lack of transport, location of health facilities due to country geographic aspects, low education level, cultural aspects are among the main factors behind the late utilization of ANC services in Rwanda, but these factors were not well explored in scientific way. It is imperative to find out reasons related with late utilization of ANC services in order to develop acceptable interventional measures that could enhance early antenatal attendance and completion of WHO recommended ANC visits. Therefore, this study aims to examine factors influencing late utilization of first antenatal care services among pregnant women in Rwanda.

Methods

The research was a cross-sectional study where the researcher conducted the study once and not repeatedly.

Target Population

The study was carried out in Mugonero District Hospital covering four sectors of Gishyita, Mubuga, Rwankuba and Twumba of Karongi District. The study was conducted in seven health centers of Mugonero District Hospital catchment area including Mugonero health center, Gatare HC, Gisovu HC, Bisesero HC, Mubuga HC, Karora HC and Mpembe. Mugonero District Hospital is located in the western part of Rwanda in Karongi District. Mugonero District Hospital has a capacity of 120 beds with an occupancy rate of 47.1% (R-HMIS, 2019). Mugonero District Hospital serves a population of 88 546 inhabitants distributed over the coverage area of 7 health centers (HC). The major economic activity in Mugonero catchment area is agriculture and fishing. The study population was included of pregnant women aged 15–49 years coming for ANC services from February to March 2020.

Sample Size

A total of 140 pregnant women who visited ANC services during 2 mothers (February to March 2020) were recruited in the study. The two stages sampling techniques were used, in the first stage, cluster sampling technique was used. Clusters were selected from the sampling frame, which consisted of the health centers from which the sample was selected. A total of clusters with probability proportional to size was selected from the catchment area. In the second stage, systematic sampling technique where participants were selected by skipping one after one basing on their sequences of their arrival until reaching the needed sample units from all present ANC attendees according to their respective health centers and compliance to the sample size given by proportional allocation. This was done on the deferent days for antennal care services as ANC days were different for all health facilities.

Data Collection Methods

Structured questionnaire was carried out in seven health centers to identify socio-demographic, economic factors and barriers related to late utilization of ANC services (7). On the side of the reliability of the research instrument, the internal consistency was measured using Cronbach's Alpha to know what is, and how a set of items are linked. A research instrument is considered as having a strong reliability when a minimal correlation value or α coefficient is around 0.60 and 0.8. A pilot test was conducted at Kibuye District Hospital, where ten (10) questionnaires were pre-tested before applying it to target population to make sure that the instrument is clear and measures what is intended to measure. After pilot study, alpha coefficient was 0.74; therefore, the research tools were reliable and valid.

Data Analysis Procedure

Data were collected and cleaned to ensure its completeness and accuracy by using SPSS for quantitative data. A multivariate logistic regression model has been used to calculate odds ratio and the corresponding 95% confidence interval. A two tailed p-value of less than or equal to 0.05 has been used in order to state the statistical significance.

Ethical Considerations

The researcher obtained ethical clearance from the Mount Kenya University of Rwanda and permission to collect data from Mugonero Hospital. Informed consent was signed by the respondent before proceeding with data collection. There were no risks of providing information in this study because the participants were ensured that the findings will be only used for academic purpose and will be maintained in confidentiality.

Results

Social demographic characteristics of the respondents

Table 1: Social-Economic and Demographic Characteristics of Pregnant Women

Variables	Frequency (n)	Percent (%)
Marital status		
Unmarried	53	37.9
Married	87	62.1
Number of children		
0-1 child	17	12.1
2-3 children	41	29.3
More than 3 children	82	58.6
Education level		
Primary	80	57.1
Secondary education	48	34.3
Tertiary education	12	8.6
Religion		
Christian	130	92.9
Muslim	2	1.4
Others	8	5.7
Occupation		
Employed	10	7.1
Unemployed	130	92.9
Reasons of not being served when attending ANC services for those who came late		
Lack/absence of staff	1	2.9
Lack of medical supplies	1	2.9
Long waiting time	19	55.9
Attitudes of staff	7	20.6
Inadequate lab equipment	6	17.6
Health care provider for ANC services		
Nurse	121	86.4
Medical doctor	5	3.6
Others	14	10.0
Charge of ANC services		
0-500 RWF	86	61.4
1,000-3,000 RWF	50	35.7
3,000 RWF and above	4	2.9
Transport cost		
Free/ Walk to reach the health facility (live near health center)	6	4.3
Paid/ Pay transport to reach health facility (far from health center	134	95.7
Health Insurance subscription		
Yes	86	61.4
No	54	38.6

The results in Table 1 indicated that the majority (62.1%) pregnant women involved in the research were married. Most pregnant women (58.6%) had more than 3 children. More than a half of respondents (57.1%) attended primary education; almost all respondents were Christian (92.9%). About the occupation, and 92.9% was categorized as unemployed.

According to the findings presented in Table 1, 55.9% of pregnant women involved in the research evoked the long waiting time as a reason that push them not to attend the health facility for ANC services on time while 20.6% and 17.6% respectively revealed staff attitudes and inadequate lab equipment as the other reasons of not being served when attended ANC services. The majority of the respondents (86.4%) said that they have been served by Nurses when seeking ANC services.

More than a half of respondents (61.4%) highlighted that they are charged between 0-500 RWF before being given the ANC services whereas 35.7% said they paid between 1,000-3,000RWF. The majority of the respondents (95.7%) reported themselves the transport cost when going at the health facility for ANC services and 61.4% have subscribed to the health insurance mainly community based health insurance.

Prevalence of ANC services utilization among pregnant women

The criticality of attributing particular factors to ANC services use drew the researcher's attention to keep on investigating prevalence of ANC among pregnant women.

Table2: Prevalence of ANC services utilization among pregnant women

Variables		Frequency(n)	Percent (%)
Trimesters for ANC visits per	1st Term	60	42.9
	2nd Term	50	35.7
	3rd Term	30	21.4
Late ANC care utilization (after first twelve weeks)	Yes	80	57.1
	No	60	42.9

The Table 2 details a lot about prevalence of ANC services utilization among pregnant women in Mugonero District Hospital catchment area. The results showed that 42.9% of pregnant women attended ANC services when they were in first trimester of pregnancy, 35.7% visited health facilities for ANC when they were in second trimester while 21.4% used ANC services when they were in third trimester of their pregnancy. These results also revealed that above a half of all respondents (57.1%) attended ANC services after the first trimester.

Factors associated with late ANC services utilization

Table 3: Socio-demographic and economic factors associated with late ANC utilization

Variables	Indicator	Late ANC utilization		P-value
		Yes n(%)	No n(%)	
Marital status	Unmarried	53(66.2)	2(3.3)	< 0.001
	Married	27(33.8)	58(96.7)	
Parity	0-1	19(23.7)	1(1.6)	< 0.001
	2-3	39(48.7)	2(3.4)	
	More than 3	22(27.6)	57(95.0)	
Education level	Primary	74(92.5)	6(10.0)	< 0.001
	Secondary	5(6.2)	43(71.7)	
	Tertiary	1(1.3)	11(18.3)	
Religion	Christian	78(97.6)	50(83.4)	0.001
	Muslim	1(1.2)	3(5.0)	
	Others	1(1.2)	7(11.6)	
Occupation	Employed	10(12.5)	10(16.7)	0.004
	Unemployed	70(87.5)	50(83.3)	
Health care Insurance	Yes	78(97.5)	4(6.7)	< 0.001
	No	2(2.5)	56(94.3)	
Received poor services during previous ANC visits	Yes	34(42.5)	2(3.3)	< 0.001
	No	46(57.5)	58(56.7)	

Healthcare providers when seeking ANC services	Nurse	61(76.3)	57(95.0)	< 0.001
	Medical doctor	7(8.7)	1(1.7)	
	Others	12(15.0)	2(3.3)	
Cost of ANC services	0-500 RWF	78(97.6)	6(10.0)	< 0.001
	1,000-3,000 RWF	1(1.2)	49(81.7)	
	3,000 RWF and above	1(1.2)	5(8.3)	
Transport cost	Free	1(1.3)	5(98.7)	0.001
	Paid	79(56.4)	55 (43.7)	

RWF: Rwanda Francs

The findings presented in table 4 revealed that the majority of pregnant women with late ANC utilization were single mothers (66.2%), had lower education level (92.5%), were Christian (97.6%), were unemployed (87.5%), and paid transport cost (56.4%) to reach health facility. In bivariate analysis, marital status, parity, education level, religion, occupation, health insurance, perceived ANC services utilization, type of healthcare providers, cost of ANC services and cost of transport were significantly associated with late utilization of ANC.

Table 4. Multivariate logistic regression of predictors to late ANC use among pregnant women

Variable	**Crud OR (95% CI)**	**Adjusted OR (95% CI)**	***P-value***
Marital status			
Unmarried (Ref.)	1	1	
Married	1.4(0.7 - 2.6)	0.83 (0.36 - 1.66)	0.642
Educational level			
Primary education	3.1(1.9 - 4.2)	2.8 (1.32 -3.90)	0.043
Secondary education	0.8 (0.3-1.6)	0.6 (0.1-1.2)	0.478
Tertiary education (Ref.)	1	1	1
Occupation			
(Self-) Employed (Ref.)	1	1	
Unemployed (housewife)	0.4 (0.21- 2.3)	0.13 (0.06 - 1.42)	0.032
Religion			
Christian (Ref.)	1	1	
Muslim	0.9 (0.4 - 1.8)	0.53 (0.23 - 1.30)	0.143
Other	1.9 (1.4 - 3.1)	1.51 (0.87 - 2.60)	0.124
Transport cost			
Free (Ref.)	1	1	
Paid	1.7(0.5 - 2.35)	1.90(1.25-2.18)	0.041
Parity			
0-1 child	1.1 (0.98 - 1.7)	0.74 (0.43 - 1.44)	0.426
2-3 children	1.43(0.48-2.12)	0.67 (0.45 -1.27)	0.542
More than 3 children (Ref.)	1	1	
Health care insurance			
Yes (Ref.)	1.6 (0.3 - 3.4)	1.78 (0.38 - 3.10)	0.061
No	1	1	
Previously attending ANC and failed to be served			
Yes (Ref.)	1	1	

No	2.3 (1.42 – 3.4)	2.0 (1.82 - 3.16)	0.005
Who attend pregnant women seeking ANC services			
Nurses (Ref.)	1	1	
Other	1.1 (0.3 - 2.2)	0.67 (0.78 - 1.58)	0.062
Charge of ANC services			
0-500 RWF (Ref.)	1	1	
1000 – 3000 RWF	1.4 (0.9 - 2.2)	0.87 (0.50 - 1.50)	0.609
More than 3000 RWF	0.78 (0.32 - 1.34)	0.34 (0.14 - 1.26)	0.270

The odds of attending ANC late was 2.8 times higher among pregnant women with primary education level compared to mothers with tertiary education (AOR = 2.8, 95% CI:[1.32 -3.90]), unemployed mothers have been found to be less likely to attend ANC lately compared to mothers who were employed (AOR = 0.13, 95% CI:[0.06 - 1.42]). The odds of late ANC use was 1.90 times higher among mothers who paid themselves transport cost compared to mothers who did not pay transport (AOR = 1.90, 95% CI:[1.25-2.18]). The odds of being late for ANC was 2 times higher among mothers who previously attended ANC and failed to be served compared to well served mothers when previously attended ANC services (AOR = 2.0, 95% CI: [1.82-3.16]) (Table 4).

Discussion

This study mainly examined factors influencing late utilization of first ANC services among pregnant women in Rwanda. Pregnant mothers, especially those who are living in developing countries are recommended by the WHO that they should start ANC in the first three months of pregnancy in order to ensure a healthy pregnancy state and safe childbirth [6].

In our study revealed that only 42.9% of pregnant women attended first ANC within 12 weeks of gestational age. Our findings were different with what found in a study conducted in Addis Zemen primary hospital, south Gondar, Ethiopia where more than half of the respondents (52.5%) initiated ANC after the recommended time [7]. This could be explained by the socio-cultural differences among the study populations. Another reason could be time differences between the studies because currently there is a better improvement in awareness about ANC and there is also good access to the health facilities than the past times.

Different studies reported different risk factors for late initiation of ANC; our study assessed socio-demographic, economic and health facility related factors associated with late ANC use were found be significantly associated with late ANC utilization.

Pregnant women with primary education level had found with 2.8 times increased risks of lately attending ANC late compared to mothers with tertiary education level(AOR = 2.8, 95% CI: [1.32 -3.90]). Our findings on education were in the line with the study conducted in North Ethiopia where primary educational level was found to be significantly associated with late initiation for antenatal care(AOR=2.2; 95%CI:[1.16-4.25]). The prevalence of late antenatal care follow-up is high [8].

In this study, unemployed mothers have been found to be less likely to attend ANC lately compared to mothers who were employed (AOR = 0.13, 95% CI: [0.06 - 1.42]). This result is in contrast with results of a study done in Tanzania [9] and showed that unemployed women (housewives) were at increased risks of booking ANC late. The reason of attending ANC lately for employed women could be explained by the fact that employed women should lack time to go to health facilities due to the workload. The possible reason for employed mothers to be late for ANC might be lack of time as found in Ethiopia [7]. In addition, mothers might be busy making money for the basic needs of their families.

Pregnant women who previously attended ANC and failed to be served had 2 times compared to other mothers well served when previously attended ANC services (AOR = 2.0, 95% CI: [1.82-3.16]). These results are consistent with those of other studies done in different parts of Ethiopia [7], Zambia [10] and South Africa [11].

Conclusion

Late antenatal care attendance remains high in the study area indicating that the importance of early initiation is not yet to be appreciated. A number of factors were found to contribute to this problem such as education level, occupational status, travel cost, previously attending antenatal care and failed to be served. Therefore, an approach that involves all stakeholders should be used to address the matter at hand. The available resources could be effectively utilized to increase early antenatal attendance in order to respond to the World Health Organization's recommendations for the accessibility of health facilities to pregnant women attended antenatal care services.

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