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Factors Associated with Failed Completion of Four Antenatal Care Visits among Pregnant Women Delivering at Jinja Regional Referral Hospital, Eastern Uganda

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ABSTRACT

Antenatal care (ANC) was a key strategy towards improving maternal and child health. A recent survey data from sub-Saharan Africa has however shown that most women only initiated ANC after the first trimester and did not achieve the recommended number of visits. This study aimed to determine the completion rate of four ANC visits and factors associated with failed completion of four ANC visits among women delivering at Jinja Regional Referral Hospital, eastern Uganda (JRRH). A cross-sectional study design was conducted from February 2021 to April 2021. A total of 355 pregnant women at term admitted at the maternity ward of JRRH were consecutively enrolled. Interviewer-administered questionnaires were used to obtain data. Descriptive statistics followed by binary logistic regression were conducted. The variables in the final multivariate model were significant when $p \leq 0.05$. All data analyses were conducted using STATA 14.2. Of the 355 pregnant women recruited into the study, 98(27.6%) had completed a minimum of four ANC visits. Maternal age below 20 years (aOR=2.4, 95%CI: 1.61-5.21, p<0.0001*) and a distance of more than four kilometres were independently associated with failure to complete four antenatal care visits (aOR=4, 95%CI: 1.33-7.19; $p=0.031^*$). A significant number of women do not complete the recommended minimum of four antenatal care visits in this setting. Young pregnant women and those without public health facilities within a distance of less than four kilometres are likely not to complete the recommended four antenatal care visits in this setting. Strategies aimed at enhancing the accessibility of healthcare services are very crucial. Health Information, Education, and Communication (IEC) messages targeting teenage mothers are key to increasing ANC completion rates.

Keywords: Antenatal care, Women, Pregnancy, Maternal death, Teenage mothers.

INTRODUCTION

Antenatal care is a planned program for the management of pregnant women directed towards making pregnancy and labour a safe and satisfying experience [1, 2]. Pregnancy is an important time to promote good health and prepare women and their families psychologically and emotionally for parenthood [3-5]. ANC can be defined as care provided by skilled healthcare professionals to pregnant women and adolescent girls in order to ensure the best health conditions for both the mother and baby during pregnancy. Antenatal care is one of the "four pillars" of safe motherhood initiatives to promote and establish good health during pregnancy and the early postpartum period [6-8]. Good quality antenatal care services improve the survival of the mothers as well as babies. Antenatal care also provides an opportunity for women to communicate

with their healthcare provider and increases their chances of their using a skilled birth attendant [9-11]. According to WHO antenatal care model [12], it aims to provide pregnant women with respectful, individualized, person centered care at every contact and to ensure that each contact delivers effective, integrated clinical practices, provides relevant and timely information and offers psychosocial and emotional support by practitioners with clinical and interpersonal skills working in well-functioning system. The components of ANC include; risk identification, prevention and management of pregnancy related or concurrent diseases and health education and promotion [13, 14]. In addition, as indirect causes of maternal morbidity and mortality, such as HIV and malaria infections, contribute approximately 25% of maternal deaths and near

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misses, ANC also provides an opportunity to prevent and manage concurrent diseases through service delivery [12]. Globally, there has been a change in pattern and type of obstetric outcomes, as a greater proportion of deaths and morbidities are related to complications of pre-existing medical conditions, in a phenomenon described as obstetric transition. The Sustainable Developmental Goals targets 3.1(by 2030 reduce global maternal mortality ratio to less than 70 per 100,000 live births) and 3.2 (by 2030, end preventable deaths of newborns children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 25 per 1000 live births) are supported by several global initiatives and strategies such as the Global Strategy for Women's, Children's and Adolescents Health 2016-2030. Thus it is important to ensure coverage of early antenatal care services starting from the first trimester as one component to achieve these targets [15]. ANC improves pregnancy outcomes as some risks like mother-to-child HIV transmission, anemia, malnutrition, and some other neonatal and maternal risks are minimized $\lceil 16-21 \rceil$.

Millions of women in developing countries are more likely to experience life threatening and pregnancy related complications because of lack of access to adequate and good quality antenatal care. Indicators of adequate care, as recommended by the WHO,

Study design

This was a cross-sectional study conducted in the months of February to April 2021.

Area of Study

The study was conducted in maternity ward of Jinja Regional Referral Hospital, eastern Uganda. Jinja district is located 80km from Kampala (capital city) in the eastern part of Uganda with an estimated population of 514,300 people. Eighty percent of Jinja town's population is rural with major economic activities as tourism, farming and fishing. Jinja has five health sub-districts managing 54 public and 20 private health facilities. Available district statistics estimated over 25,000 pregnant women in 2013 with four visits coverage of 37% (Jinja District Health Services, 2014).

Study Population

All pregnant women within the catchment area of Jinja Regional Referral Hospital, and this includes all districts served by the hospital such as Jinja, Mayuge, Buikwe, Kayunga, Iganga, Kamuli, Buvuma and others.

Accessible Population

All pregnant women admitted in maternity ward of Jinja Regional Referral Hospital who met the eligibility criteria.

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include providing pregnant women with four antenatal visits, of which initial contact should be scheduled during the first trimester [22]. Antenatal care is a key strategy to improve maternal and infant health but according to the survey data from sub-Saharan Africa most women only initiated antenatal care after the first trimester and did not achieve the recommended number of visits [23]. Globally every year 529,000 maternal deaths occur, 99% of this in developing countries. The inadequate utilization of ANC is greatly contributing to persisting high rates of maternal and neonatal mortality in Uganda [24]. The Uganda Demographics and Health Survey results showed that 97% of women who gave birth in 5years preceding the survey received antenatal care from skilled health provider at least once for their last birth. Six out of every 10 women had 4 or more antenatal care visits (60%) which indicated a gap since the target was 100% [25]. Even though maternal mortality has decreased over the years and increasing number of women do use antenatal care services during pregnancy, many women still do not follow the recommendation of four visits or more. Thus, this study was designed to determine the factors associated with failed completion of four antenatal care visits among pregnant women delivering at Jinja Regional Referral Hospital, eastern Uganda.

METHODOLOGY

Inclusion Criteria

All pregnant women (adults and emancipated minors) at term (between 37 and 40 weeks of gestation) with full track of their antenatal care records admitted in maternity ward that consented to participate in the study.

Exclusion Criteria

Those who had been enrolled in the study but developed obstetric emergencies that required immediate intervention at the time of the interview were excluded from the study.

Sample size determination

The sample size was calculated using the formula Kish Leslie $\lceil 26 \rceil$

Where; n = Desired sample size

z=Z-statistic at z=1.96; 95% level of confidence

P= 0.362, based on a study conducted in Ethiopia; 36.2%) mothers had utilized a minimum of four antenatal care services during pregnancy [27] d= Level of precision= 0.05 Therefore,

n = 355

Sampling technique

Consecutive enrolment of all pregnant women who were eligible for the study was done until the required sample size was realized.

Data collection instruments

Both objectives were achieved using a structured investigator-administered questionnaire.

Data presentation and analysis

Data from questionnaires was entered into Microsoft excel version 2010 and then exported to STATA version 14.2. Data analysis and presentation was carried out according to the different specific objectives. The rate of completion of four antenatal care visits among women delivering at Jinja Regional Referral Hospital was summarized as frequencies and percentages and presented using a bar graph. Logistic regression analysis was used to identify the factors associated with failed completion of four antenatal care services during the pregnancy.

Quality control

Eligibility criteria were strictly adhered to. A common questionnaire was used for all participants. A pilot study was done to pretest the questionnaire and confirm its effectiveness. The questionnaires were checked for completeness before collection to ensure valid data is obtained.

Ethical considerations

Voluntary recruitment was done. Informed consent from participants was obtained after fully explaining the details of the study to them in English and Rusoga. Emancipated minors did not require presence of their guardians to consent. Participants were not forced to enroll themselves if they did not want to. Participants were free to withdraw from the study at any time they wished without coercion or compromise of care that they were entitled to.

Variable	Category	Frequency	Per cent	
	<20 years	57	16.1	
Age	20 - 29.9 years	218	61.4	
	30-39 years	68	19.2	
	40 years+	12	3.4	
	No formal	19	5.4	
Level of education	Primary	199	56.2	
	Secondary	76	21.4	
	Tertiary	61	17.2	
Residence	Rural	251	70.7	
	Urban	104	29.3	
	Peasant farmer	183	51.5	
Occupation	Housewife	60	16.9	
	Civil/NGO servant	41	11.5	
	Business	71	20	
Average family monthly income	<300,000	208	58.6	
(Ugx)	≥300,000	147	41.4	
	Musoga	290	81.7	
Tribe	Muganda	41	1.1	
	Mugisu	15	4.2	
	Others	9	0.3	
	Single	17	4.8	
Marital status	Married	328	92.4	
	Widowed	3	0.8	
	Separated	7	2	

RESULTS

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Of the 355 women recruited into the study, the majority were Basoga 290 (81.7), married 328 (92.4%), and aged between 20 and 29.9 years, 218 (61.4%). Most study participants were peasant **Completion rate of four antenatal care visits amon**

farmers 183 (51.4%) and had attained primary level education 199 (56.2%) with an average monthly family income of less than 300,000 Uganda shillings 208(58.6%). This is all shown in Table 1 above.

Completion rate of four antenatal care visits among women delivering at Jinja Regional Referral Hospital





Of the 355 pregnant women recruited into the study, 98(27.6%) had completed a minimum of four antenatal care visits. The majority, 257 (72.4%) did

not complete the four visits. This is shown in Figure 1.

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Table 2: Bivariate and	multivariate	analysis o	of factors	associated	with	failed	completion	of four	visits
among women delivering at Jinja Regional Referral Hospital (N = 355)									

0	0	4 ANC visi	its	cOR(95%C1)	р	aOR(95%CI)	р
		V	N				
		res	INO				
Maternal	≥20	223(89.6)	69(70.4)	1.0			
age					< 0.000		
	<20	26910 4)	<i>29(2</i> 9.6)	4 1(0.08-3.21)		2 4(1 61-5 21)	<0.0001
Mother's	No	11(4.3)	8(8.9)	1.0		2.1(1.01 0.21)	40.0001
education	110	11(1.0)	0(0.2)	1.0			
lovel	Duimony	149/55 60	56(57.1)	0 56(1 10	0.079		
level	I I IIIIaI y	143(35.00	50(57.1)	10.31)	0.278		
	Secondar y +	103(4.0)	34(34.1)	0.5(0.43-2.09)			
Occupation	Peasant farmer	113(44)	70(71.4)	2(0.05-1.22)	0.01*		0.059
	House wife	47(18.3)	13(13.3)	0.2(0.10-2.01)		0.3(0.11-1.34)	
	Civil/NGO servant	37(14.4)	4(4.1)	0.6(0.31-5.01)			
	Business	60(23.3)	11(11.98)	1.0			
Average	<300,000	131(60)	77(78.6)	1.0			
Family monthly income	≥300,000	126(49)	21(21.4)	2.5(1.14-5.50)	<0.000 1		
Marital	Single	5(1.9)	12(12.2)	1.0			
status	Married	246(95.7)	82(85.7)	0.5(0.2-1.14)	0.57		
	Widowed	2(0.8)	1(1.02)	1.0(0.06-7.45)			
	Separated	4(1.6)	3(3.1)	0.3(0.05- $0.42)$			
Residence	Urban	76(29.7)	28(28.6)	1.0			
	Rural	181(70.4)	70(71.4)	1.0(0.11-13.01)	0.853		
Nulliparity	Yes	68(26.5)	33(33.7)	1.0			
	No	129(50.2)	65(66.3)	0.9(1-3.15)	0.886		
Preconcept on care given	Yes	51(19.8)	37(37.8)	1.0			
	No	191(74.3)	76(77.6)	1.1(0.03-2.81)	0.018*	2.1(1.03-4.40)	0.071
Aware of the 4 visits	Yes	154(59.9)	40(40.8)	1.0	0.012		
	No	103(40.1)	58(59.2)	0.6(0.11-8.01)		0.3(0.12-3.33)	0.331
Distance from h/facility	<4km	116(45.1)	29(29.6)	1.0	0.008		
	≥4km	141(54.9)	69(70.4)	1.3(1.04-5.10)		4(1.33-7.19)	0.031*

p < 0.05, cOR=crude odds ratio, aOR=adjusted odds ratio, CI=confidence Interval, p=significance level.

Following bivariate analysis; maternal age, her occupation, average family monthly income, whether

or not she had received preconception care, whether or not she was aware of aware about the minimum four antenatal care visits, and the distance from the nearest healthcare facility were found to have a statistically significant association with completion of four antenatal care clinic visits among women delivering at Jinja Regional Referral Hospital

Completion rate of four antenatal care visits among women delivering at Jinja Regional Referral Hospital.

This study established that out of the 355 pregnant women recruited into the study, 98(27.6%) had completed a minimum of four antenatal care visits. This was much lower given the fact that Uganda's national protocol on antenatal care strongly advocates for a minimum of four antenatal care visits by all pregnant women.

Factors associated with failure to complete the minimum of four antenatal care visits among pregnant women admitted to the maternity ward of Jinja Regional Referral Hospital

This study has established that maternal age below 20 years (aOR=2.4, 95%CI: 1.61-5.21, p<0.0001*) and a distance of more than four kilometres were independently associated with failure to complete four antenatal care visits (aOR=4, 95%CI: 1.33-7.19; p=0.031*) among pregnant women admitted on

A significant number of women do not complete the recommended minimum of four antenatal care visits in this setting. Young pregnant women and those without public health facility within a distance of less than four kilometers are likely not to complete the recommended four antenatal care visits in this setting.

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 $(p \le 0.05)$. Multivariate analysis revealed that maternal age below 20 years (aOR=2.4, 95%CI: 1.61-5.21, $p < 0.0001^*$) and a distance of more than four kilometres were independently associated with failure to complete four antenatal care visits (aOR=4, 95%CI: 1.33-7.19; $p=0.031^*$). This is shown in table 2.

DISCUSSION

maternity ward of Jinja Regional Referral Hospital. Pregnant women below 20 years were more than two-times more likely to complete the minimum four times antenatal care visits than those over four years of age (aOR=2.4, 95%CI: 1.61-5.21, p<0.0001*). It is possible that these women because of the young either lack the knowledge regarding the importance of attending antenatal care, have fear towards the health facility based care, or carry the commonly unwanted teenage pregnancies. Distance from the nearest public health facility was the other noted significant variable. Women who resided in a distance of less than four kilometers from the nearest health facility were four-fold likely to complete the minimum four antenatal care visits than those without public facility within four kilometers (aOR=4, 95%CI: 1.33-7.19; $p=0.031^*$). This probably justifies the need to increase the number of health facilities so as to ensure access of healthcare services such as antenatal care by all pregnant women.

CONCLUSION

Recommendations

Strategies aimed at enhancing the accessibility of healthcare services are very crucial. Health Information, Education, and Communication messages targeting teenage mothers are key to increasing ANC completion rates.

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