Delayed First Antenatal Care Visit by Pregnant Women: Correlates in a Zimbabwean Peri-Urban District

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Abstract:
Objectives: The study sought to establish factors associated with delayed first visit for antenatal care by pregnant mothers in Seke district of Mashonaland East Province, Zimbabwe.
Methods: A 1:1 case control study design was employed. A case was a pregnant mother who presented for the first ANC visit after 16 weeks of conception (late booking). A control was a pregnant mother who presented for first ANC visit at 16 weeks of conception or earlier (early booking). Systematic sampling method was used to select cases and controls from the Health centre register. A total of 86 cases and 86 controls were interviewed.
Results: Three risk factors were found to be statistically significant and associated with coming late for first ANC visit. These are unavailability of daily ANC services had an odds of 2.2 (CI=0.15; 0.90), not attending ANC awareness campaigns with an odds of 0.5 (CI=0.28; 1.18), and not being involved in decision making on time and place of ANC visits with an odds of 1.9 (CI=1.06; 3.64).
Conclusion: The ANC services need to be provided daily even on weekends, more ANC awareness campaigns should be done to educate the community on ANC importance and the advantages of coming early for first ANC visit.

Keywords: Antenatal care, risk factors, case- control

1. Introduction

It is recommended that women book their pregnancy at 8 to 12 weeks of pregnancy under focused Antenatal Care (FANC). Antenatal care refers to education and health care which includes counseling, screening and treatment during pregnancy to monitor and promote the well-being of the mother and fetus [1;2].Subsequently, the women should have 4 more basic ANC visits. They may come for more visits if they have special conditions which need frequent monitoring [3;4]. Coming for ANC enables clinicians to confirm pregnancy, screen for conditions which puts the pregnancy at risk, classify the pregnancy for either basic or specialized care and to assess and monitor maternal and fetal health throughout the pregnancy[5]. Late ANC booking is a global predicament. Studies in the United Kingdom (UK) showed rates of late booking of 31% and 50%[6;7]. A study in Italy found a modest late booking rate of 32.9%. However, rates of late booking are rather higher for countries in Sub Saharan Africa. A cross-sectional survey in Ethiopia found that 64.9% of women booked their pregnancy late [3].In Zimbabwe's Seke district, in 2012, of the 5 782 pregnant mothers who presented for ANC only 418 (7.2%) made their first antenatal visit before 16 weeks of gestation. Several reasons have been cited for late booking of pregnancy. These reasons include: being well, not knowing the recommended booking time, financial constraints, uncooperating male partner [8], teen pregnancy, high parity, being non-white and unemployed [9]. Delayed booking for ANC is associated with maternal and fetal illness and death [10].About 25% of maternal deaths occur during the ANC period, particularly due to pre-eclampsia, eclampsia and antepartum hemorrhage which can be either prevented or managed during ANC. On the other hand about 900 000 babies die as still births during the last trimester of pregnancy in Sub Saharan Africa[5]. Ironically, 99% of all maternal deaths occur in developing countries. Sub Saharan Africa bears the greatest burden of maternal deaths. About 66% of maternal deaths occur in Sub Saharan Africa. The proportion of maternal deaths increased from 62% in 2013 to 66% in 2015 [11;12]. In Zimbabwe, maternal mortality ratio is still going up. It increased from 283 maternal deaths per 100 000 live births in 1994 to 960 per 100 000 in

2011 [13]. Since late ANC booking causes maternal deaths, which deaths are on the increase in Zimbabwe, the study sought to determine the factors associated with delayed first ANC by pregnant mothers in a peri-urban district in Zimbabwe.

2. Materials and Methods

The study employed a 1:1 unmatched case control study was carried out, where: A case was a pregnant mother who presented for first antenatal visit after 16 weeks of conception (late booking) and a control was a pregnant mother who presented for first antenatal visit at 16 weeks of conception or earlier (early booking).The study was carried out in a district in Mashonaland East Province in Zimbabwe which had the lowest prevalence (7.2%) of early first ANC booking. Pregnant women visiting 12 selected health centers out of the 16 health centers in the District were interviewed. These centers were selected using random sampling (simple lottery method).The sample of 12 health centres was above the minimum of 30 % hence was statistically a good representative of the health centers of the district. Out of the 12 centers 10 were clinics, and 2 were rural hospitals. Pregnant mothers visiting the 12 selected health centers during the time of data collection and health workers found on duty inclusive of the District Health Executive members (For key informant interviews) constituted the study population. Pregnant mothers were systematically selected using the ANC registers found at the health institutions. Cases and controls were identified on the registers and every third mother on each list was selected. The Stat cal function in Epi-info version 3.5.3 was used to calculate the sample size assuming a 44.3% prevalence of late booking among pregnant women and an Odds ratio of 2.5 at 95% Confidence Level and 80% power, a minimum sample of 86 cases and 86 controls was obtained. This was based on a study carried out in South West Nigeria to determine factors that influence the booking time of pregnant mothers [1]. Data was collected from Health workers and Key informants using a self-administered questionnaire and from the pregnant women using an interviewer administered questionnaire. A self-administered questionnaire was used for the health workers. Quantitative data analysis was done using Epi-info version 3.5.3 statistical package. Frequencies, means, standard deviation, median and interquartile ranges, tables and calculation of measures of association (Odds Ratio and p-values) and their confidence intervals were generated from Epi-info. Measures of association with p-values less than 0.05 were considered for logistic regression to determine the more significant factors.

The independent variables that were studies include: Maternal age, parity, religion, educational level, employment status, marital status, distance from health facility, costs for antenatal services, income, availability of alternative delivery services, socio-cultural factors, and awareness levels. Alternative delivery services were regarded as available if one answers yes to any of the following; availability of trained traditional midwives, church midwives, or if the traditional place of delivery is home. Those who perceive that complications can be averted through ANC and are aware of the importance of ANC were regarded as persons who have high awareness levels. The study hypothesized that: There is no significant association between risk factor and coming late for first antenatal care visit. H_0 =no association between risk factor and expected outcome (late first visit for ANC).

2.1. Ethical Considerations

Permission to carry out the study was sought and granted the Medical Research Council of Zimbabwe, the Provincial Medical Director Mashonaland East Province and Africa University's Faculty of Health Science. Each questionnaire was accompanied by a letter of informed consent. Study participants were informed the purpose of the study, its nature, and harm or benefits through the informed consent form.

The consent form assured participants privacy and confidentiality of any information they gave. Participants were instructed to report to MRCZ in case of any harm or unfairness. All participants were issued an informed consent form where they would read and sign that they have agreed to be interviewed.

3. Results

The sample comprised 172 women. Age of participants was positively skewed with a median age of 23 years (IQR = 8). Only statistically significant results were considered for analysis.

Table *I* is a summary of demographic and socio-cultural predictors of delayed first ANC visit. When the decision to attend ANC was made by others, the odds of the odds of delaying first ANC visit was1.9 (CI = 1.06; 3.64). Other factors promised to be associated with late attendance of first ANC, although they were statistically insignificant. The factors included being single compare to being married, having had a previous pregnancy compared to being pregnant for the first time, being unemployed compared to being employed, primary education compared to secondary and higher level of education, living below poverty datum line, having had no complications in previous pregnancy and not having attended ANC in previous pregnancies.

	Demographic Factors				
Variable	**Case n=86 (%)**	**Control n=86 (%)**	**Odds Ratio**	**95% CI**	**P-value**
Maternal age			Median age 23	Q_1 20 Q_3 28	
Marital status a) single b) married	5 (5.8) 81(94.2)	7 (8.1) 79 (91.9)	1.4	(0.44-4.71)	0.55
Parity a) Para >1 or =1 b) Para 0	53(61.6) 33(38.4)	48 (55.8) 38 (44.2)	1.3	(0.69-2.34)	0.44
Employment a)Unemployed b) Employed	75(87.2) 11(12.8)	79(91.9) 7(8.1)	1.7	(0.61-4.49)	0.32
Education (Primary) (Secondary or higher)	15(17.9) 69(82.1)	19(22.6) 65(77.4)	0.7	(0.35-1.59)	0.4
	Socio-cultural factors				
Variable	**Cases n=86(%)**	**Control n=86 (%)**	**Odds Ratio**	**95% CI**	**P-value**
Decision maker (a)others on ANC attendance (c)self	57(66.3) 29(33.7)	43 (50) 43 (50)	1.9	(1.06-3.64)	<u>0.03*</u>
Complications in a)Yes Index pregnancy b) No	18(20.9) 68(79.1)	12(14.0) 74(86.0)	1.6	(0.73-3.64)	0.23
Monthly Income a)<poverty datum line b)>poverty datum line	**82(92.3) 4(4.7)**	**80(93) 6(7)**	**1.5**	**(0.42-5.65)**	**0.51**
Variable	**Case n=53(%)**	**Control n=48(%)**	**Odds Ratio**	**95% CI**	**P-value**
Complications in a) No previous pregnancy b) Yes	43(81.1) 10(18.9)	40(83.3) 8(16.7)	0.9	(0.31-2.40)	0.77
Antenatal a)no attendance in b) yes previous pregnancy	3(5.7) 50(94.3)	6(12.5) 42(87.5)	0.4	(0.09-1.78) 0.23	
Variable	**Cases n=52(%)**	**Control n=43 (%)**	**Odds Ratio**	**95% CI**	**P-value**
ANC attendance <4 or =4 Stage in previous >4 Pregnancy	28(53.8) 24(46.2)	19(44.2) 24(55.8)	1.5	(0.65-3.32)	0.35

Table 1: Factors associated with delayed first ANC visit by pregnant women

Table *II* summarizes the factors associated with timely attendance of the first ANC visit. The odds of not delaying the first ANC visit was 0.4 (CI = 0.22, 0.77) for women who had knowledge on the importance of ANC compared to women who had no knowledge. ANC campaigns were also associated with odds of 0.5 (CI = 0.28; 1.18) of a woman coming not coming late for first ANC visit.

Variable	**Cases n=86(%)**	**Controls n=86(%)**	**Odds Ratio**	**95% CI**	**P-value**
Knowledge <3/3 on gestation >4/4 stage for ANC	66(76.7) 20(23.3)	74(86) 12(14.0)	0.5	(0.24-1.18)	0.12
Knowledge on (1) ANC Importance (0)	37(43) 49(57)	56(65) 30(34.9)	0.4	(0.22-0.75)	<u>0.01*</u>
ANC a) yes Campaign b) no	29(33.7) 57(66.3)	42(48.8) 44(51.2)	0.5	(0.28-0.99)	<u>0.04*</u>

Table 2: ANC awareness levels among pregnant mothers attending ANC and its association with early booking

The association between accessibility of ANC services to pregnant women and late booking is shown in table *III*. Most factors were not significantly associated with coming late for the first ANC visit. The only statistically significant factors were availability of traditional midwives (OR = 0.5; CI = 0.27; 0.96) and daily availability of ANC services at the health care centres (OR= 2.2, CI=0.15; 0.90).

Variable	Case n=86(%)	Controls n=86 (%)	Odds Ratio	95% CI	P-value
Difficulties to a) Yes Get to health center b) No	9(10.5) 77(89.5)	3(3.5) 83(96.5)	3.2	(0.84-12.38)	0.07
Distance to (a) < 15km health centre (b)>15km	68(79.1) 18(20.9)	76(88.4) 10(11.6)	0.5	(0.21-1.15)	0.10
Perceive ANC a) Yes costs affordable b) No	48(55.8) 38(44.2)	57(66.3) 29(33.7)	0.6	(0.35-1.19)	0.16
Availability of a) yes Traditional b) no midwives	50(58.1) 36(41.9)	63(73.3) 23(26.7)	0.5	(0.27-0.96)	0.04*
Costs of getting to a) Cheap Health center b)Expensive	77(89.5) 9(10.5)	79(91.9) 7(8.1)	0.8	(0.27-2.14)	0.60
Paying for antenatal a)yes services b)No	80(93) 6(7)	84(97.7) 2(2.3)	0.3	(0.06-1.62)	0.15
Affordability of a) Yes ANC services b) No	48(55.8) 38(44.2)	57(66.3) 29(33.7)	0.6	(0.35-1.19)	0.16
Variable	Case n=46(%)	Controls n=53(%)	Odds Ratio	95% CI	P-value
Availability of Yes 24hr services No For ANC	10(21.7) 36(78.3)	7(13.2) 46(86.8)	0.1	(0.19-1.58)	0.26
Variable	Case n=60(%)	Controls n=66(%)	Odds Ratio	95% CI	P-value
Availability of daily Yes services for ANC No	18(30) 42(70)	9(13.6) 57(86.4)	2.2	(0.15-0.90)	0.03*

Table 3: Accessibility of ANC services to pregnant mothers attending at 12 health centers in Seke District

The final model of factors associated with coming late for ANC visit are shown in table *IV* below. Statistically significant correlates of late presentation for the first ANC visit included: availability of daily ANC services, ANC awareness campaigns attendance, and decision making on when to visit the health center for ANC services. Unavailability of daily ANC services was 2.9 times a risk for late first visit for ANC. The association between unavailability of daily ANC services and late first visit for ANC was significant (OR=2.9, 95% CI = 1.11;7.66). ANC awareness campaigns attendance was protective with odds 0.4. The association between ANC awareness campaigns and late first visit for ANC was significant (OR=0.4; 95% CI = 0.19;0.92). Self-decision making on where and when to register for ANC was protective with odds 0.5. The association was significant (OR=0.5; 95% CI = 0.21;0.97). Health workers and Key Informants interviewed would talk of long distances travelled or walked by some mothers to get ANC service some would walk up to 40 km especially those in farm lands. Two health workers   thought that pregnant mothers were delaying due to high user fees, but this applied to health centers which were charging for ANC services. Health workers who were on health centers which do not charge user fees would say that it was due to procrastination as many centers are now asking for levy only. Two health workers mentioned that late antenatal attendance was also due to cultural beliefs; some pregnant mothers thought that they were not supposed to inform people about their pregnancy in its early stages. Health workers had different opinions according to the society they are working in.

Variable	Odds Ratio	CI (95%)	P-value
Knowledge on ANC Importance (0/1)	1.5	(0.68-3.20)	0.32
Availability of daily services for ANC (no/yes)	2.9	(1.11-7.66)	0.03*
ANC campaign attendance (yes/no)	0.4	(0.19-0.92)	0.03*
Decision making (self/others)	0.5	(0.20-0.97)	0.04*
Availability of alternative delivery services (yes/ no)	0.7	(0.32-1.72)	0.49

Table 4: Most significant factors after logistic regression

5. Discussion
An analysis of the demographic factors in this study revealed no significant results. This meant that maternal age, parity, religion, educational level, employment status, marital status and income had no statistical significant influence on one's decision to book early for ANC. This however contradicted with some of studies that were explored in the literature review. A cohort study in Central Manchester Health Authority to examine the factors associated with late booking amongst the resident population revealed that teenage pregnancies, moving during pregnancy, unwanted pregnancy and unemployment were some of the factors contributing to delayed first antenatal visit. Women without husband/partner were one of the groups with high odds for late initiation. These two groups were therefore at a higher risk of late attendance for antenatal care[35]In South West Nigeria, a study on the same revealed that late booking was thrice as common in multiparae as in nulliparae. Variables significantly associated with time of booking were

eductional level of the husband, parity, previous miscarriage and medical problem in the index pregnancy[16]. This could be an indicator that these variables are context specific affecting different regions in differing ways.

Two socio-cultural factors were significant, that is, decision making on when and where to register for antenatal care and the availability of traditional midwives (alternative delivery services). Two factors on antenatal care awareness levels were significant that is; knowledge on ANC importance and ANC campaign attendance. On accessibility, one factor was statistically significant that is; availability of antenatal care services. These five factors were analyzed further using logistic regression and three factors proved to be statistically significant using p-value.

5.1. Availability of Daily Antenatal Care Services
In this study the factor which led to inaccessibility of ANC services was unavailability of daily antenatal care services. Women attending health centers which do not offer ANC services on daily basis were 2.9 times likely to come late for their first ANC visit. Health centers provide antenatal care services during working days of the week and on weekends they are closed. This gives limited time for ANC services as those pregnant mothers who are busy throughout the working days will not be able to come for ANC on weekends. A study which carried out in South Africa on healthcare attendance patterns by pregnant women in Durban, showed a similar trend. Women were asked to give reasons for the delay in the initiation of antenatal care, especially those who had confirmed their pregnancy timeously but fell into the "late booker" and "unbooked" categories. The most commonly cited reasons varied from "still early to book" to the fact that they had been attending antenatal care privately, inconvenient clinic hours, work-related reasons (either that they had concealed the pregnancy from their employers or were not allowed time off work), and also that when they presented themselves for confirmation of the pregnancy they were not informed when to commence antenatal care [34]. The accessibility and availability of antenatal healthcare facilities were assessed as part of the secondary outcome measures and the main features were as follows: (i) 155 (51.2%) women in the study lived within walking distance of the health facility, with their travelling time ranging from 10 to 60 minutes. Of those who needed to use public transport, i.e. either a taxi or a bus, the fare ranged from R3 to R16; (ii) five women (1.7%) had either not booked or booked late because of financial reasons; (iii) 72 (23.7%) found the antenatal clinic hours to be inconvenient; and (iv) 30 (10.2%) were not aware that antenatal care is free.(14)

Studies done in other areas revealed that accessibility was a risk factor for late first visit for ANC. Inaccessibility comes in different ways, long distances to travel to the health center, geographical location (crossing rivers), opening hours of the health center and costs for the ANC services. In this study a few mothers would also delay their first visit for ANC due to long distances travelled as was indicated by 6 health workers out of the 12 who were interviewed and the 2 key informants that is the District Medical Officer and the District Nursing Officer. Some mothers had to travel up to 40 km in farm areas for ANC as was said by one health worker. Those who attended ANC at one of the Polyclinics would delay due to $30 a user fee which was required though in all other 11 centers people are no longer paying for ANC services. They only pay levy of $2 or $5 to help maintain the health center.

Accessibility of the health facility has been mentioned by Green and Kreuter in the Precede-Proceed Model as an enabling factor which facilitate the action of making a decision to seek health services, in this case early first visit for antenatal care. Inaccessibility has led to delays in late first visit for ANC in different ways. A study on the use of antenatal and postnatal care in Rural Southern Tanzania showed that some delays in first visit for antenatal care were due to fear of encountering wild animals on the way to the clinic. Lack of money to pay for ANC services was also the other reason for late first visit for antenatal care[31]. In this study inaccessibility was caused by not providing ANC services on a daily basis that is even over the weekends.

5.2. Attendance of Antenatal Care Awareness Campaigns
ANC awareness campaigns attendance was protective with odds 0.4. Attendance of antenatal care awareness campaigns was protective because mothers would gain adequate knowledge on why they should make their first ANC visit early. Out of the 172 pregnant mothers 79(45.9%) thought that they came for antenatal care so that they get HIV tested and safe delivery services. They would say that they come so that they know their HIV status, *"kuti uzive paumire"*. One who thinks that it is for HIV tests is most likely to come late for ANC first visit if she fears to know her HIV status or if she thinks that she is not positive then she finds no reason for coming early. One who thinks it is for the purpose of safe delivery is most likely to come late for first ANC visit as she only targets delivery time. They are likely to come when they are about to deliver as they do not really know the reasons for ANC attendance. Two health workers mentioned that some mothers didn't know the reasons for ANC attendance that's why they would procrastinate their first ANC visit and come when they are about to deliver. ANC awareness campaigns are now being done in other areas whenever there is a community gathering, as was said by 2 health workers. Village health workers will take advantage of these gatherings and ask for time to educate the community on ANC. Awareness campaigns attendance are therefore protective as they give pregnant mothers adequate knowledge on ANC activities for example foetus growth monitoring and earlier detection of complications so that they can be managed on time. A study was carried out in Niger Delta and the findings of this study suggested that most women book late because of a belief that there are no advantages in booking for antenatal care in the first three months of pregnancy. This seems to be because antenatal care is viewed primarily as curative rather than preventive in the study population.

In this study about three quarters of the women felt that the first three months of pregnancy was the best time to register for antenatal care. This knowledge most likely came from health education programs during previous pregnancies, hospitals or the news media but the booking pattern suggests that most of the women were not convinced that there was any gain in registering for antenatal care early or had constraints hence the discordance between knowledge and practice in most of them. It was discovered that best approaches for

health education programs to correct the misconceptions about antenatal care were needed[30]. Awareness campaigns are really needed to educate communities on early ANC attendance.

Discussions done informally with other pregnant mothers have revealed that in Zimbabwe some women are not aware of the purpose of antenatal care. They are not aware of the advantages they get in coming early for antenatal care mainly because there is no platform for teaching or explaining the purpose of antenatal care. Those who never come to the clinic are never reached except through awareness campaigns and yet 6 out of the 12 health workers interviewed, reported that they never did awareness campaigns. Key informants also reported that their district was not carrying out awareness campaigns.

Health education is given to those mothers who come to the clinic. Health workers can only get hold of those who have already come. Awareness campaigns are therefore a powerful tool for educating the community on ANC but they are not being done in the whole district that's why only a few have been reached. Some mothers therefore think that it is only a way of booking a place for delivery they only fear that if they go to a traditional midwife she will not be able to manage complications for example too much loss of blood or any need for caesarian operations. These findings were also found in a study which was done in Central Manchester. It showed that opinions about the value of antenatal care were the other reasons for delayed first visit for antenatal care. This is because there are low awareness levels. A study in South West Nigeria also showed the need for awareness campaigns. This study was done to determine factors that influence the booking time of pregnant mothers with the intention of identifying areas needing educational intervention. It was discovered that interventional campaigns were needed; good education would not easily translate to optimum utilization of antenatal services[16]. This shows the importance of ANC awareness campaigns to give the community adequate knowledge on antenatal care attendance. Similar results were also found in Arusha region of Tanzania. A cross-sectional, population-based study was conducted, interviewing 342 women who had given birth within the past 2 years. Of these, 98% had attended antenatal care services, 27% starting after the 20th week. Non attendees were mainly grand multiparae (para7 or higher). When the women were asked to give the reason they thought led to under-utilization of the services, ignorance ("don't know the purpose of ANC") was given as the main reason, by 57% of the respondents. This also shows that there is a need for ANC awareness campaigns so that the community gets to know the importance of antenatal care.

In the South-Eastern Tanzania study it was conclude that factors including poor quality of care, lack of awareness about the health benefit of antenatal care, late recognition of pregnancy, and social and economic factors may influence timing of antenatal care. Community-based interventions are needed that involve men, and need to be combined with interventions that target improving the quality, content and outreach of antenatal care services to enhance early antenatal care enrolment among pregnant women. This brings out the Perceptions and modifying factors on the Health belief model, which is cue to action (early first visit for antenatal care. According to the model awareness levels, media campaigns health worker education, lay advice, magazines, articles on early first visit for antenatal care will result in early first visit for ANC as the pregnant mother gets to understand the threat of late ANC.

5.3. Decision making on Antenatal Care Attendance

The issue of decision making on where and when to make first ANC visit is determined by the cultural beliefs and norms of the community. Self-decision making or involvement in decision making on when and where to register for ANC was protective with odds 0.5. Usually in the African society decision on pregnancy procedures and activities are made either by the mother-in-law, aunt or husband.

Usually these people have control over the time to make first antenatal care visit. In some cultures it is a sign of respect to follow the mother in law's decisions. This delays first visit for ANC as some cultures believe that it is a taboo to inform people about your pregnancy in its early stages, some believe that they can be bewitched as was mentioned by 3 health workers. Those pregnant mothers who are independent and can make decisions for themselves or who discuss with their husbands on where and when to deliver are able to decide to make their first ANC visit earlier.

Studies done have proved that ethnicity is a risk factor for late first visit for antenatal care. Some cultures have set up procedures which need to be observed in pregnancy. In some cultures it is a cause of concern for a daughter in law to make delivery plans without the knowledge of the mother in law, she needs to consult her first. A study which was carried out in Nigeria, Kanu also showed the same results. Most women had their first antenatal care in the second trimester (64%). The women usually waited for their husbands, mothers or mother-in-law to advise them to attend antenatal care. A study carried out in England and Wales to identify factors that are predictive of late initiation of antenatal care, proved that ethnicity was an independent variable for late initiation of antenatal care[23].

In England a study which was done on social and ethnic differences in attendance for antenatal care showed that the odds for late initiation of ANC were higher for women born outside the UK[35].This is because the cultural beliefs for women born outside UK and those born inside UK are different. A study which was done in Netherlands proved that non-Dutch mothers were more likely to enter antenatal care later (first visit after 14 weeks of gestation) than Dutch mothers[21]. Usually people follow their cultural values and norms. The socio-cultural beliefs of a society are therefore a major risk factor for late first visit for antenatal care.

5.4. Factors which were not significant

Single mothers were 1.4 times more likely to register for ANC late than the married women. The association between being single and coming for first ANC visit was not significant (OR=1.4, 95% CI=0.44;4.71). Usually single mothers are expected to present late for antenatal care as they lack support from husbands on antenatal care and sometimes the partner refuses responsibility of the pregnancy. The results of this study are different with those of other studies. A study which was carried out in England proved that women who had no husbands /partner would delay first visit for antenatal care[35]. This factor is consistent with the fact that in this study it was

discovered that self –decision making on antenatal care is protective. Para 0s were 1.3 times likely to come late for first ANC visit than those who had delivered before. The association was not significant, (OR=1.3, 95% CI=0.69;2.34). Primigravid women are usually expected to book early for antenatal care since they have never experienced any pregnancy. They are expected to be anxious but in this study it was a different case.

In the South West Nigerian study to identify areas needing educational intervention, multiparous women would book late for antenatal care than nulliparous women [16]. Pregnant women who were unemployed were 1.7 times likely to come late for ANC. The association is not significant (OR=1.7, 95% CI=0.61-4.49). Though this factor was not significant it is consistent with other studies. Usually pregnant mothers who are not working fail to pay even the little amounts for levy. In this study one pregnant mother highlighted that she was failing to get $2 to pay for levy that's why she delayed her first antenatal care visit. This was a different case with the study which was carried out at Kubang Kerian Health Clinic (Malaysia), where 11 (36.7%) of late bookers were employed, while 8(26.7%) of early bookers were unemployed. Being uneducated (primary level) was protective with 0dds 0.7, but this was not a significant factor (OR=0.7, 95% CI=0.35;1.95). This outcome is not so common usually educated mothers are expected to make their first antenatal visit early since they have much exposure than the uneducated women and they are expected to be more independent than the uneducated once. The Nigerian study had educational level of the husband significantly associated with time of booking. Pregnant mothers who had monthly income below the poverty datum line were 1.5 times likely to come late for first ANC visit than those who earned more than the poverty datum line that is $400. The association was not significant (OR=1.5, 95% CI=0.42;5.65). This would be a significant factor if all pregnant mothers were paying for ANC services, but most centers are no longer charging.

Pregnant mothers who attended ANC at 4 months or earlier than 4 months in previous pregnancy were 1.5 times likely to come late for first ANC visit but the association was not significant (OR=1.5, 95% CI 0.65-3.32). Having complications in previous pregnancy was protective with odds 0.9, but the association was not significant (OR=0.9, 95% CI=0.31;2.40).

Mostly if a pregnant mother faced some challenges in the previous pregnancy, she is more likely to come early for antenatal care in the next pregnancy to avoid future complications. Pregnant mothers with medical problems in index pregnancy were 1.6 times more likely to come late for ANC than those without medical problems but there was no significant association (OR=1.6, 95% CI (0.73-3.64).

Knowledge on the time to make first ANC visit (3 months or earlier) was protective with odds 0.5, but there was no significant association (OR=0.5, 95% CI 0.24;1.18). Antenatal attendance in previous pregnancy was protective with odds 0.4. The association was not significant (OR=0.4, 95% CI (0.10-1.78).

Pregnant mothers who found it difficult to get to the health facility were 3.2 times likely to come late for their first ANC visit than those who found it easier to get to the health center. There was no significant association (OR=3.2, 95% CI (0.84-12.39). Long walking distances or high travelling fares make antenatal care services inaccessible. One decides to register at a much later stage to avoid making many visits to the health center. In rural Tanzania pregnant mothers would delay first antenatal care visit due to fear of encountering wild animals on the way [30,31].In this study difficulties were due to long walking distances in farm lands. Staying nearer to the health center (<15km) was protective with odds 0.5, but the association was not significant (OR=0.5, 95% CI (0.21-1.15). It is much easier to get to the health center for those pregnant mothers who stay near the health center for they do not incur any travelling costs

5.5. Limitations to the Study
It was difficult to convince some pregnant mothers that the information they were giving would not get to the nurses. They would not easily believe that if they give the true reason for them coming late for antenatal care it would not get to the nurse. Even those who came late because of procrastination would say that it was because they did not have money.

6. Conclusion
The significant factors leading to late first visit for antenatal care are, unavailability of daily ANC services, not attending ANC awareness campaigns and not being involved in decision making on ANC. Communities have to be educated on the importance of coming early for ANC. Daily ANC services should be provided that is including weekends not only working days. There is need to intensify ANC awareness campaigns to educate people on the importance of early first visit for ANC. Health facilities should be kept open for ANC even over the weekends so that those pregnant women who are busy through-out the working days access ANC services over the weekend.

7. Conflict of Interest
The authors declare that there is no conflict of interests regarding the publication of this article.

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