DETERMINANTS OF FIRST ANTENATAL CARE VISIT BY PREGNANT WOMEN AT COMMUNITY BASED EDUCATION, RESEARCH AND SERVICE SITES IN NORTHERN UGANDA
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ABSTRACT

Background: Antenatal care (ANC) aims mainly at prevention, early detection and management of general medical and pregnancy associated disorders. Early booking is recommended for maximum utilisation.

Objective: To investigate the determinants of first ANC visit and trimesters at which pregnant mothers enrol for ANC at the COBERS sites of Northern Uganda.

Design: A descriptive cross-sectional study.

Setting: Five community based Education, Research and Service sites (COBERS) of Atiak, Madi Opei, Mungula, Namukora and Pajule health centre, fours (HC IV) in the five respective districts of Amuru, Lamwo, Adjumani, Kitgum and Pader, Northern Uganda, from April to July 2013.

Subjects: Four hundred and seventeen (417) pregnant women attending antenatal care (ANC) in five health centres and ten purposively selected midwives were interviewed using questionnaires.

Results: Of the 417 respondents, only 11.5% (n = 48) had their first ANC at the recommended period of 0-16 weeks. Prevalence of late entry to ANC was 88.5% (n = 369). Mean gestational age at booking was 22.6±5.7 weeks. Paternal level of education, outcome of previous pregnancy, previous ANC attendance, weeks of amenorrhea, convenience of opening hours at ANC facility, commuting distance from home to health facility, knowing the right time for ANC enrollment and pregnancy planning remained significant predictors governing early booking.

Conclusion: Late ANC booking is still a major public health concern that demands public enlightenment and paternal education coupled with women empowerment will reduce the magnitude of the problem.

INTRODUCTION

Antenatal care (ANC) from a trained health professional is important for monitoring the pregnancy, to reduce potential risks for the mother and child during pregnancy and delivery. It will also help to achieve the Millennium Development Goals (MDGs) 4 of reducing child mortality by two-thirds and 5 of reducing the maternal mortality ratio by three-quarters by the year 2015 (1).

Globally, at least one woman dies from complications related to pregnancy or childbirth every minute, meaning 529,000 women die each year (2). In addition, for every woman who dies in childbirth, about 20 more women suffer from injuries, infections and diseases. Approximately ten million women die each year of ANC related deaths and over 99% of these deaths take place in developing countries (2).

Understanding the utilisation of appropriate antenatal care content is a matter of great policy concern to the government and other stakeholders, especially donors. On average only 16% of women in

Uganda get a full content of antenatal care suggesting low utilisation of ANC (3). However few regional studies across the country attempting to understand the Utilisation of antenatal care content have been undertaken (3).

Several studies have shown that women who start to attend ANC early and continue regularly, are more likely to be assisted during delivery by skilled health workers compared to those who initiate ANC late and attend only few visits (4, 5). Although ANC might not have the potential to predict and avert obstetric emergencies during pregnancy and childbirth, it exposes women to health education on risk factors and encourages them to be delivered by skilled health workers in health facilities.

Recent studies have suggested that women who knew about risk factors were more likely to utilise health facilities for delivery than those without knowledge (6). ANC provides the opportunity to detect and treat anomalies of pregnancy and to deliver preventive health services such as immunisation against tetanus, prophylactic treatment of malaria and worms, and HIV testing and counselling leading to Prevention of Mother to Child HIV Transmission, PMTCT (7). To fully benefit from these interventions, it is important that women start ANC early on in their pregnancy.

The revised Focused Antenatal Care (FANC) model of WHO 2002 as well as the Ugandan Ministry of Health recommend at least four ANC visits for uncomplicated pregnancies with the first visit starting before 16 weeks of gestation (7, 8). However, an analysis of Demographic and Health Surveys (DHS) from 45 developing countries showed that women in sub-Saharan Africa start antenatal care considerably later than women from other regions (7). Similarly, other studies reported late ANC enrolment after more than five months of gestation in sub-Saharan African countries including Uganda (9, 10). A comparative analysis of the use of maternal health services in sub-Saharan Africa showed that adolescent mothers initiated ANC attendance even later and had poor maternal health care than adult mothers (11).

The determinant factors for Utilisation of antenatal care in general have been widely studied identifying maternal education, employment, age, poverty, and access to the media as influencing the utilisation of antenatal care services (12-14). Economic status of household also has an influence on the utilisation pattern of ANC services. Achievement of full ANC starting in the first trimester increased with the increase in the economic status of the household (15). This finding is consistent with a study conducted in Botswana in which it was found that pregnant women with low economic status were less likely to use antenatal care services than those with higher economic status (16). Other significant factors found in other papers are polygamous union, husband's education, parity and female empowerment (13). Surprisingly, previous birth complications such as stillbirth or Caesarean section were insignificant in influencing early prenatal booking (12). Other studies highlight the importance of awareness of ANC during pregnancy and knowledge of pregnancy-related complications in influencing utilisation of antenatal care services (14).

Infant mortality rate in Northern Uganda placed at 172/1000 live births and Maternal Mortality at 700/10,000 are among the factors contributing to this high maternal mortalities due to pregnancy related complications because of late reporting for the first ANC (17). This present study was undertaken in order to establish factors that determine the first ANC visit by pregnant women at the COBERS sites in Northern Uganda.

MATERIALS AND METHODS

A descriptive cross sectional analytical study was undertaken at five selected community based education research and Service (COBERS) sites in northern Uganda between April and July 2013. Five health centres of Atiak, Madi Opei, Mungula, Namukora and Pajule were studied in the five districts of Amuru, Lamwo, Adjumani, Kitgum and Pader in northern Uganda.

These are some, among the many rural health centres where Ugandan medical students are placed to learn, practice clinical medicine and do research in rural Uganda settings by their relevant universities. Four hundred and seventeen (417) systematically selected pregnant mothers who attended their first antenatal care (ANC) visit at the five selected COBERS centres were recruited for exit-interviews using semi-structured questionnaires to collect the quantitative data.

Fifty (50) conveniently selected pregnant mothers took part in the focused group discussions (FGDs) and ten midwives (ANC providers) were conveniently selected to take part in the key informant interviews (KIIs). This constituted the qualitative data.

Approval to execute the study was obtained from the institutional review board (IRB) of Gulu University and from the respective health centre administrators. Written informed consent was sought and obtained from all respondents after explaining the aim of the study and before administering the questionnaires.

Recall bias limited the study as pregnant mothers were asked information regarding their previous pregnancies, however midwives at the respective health centres assisted in data collection and ANC cards were used to compare the information to minimise any errors. Quantitative data was analysed using SPSS 16.0 while directed content analysis of themes of the transcribed qualitative data was conducted manually.

RESULTS

Of the 417 respondents recruited for self-administered questionnaires, the mean age was 26 years and ranged from 16 to 48 years Figure 1.

Eighty nine (21.3%) of the antenatal care (ANC) mothers where interviewed at Pajule Health Centre, 87 (20.9%) from Mungula Health Centre, 86 (20.6%) from Madi Opei Health Centre, 76 (18.2%) from Atiak Health Centre and 79 (18.9%) from Namukora Health Centre. There was nearly equal representation from the five health centres.

Figure 1
Participants' age distribution
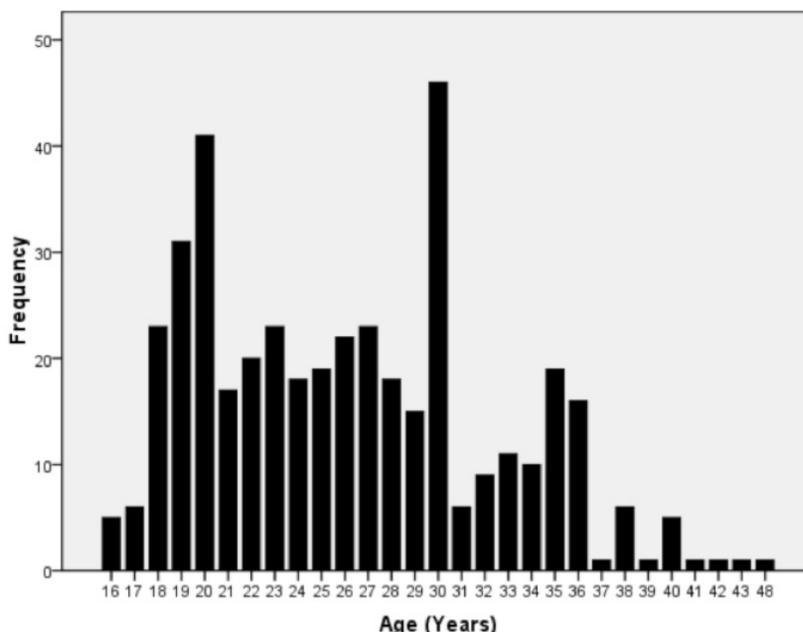
Majority of the respondents were prime gravidae. Other than prime gravidae 78 (18.7%) majority 321 (77.0%) reported having attended ANC for the previous pregnancy, only 18(4.3%) had not attended. Of the 339, multigravidae mothers majority 322 (95.0%) reported the outcome of the most recent pregnancy as live baby, 12 (3.5%) reported still births whereas 5 (1.5%) reported miscarriages.

Three hundred forty two (82%) of the mothers had their first ANC visit in second trimester, especially at 20 weeks of amenorrhea while 57 (13.7%) and 18 (4.3%) begun attending ANC in the third and first trimesters respectively Table 1.

Table 1
Respondents' trimesters at first ANC visit

First ANC visit	Frequency	percent
First trimester (0-12 weeks)	18	4.3
Second trimester (13-28 weeks)	342	82.0
Third trimester (29-40 weeks)	57	13.7
Total	417	100

Demographic information among participants: The factors that considerably influenced ANC attendance included: Religion, tribe, marital status, level of education and distance from home to the health centres. Majority of respondents were Catholics 283 (67.9%). The Acholi were the majority tribe 317(76.0%). The marital status were of the respondents were as follow, cohabiting 198 (47.5%), house wives 315 (75.5%) and their level of educations who had only attained a primary level of education 274(65.7%) and walking 288, (69.1%) a distance of one to five km from their homes to the respective health centres 211 (50.6%).

Knowledge, economic status: Also, the source of information on the availability of ANC services, education level of their spouses and the daily expenditures of the pregnant mothers determined the time for the first ANC visit. About 286 mothers (68.6%) reported having access to radios as mass media, nine mothers (2.2%) could access newspapers and only two mothers (0.5%) reported having access to televisions. Two hundred and thirty seven mothers (56.8%) spent between 2600-5000 Ugandan Shillings ($1-2) as their daily expenditure.

Husbands support, status and level of education: A good number of husbands supported and could escort pregnant mothers to attend ANC 340 (81.5%). Majority of these husbands were peasant farmers 239 (57.3%) reported to have attended primary as highest level of education 188(45.1%).

The right time for a woman to start ANC: Most mothers 316 (75.8%) knew that the right time for a woman to start ANC is one to three months 66 (15.8%) believed that four to six months is the right time whereas only one (0.2%) reported the right time as being seven to nine months. Majority 321 (77.0%) reported that the least recommended goal oriented number of ANC visits is four, although 25 (6.0%) reported zero times. Almost all mothers (94.5%) believed that starting ANC visit early in pregnancy benefits the pregnant mother, and that starting it late can bring problems to both the mother and her unborn child.

Opening hours: Opening hours at the respective health facilities was convenient for the mothers to attend ANC as reported by the majority 333 (79.9%).

Traditional beliefs: Only nine (2.2%0 believed that there are traditional beliefs and practices that discourage women from starting ANC early, although they could not mention these beliefs. Mothers however recognised the great role of TBAs who usually advise them to come early and regularly for ANC visits. The factors expressed by the respondents on the determinants of first ANC visit are presented below.

HIV/AIDS testing and counselling: Respondents reported that they had come to check for their HIV status and get drugs if found positive while some had come to check on the well-being of their unborn children since they are living with HIV.

Antenatal care (ANC) cards: Some mothers just attended ANC for the sake of securing ANC card and check on the well-being of their babies, because they believe mothers who have this card are given priority during delivery.

Minor ailments of pregnancy: It was found out that some pregnant women do not enroll for ANC until they are sick (unfamiliarity with pregnancy symptoms) to seek medical attention in the clinic. '……*I came here because I have been vomiting and feeling very weak*'.

Role of husbands and in-laws: Whereas majority of the women did not know why they had reported for ANC enrollment, some reported that they had been advised by their husbands and mothers-in-law to begin ANC early. It was also elicited that some mothers had enrolled for ANC late because they had not gotten permission from their husbands. Mothers also expressed lack of financial support and transport fee from their husbands to enable them travel long distances to the ANC facilities.

Male partners fear to be found HIV positive if they are to accompany their spouses to the ANC sites, so men often discourage mothers from attending ANC.

Health education: Respondents reported to had been given health education in the community that starting ANC early is good.

Outcome of pregnancy: Some multigravidae mothers reported they decided to enroll early for the current pregnancy due to the poor outcome of their previous pregnancies.

Negative attitudes towards ANC attendances: Because of this some mothers were just reluctant to enroll for ANC due to their negative attitudes like disturbance, walking longer distances several times when a mother enrolls early for ANC.

Climatic changes: Low turn-up of pregnant mothers during farming season (months of April, May and June) as most of them get engaged in Agriculture.

The perceptions expressed by health workers on the determinants of first antenatal care (ANC) visit by the pregnant mothers included:

Lack of outreach services: Health centres have no outreach services to educate mothers about the importance of ANC visits due to lack of transport and facilitation. However the health workers appreciated the role played by UNICEF/MoH in the programme "Family Health Days (FHDs)". This project facilitates health centres through transport and allowances to extend ANC services the communities.

Lack of medical equipments: Also, the unfriendly attitude of health workers towards mothers together with the high costs associated with buying items like basins, gloves, HIV test kits that are often lacking in the health centers. '……*Mothers usually have to prepare such items for them to be delivered at the health facility and this discourages the mothers*'.

Midwives' perspective on ANC first visits: Midwives reported a generally frequent but late ANC enrolment by pregnant mothers with majority starting between 20 to 28 weeks which has lead to increased transmission of HIV to the unborn child if not identified early and PMTCT initiated, late detection of risk pregnancies and danger signs and intra-uterine foetal deaths due to syphilis and malaria.

DISCUSSIONS

This study revealed determinants of first ANC visit, early and late enrollment and trimesters at which pregnant mothers report at the COBERS sites in

Northern Uganda in 2013. Mean gestational age at booking was 22.6±5.7 weeks (95% CI). Majority 369 (88.5%) enrolled late, above the WHO and Uganda MoH recommended 0-16 weeks with 82.0% initiating ANC in the second trimester, despite the known benefit of early enrolment (5). The proportion of mothers who initiated ANC in second trimester was higher than the 57.7% reported by an earlier study in the country (18). The 88.5% prevalence of late ANC entry in the present study is higher than that reported in Nigerian study although maternal level of education, maternal employment, age, economic status and access to the media did not significantly influence the utilisation of antenatal care services and early enrolment in the present study as was in previous studies (12, 15, 16). Paternal level of education (p = 0.011), outcome of previous pregnancy (p = 0.007), previous ANC attendance (p = 0.034), weeks of amenorrhea (p = 0.000), convenience of opening hours at ANC facility (p = 0.026), commuting distance from home to health facility (p = 0.020), knowing the right time for ANC enrolment (p = 0.000) and pregnancy planning (p = 0.012), were statistically significant predictors for early booking in the present study. Mothers who reported having planned for their pregnancy enrolled for ANC early before 16 weeks (OR = 1.13, 95% CI = 0.835 - 1.537) compared to those who had unplanned pregnancy. However parity (p = 0.421) and escort by the husband were not statistically significant (p = 0.305) in determining early ANC enrolment as earlier studies (13). Similarly, knowledge of pregnancy complications and risks was not statistically significant (p = 0.996) in predicting early enrolment for ANC (6, 14). Mothers who reported a bad previous pregnancy outcome that included a miscarriage or stillbirth were more likely to have an earlier antenatal care attendance. A similar finding had been reported in a Tanzanian study (19). The later links the difference to the negative effect of ignorance that had been demonstrated in vicious circle of disease, ignorance and poverty. Contrary to a study in Indonesia, mothers who reported that the opening hours at their facilities were convenient to them were more likely to enrol early for ANC (OR = 1.025, 95% CI = 0.377 - 2.783) (20). Since culturally, men make decisions in our setting, men who are educated are more likely to allow and or escort their spouses to attend ANC. Uneducated women married to uneducated men tend to have impeded autonomy in relation to childbearing and pregnancy planning although structural constraints within the health care system that include inadequate financing of health centers, resulting in lack of human resources, lack of professional re-training, lack of community outreach programmes and inadequate equipment as cited by health workers in the present study are contributory factors to late ANC enrolment. Other studies have shown similar findings (21).

Late ANC enrolment increased with increasing commuting distance and means of transport from homes to the health facilities. It is uncommon to encounter mothers who travel longer distances to attend ANC less than four times. A study of male partner attendance of skilled antenatal care in Northern Uganda showed that men living more than five kilometers from a health facility had a low attendance (22).

In conclusion, overall, the findings in the present study reflect late ANC enrolment in Uganda, a public health concern in many developing countries especially in sub-Saharan Africa (7, 9), that warrantees an immense need for public enlightenment. Massive public sensitisation that emphasises the right time for ANC enrollment, paternal education, making ANC services easily accessible with in a smaller radius for wide range of opening hours coupled with women empowerment could reduce the magnitude of the problem.

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REFERENCES

1. Uganda Bureau of Statistics (UBOS) and Macro International Inc. 2012. Uganda Demographic and Health Survey 2011. Calverton, Maryland, USA: UBOS and Macro International Inc.
2. The World Health Report 2005: Make every mother and child count. Annex Table 8. Geneva, World Health Organization, 2005.
3. Bbaale E. Factors influencing the utilisation of antenatal care content in Uganda. *AMJ* 2011; **4**: 9, 516-526.
4. Mpembeni RN, Killewo JZ, Leshabari MT, Massawe SN, Jahn A, Mushi D, Mwakipa H: Use pattern of maternal health services and determinants of skilled care during delivery in Southern Tanzania: implications for achievement of MDG-5 targets. *BMC Pregnancy Childbirth* 2007; **7**:29.
5. Rockers PC, Wilson ML, Mbaruku G, and Kruk ME: Source of antenatal care influences facility delivery in rural Tanzania: a population-based study. *Matern Child Health J* 2009; **13**:879-885.

6. Stekelenburg J, Kyanamina S, Mukelabai M, Wolffers I, van Roosmalen J: Waiting too long: low use of maternal health services in Kalabo, Zambia. *Trop Med Int Health* 2004, **9**:390-398.

7. Villar J, Bergsjo P: WHO Antenatal Care Randomised Trial: Manual for the Implementation of the New Model. Geneva: WHO; 2002.

8. The National Policy Guidelines and Service Standards for Reproductive Health Services.The Reproductive Health Division, Community Health Department, Ministry of Health, Uganda 2001 ISBN 9966-B97-74-7.

9. Ndidi EP, Oseremen IG: Reasons given by pregnant women for late initiation of antenatal care in the niger delta, Nigeria. *Ghana Med J* 2010, **44**:47-51.

10. Kiwuwa MS, Mufubenga P: Use of antenatal care, maternity services, intermittent presumptive treatment and insecticide treated bed nets by pregnant women in Luwero district, Uganda. *Malar J* 2008, **7**:44.

11. Magadi MA, Agwanda AO, Obare FO: A comparative analysis of the use of maternal health services between teenagers and older mothers in sub-Saharan Africa: evidence from Demographic and Health Surveys (DHS). *SocSci Med* 2007, **64**:1311-1325.

12. Adekanle DA, Isawumi AI. Late antenatal care booking and its predictors among pregnant women in south western Nigeria.*Online Journal of Health and Allied Sciences*. 2008; **7**: 1-6.

13. Awusi VO, Anyanwu EB, Okeleke V. Determinants of antenatal care services utilization in Emevor Village, Nigeria. *Benin Journal of Postgraduate Medicine*.2009; **11**: 21-26.

14. Saxena NC, Chandhiok N, Dhillon BS, Kambo, I. Determinants of antenatal care utilization in rural areas of India: A cross-sectional study of 28 districts (An ICMR task force study). *Journal of Obstetrics and Gynaecology of India.* 2006; **56**: 57-52.

15. Tann CJ, Kizza M, Morison L, Mabey D, Muwanga M, Grosskurth H, Elliott AM. Use of antenatal services and delivery care in Entebbe, Uganda: A community survey. *BMC Pregnancy Childbirth.* 2007 Oct; **11**; 7:23.

16. Letamo G and Rakgoasi SD (2003).Factors associated with non–use of maternal health services in Botwana.

17. Uganda Bureau of Statistics (UBOS) and Macro International Inc. 2007. Uganda Demographic and Health Survey 2006. Calverton, Maryland, USA: UBOS and Macro International Inc.

18. Mpungu S Kiwuwa and PatrobasMufubenga.Use of antenatal care, maternity services, intermittent presumptive treatment and insecticide treated bed nets by pregnant women in Luwero district, Uganda. *Malaria Journal* 2008, **7**:44.

19. Karin Gross, Sandra Alba, Tracy R Glass, Joanna A Schellenbergand Brigit Obrist. Timing of antenatal care for adolescent and adult pregnant women in south-eastern Tanzania.*BMC Pregnancy and Childbirth* 2012, **12**:16.

20. Effendi R, Isaranurug S, Chompikul J. Factors related to regular utilization of antenatal care service among postpartum mothers in pasarrebo general hospital, jakarta, Indonesia. *Journal of Public Health and Development* 2008 Vol.6 No. 1

21. Sophie Graner, Ingrid Mogren, Le Q Duong, GunillaKrantz, Marie Klingberg-Allvin. Maternal health care professionals' perspectives on the provision and use of antenatal and delivery care: a qualitative descriptive study in rural Vietnam. *BMC Public Health* 2010, **10**: 608.

22. Raymond Tweheyo, Joseph Konde-Lule, Nazarius M Tumwesigye, Juliet N Sekandi. Male partner attendance of skilled antenatal care in peri-urban Gulu district, Northern Uganda. *BMC Pregnancy and Childbirth 2010*; **10**: 53