



Proportion of Pregnant Women who achieve Timely Initiation of Antenatal Care at Embu County Referral Hospital in Kenya

Ann B.W. Muthoni*, Mutisya A. Kyalo and Carolyne Nyariki

School of Nursing, College of Health Sciences, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya.

*Corresponding author: Ann Beatrice. W. Muthoni. Email: annbtony@gmail.com

Summary

BACKGROUND

The WHO guidelines of 2016 recommend that all pregnant mothers increase the number of contacts with their healthcare providers, from a minimum of four visits to eight contacts during their pregnancy duration. Unfortunately, globally only 64% of pregnant women receive these services for at least four or more visits throughout their pregnancy. Early initiation of antenatal care is vital for the early diagnosis of pregnancy dangers and establishment of preventive and promotive health as well as management of disorders, and necessary referrals. The aim of the study was therefore to understand the proportion of pregnant mothers that achieve timely initiation of ANC among the pregnant mothers attending ANC at Embu Level 5 Hospital.

RESULTS

All the mothers who responded to have made their first ANC visit before or in their 12th week of pregnancy were recorded as having achieved timely initiation of ANC. On the other hand, any mother who made her first visit after the 12th week of gestation was termed as having initiated ANC late. In this regard, more than half (137, 69.2%) achieved timely initiation of ANC while (61, 30.8%) did not.

CONCLUSION

The study sought to understand the proportion of pregnant mothers who achieve timely initiation of ANC among the pregnant mothers attending ANC at EL5H. The study, therefore, concludes that; a majority of the pregnant women (137, 69.2%) achieved timely initiation of ANC while (61, 30.8%) did not.

RECOMMENDATION

There should be an aggressive creation of awareness on the importance of early initiation of ANC as per WHO recommendations by the ministry of health, county government and the community at large.

More studies should be done on women's empowerment and early initiation of ANC, and men's perception, involvement and participation in pregnancy and ANC.

Keywords: Antenatal Care, Pregnant Mothers, Timely Initiation

[*Afr. J. Health Sci.* 2022 35(2): 202-209]

Introduction

According to the World Health Organization (1), 303,000 women are estimated to have succumbed to pregnancy-related issues globally. Around 2.7 million neonates died in

their first 28 days while 2.6 million infants were stillborn. Antenatal care (ANC) denotes the set of health care services delivered all through pregnancy, from the time a woman conceives to the onset of labour. It also includes nursing the



health of the pregnant woman and fetus, providing quality medical and psycho-social health care, and health promotion (2). Studies have also shown that there are poor pregnancy consequences among women who do fewer or insufficient antenatal care visits and those who initiate prenatal care after the first trimester. This includes pre-term babies and babies with low birth weights (3). Unfortunately, globally only 64% of pregnant women receive prenatal care services for at least four or more visits throughout their pregnancy (4). Maternal and neonatal mortality is a major health problem in Kenya and around the regions that make sub-Saharan Africa.

In Kenya, it is also estimated that the maternal death rate is 362 deaths in every 100,000 live births (Kenya National Bureau of Statistics (KNBS) and International Coach Federation Macro (ICFM). In addition, the mortality ratio for newborns is approximated to be 39 deaths in every 1,000 live births while 52 deaths occur in every 1,000 babies below 5 years (5). High-quality maternal services availability is a priority for decreasing the above-mentioned disparities. The best practice includes women having their initial prenatal health care visit within their first trimester (4). This contributes greatly to the assessing and treating of pregnancy-related complications while forming a quality base for good care in childbirth and post-delivery. Most of the risks and complications during antenatal, intrapartum and post-partum stages result due to failure in seeking early antenatal care (6).

At the Embu Level 5 Hospital, in the period from January to September 2018, 5563 women sought ANC from the facility. From these, only 1184 women attended their 4th visit, and only 316 women sought ANC in their first trimester. This is equivalent to 21.3% and 5.7% respectively. Considering that WHO (4) now recommends initiation of ANC within the first

trimester, 5.7% in a referral hospital was far below the expected. This was a clear indication that there was a great need for a study to find out the proportions that achieve this recommendation.

This study, therefore, sought to understand the proportion of pregnant mothers who achieve timely initiation of ANC among the pregnant mothers attending ANC at EL5H.

Materials and Methods

We employed a health facility-based analytic cross-sectional study with a mixed-methods approach (sequential explanatory mixed methods). Quantitative data was collected initially followed by the gathering and analysis of qualitative data in the next stage. The study population involved all pregnant mothers who sought ANC at the Embu Level 5 Hospital. The minimum required sample size for the proposed study was 247 participants. The sample size was determined using Fischer's formulae since the population was more than 10,000. A systematic random sampling technique was used. The sampling started by selecting a woman at random then every 4th woman in the frame was selected. Structured questionnaires were used for data collection.

Study area

The study was conducted at Embu Level 5 Hospital in Kenya, which is a public training and referral hospital with a capacity of 618 beds and 97 cots.

Study Population

The population under study included all pregnant mothers seeking antenatal care. This department offers services to an average of 30 mothers per day. This results in an average of 600 mothers per month. Most of these clients come from within Embu, Chuka, Mbeere, Kirinyaga and Machakos.



Ethical considerations

Ethical clearance was obtained from the UoN KNH-ERC (KNH-ERC/RR/671). The study was conducted in conformity with the guidelines of the Helsinki declaration.

Data collection tools

Questionnaires with structured questions were administered with the help of four recruited assistants. They contained closed and open-ended questions written in English but were interpreted and explained by the moderator.

Data analysis

The collected data was completed, cleaned and coded. In the analyses, frequencies, percentages, means and standard deviation were used. We used descriptive statistics to describe and analyse the variables numerically. Qualitative data were transcribed and analyzed manually by themes. The normal standard deviate for a given level of significance was (95%), and the desired level of precision was (0.05). Statistical Package for Social Sciences (SPSS®) v 22 was used for the data analysis. Results from the quantitative data were correlated using the Pearson moments correlation method. A reliability coefficient of 0.75 was acceptable according to the rule of the thumb if (X it is ≥ 0.70 , the acceptable minimum).

Results

Social demographic factors

The results showed that more than half, (115, 58.1%) of the respondents were aged between 21-30 years while two of them 2(1%) were aged between 41-50 years. About three quarters (146, 73.7%) of the respondents were married. Slightly more than a quarter, (52, 26.3%) were either single or separated. The

majority of the respondents (83, 41.9%) indicated that they were college or university level graduates, while (17, 8.6%) had no formal education. Regarding religion, the majority of the respondents (164, 82.8%) were Christians, about (24, 12.1%) were Muslims while (10, 5.1%) belonged to other religions. Slightly less than half (98, 49.5%) of the respondents had only one child while (1, 0.5%) had 5 children. However, (70, 35.4%) of the respondents were in their first pregnancy. More than half (102, 51.5%) of the respondents had one previous pregnancy, while (15, 7.6%) were in their first pregnancy. Regarding the gestations of pregnant mothers, a third (60, 30.3%) were in their 1st -5th week of pregnancy, while (6, 3%) were in their 36th -40th week. It became apparent that (90, 45.5%) of the respondents reported complications with previous pregnancies while (108, 54.5%) of them had had no complications. A big proportion (146, 73.7%) of current pregnancies were planned while (52, 26.3%) were not.

The chi-square obtained was 2.796 with a degree of freedom (df) of 4 and a p-value of 0.592.

Proportion of mothers who achieve timely initiation of ANC

All the mothers who responded to have made their first ANC visit before or in their 12th week of pregnancy were recorded as having achieved timely initiation of ANC. On the other hand, any mother who did her first visit after the 12th week of gestation was termed as having initiated ANC late. In this regard, more than half (137, 69.2%) achieved timely initiation of ANC while (61, 30.8%) did not.



Table 1:
Social Demographic Distribution of Participants

Ranges	Frequency	Percentage
Age of the respondents		
10-20 yrs.	30	15.2
21-30yrs	115	58.1
31-40yrs	51	25.7
41-50yrs	2	1.0
Total	198	100
Marital status		
Married	146	73.7
Single	32	16.2
Separated	20	10.1
Total	198	100.0
Education Level		
No formal education	17	8.6
Primary level	46	23.2
Secondary level	52	26.3
College/university	83	41.9
Total	198	100
Religion		
Muslim	24	12.1
Christianity	164	82.8
Others	10	5.1
Total	198	100.0
Pregnancy planning		
Planned	146	73.7
unplanned	52	26.3
Total	198	100.0
Number of Children		
1	98	49.5
2	18	9.1
3	6	3
4	5	2.5
5	1	0.5
None	70	35.4
Total	198	100.0
Previous pregnancies Complications		
Yes	90	45.5
No	108	54.5
Total	198	100.0

Table 2:
Timely Initiation of ANC

	Timely initiation of ANC (within 12 weeks)			
	Frequency	Per cent	Valid Percent	cumulative per cent
NO	61	30.8	30.8	30.8
YES	137	69.2	69.2	100
TOTAL	198	100	100	



Table 3
Relationship between Social demographic Factors and Timely ANC Visit

Age of the respondents					Total	Chi-square Value	df	P-value	
Timely Initiation of ANC		10-20years	21-30 years	31-40 years	41-50 years				
	No	2	34	24	1	61	14.949	3	
	Yes	28	81	27	1	137			
	Total	30	115	51	2	198			
Marital status									
Timely Initiation of ANC		Married	Single	Separated/ divorced					
	No	47	8	6		61	0.644	2	
	Yes	99	24	14		137			
	Total	146	32	20		198			
Education level									
Timely Initiation of ANC		Primary	Secondary	College/university	None				
	No	4	12	17	28	61	1.324	3	
	Yes	13	34	35	55	137			
	Total	17	46	52	83	198			
Religion									
Timely Initiation of ANC		Muslim	Christian	Others					
	No	8	51	2		61	0.626	2	
	Yes	16	113	8		137			
	Total	24	164	10		198			
Pregnancy planning									
Timely Initiation of ANC		Yes			No				
	No	49			12			61	
	Yes	97			40			137	
	Totals	146			52			198	
Number of children									
Timely Initiation of ANC	No	32	4	4	1	1	19	61	7.359
	Yes	66	14	2	4	0	51	137	
	Total	98	18	6	5	1	70	198	
	Number of pregnancies								
Timely Initiation of ANC		1	2	3	4	5	6 & >	None	
	No	32	14	6	4	1	3	1	61
	Yes	70	25	17	3	2	6	14	137
	Total	102	39	23	7	3	9	15	198
Previous pregnancy complications									
Timely Initiation of ANC		Yes				No			
	No	25				36			61
	Yes	65				72			137
	Total	90				108			198



Discussion

According to the Kenya Demographic and Health Survey, 2014, a much lesser percentage of pregnant women initiate ANC within the first trimester. In this study according to the WHO recommendations, all the mothers who responded to have made their first ANC visit before or in their 12th week of pregnancy were recorded as having achieved timely initiation of ANC. In this regard, more than half (137, 69.2%) achieved timely initiation of ANC while (61, 30.8%) did not. On the other hand, any mother who did her first visit after the 12th week of gestation was termed as having initiated ANC late. The results were similar to a study done in the United States whereby approximately five in six mothers (84%) seek antenatal care during the initial trimester (7). It was also comparable with a study done In Asia, whereby 50% attendance was reported while the least attendance of 24% was recorded in the Sub-Saharan area (8). However, it is in contradiction to similar research done in this field. In Arba Minch, south Ethiopia in which the gestational mean standard deviation (sd) at the principal ANC initiation was 5 ± 1.5 months. In that research, the proportion of expectant mothers who initiated their initial ANC visit within the commended time was 17.4% (9). In Rwanda, despite the early universal ANC coverage, only 25% of pregnant mothers started ANC within the timeframe recommended by WHO (10). Further, the occurrence of delayed prenatal care booking by the mothers in Ndola District, Zambia was 86.6% (Chewe *et al.*, 2016).

Limitation of the study

The major limitation of the study was the coronavirus pandemic and its effects, causing the study to take longer than expected.

Conclusion

The study sought to understand the proportion of pregnant mothers who achieve timely initiation of ANC among the pregnant mothers attending ANC at EL5H. The study, therefore, concludes that; a majority of the pregnant women achieved timely initiation of ANC.

Recommendation

There should be an aggressive creation of awareness on the importance of early initiation of ANC as per WHO recommendations by the ministry of health, county government and the community at large.

More studies should be done on women's empowerment and early initiation of ANC, and men's perception, involvement and participation in pregnancy and ANC.

Acknowledgement

My appreciation goes to the Embu county and referral hospital management for allowing me to carry out this study there. I also appreciate my supervisors Dr. Mutisya A. Kyalo and Carolyne Nyariki for their unending support throughout the study.

Authors contact

Ann Beatrice Wambui Muthoni -

annbtony@gmail.com;

Dr. Mutisya A. Kyalo, PhD. -

amutisy@jkuat.ac.ke;

Carolyne Nyariki (PhD ongoing) -

cnyariki@jkuat.ac.ke;

Source of funding - none

Conflict of interest - none

Availability of data - data will be available upon request.

References

1. **World Health Organization.** *Trends in maternal mortality: 1990-2015: estimates from WHO, UNICEF, UNFPA, World Bank*



- Group and the United Nations Population Division. World Health Organization, 2015.
- Oakley, L., Gray, R., Kurinczuk, J. J., Brocklehurst, P., & Hollowell, J.** (2009). A systematic review of the effectiveness of interventions to increase the early initiation of antenatal care in socially disadvantaged and vulnerable women. *Final report. National Perinatal Epidemiology Unit, University of Oxford*
 - da fonseca, C.R.B., Strufaldi, M.W.L., de Carvalho, L.R., & Puccini. R.F** (2014). Adequacy of antenatal care and its relationship with low birth weight in Botucatu, Sao Paulo, Brazil: a case control-study *BMC pregnancy and child birth*, 14(1), 1-12.
 - World Health Organization.** (2016). *WHO recommendations on antenatal care for a positive pregnancy experience.* World Health Organization
 - Kenya National Bureau of Statistics (KNBS) and ICF Macro.** 2015. *The 2014 Kenya Demographic and Health Survey.* Calverton, Maryland: KNBS and ICF Macro
 - Nikiéma, B., Beninguisse, G., & Haggerty, J. L.** (2009). Providing information on pregnancy complications during antenatal visits: unmet educational needs in sub-Saharan Africa. *Health policy and planning*, 24(5), 367-376.
 - Low, P., Paterson, J., Wouldes, T., Carter, S., Williams, M., & Percival, T.** (2005). Factors affecting antenatal care attendance by mothers of Pacific infants living in New Zealand.
 - Abou-Zahr, C. L., Wardlaw, T. M., & World Health Organization.** (2003). Antenatal care in developing countries: promises, achievements and missed opportunities: an analysis of trends, levels and differentials, 1990-2001.
 - Gebremeskel, F., Dibaba, Y., & Admassu, B.** (2015). Timing of first antenatal care attendance and associated factors among pregnant women in Arba Minch Town and Arba Minch District, Gamo Gofa Zone, South Ethiopia. *Journal of environmental and public health*, 2015.
 - Mkandawire, P., Atari, O., Kangmennaang, J., Arku, G., Luginaah, I., & Etowa, J.** (2019). Pregnancy intention and gestational age at first antenatal care (ANC) visit in Rwanda. *Midwifery*, 68, 30-38.
 - Chewe, M. M., Muleya, M. C., & Maimbolwa, M.** (2016). Factors associated with late antenatal care booking among pregnant women in Ndola District, Zambia. *African Journal of Midwifery and Women's Health*, 10(4), 169-178.
 - Chimatiro, C. S., Hajison, P., Chipeta, E., & Muula, A. S.** (2018). Understanding barriers preventing pregnant women from starting antenatal clinic in the first trimester of pregnancy in Ntcheu District-Malawi. *Reproductive health*, 15(1), 158.
 - Drammeh, B., Hsieh, C. J., Liu, C. Y., & Kao, C. H.** (2018). Predictors of antenatal care booking among pregnant women in The Gambia. *African Journal of Midwifery and Women's Health*, 12(2), 65-
 - Ebonwu, J., Mumbauer, A., Uys, M., Wainberg, M. L., & Medina-Marino, A.** (2018). Determinants of late antenatal care presentation in rural and peri-urban communities in South Africa: A cross-sectional study. *PloS one*, 13(3), e0191903
 - Friedman, M.** (1974). *Treating Type A behavior and your heart.* *Fawceff Crest.*
 - Jinga, N., Mongwenyana, C., Moolla, A. et al.** Reasons for late presentation for antenatal care, healthcare providers' perspective. *BMC Health Serv Res* 19, 1016 (2019). <https://doi.org/10.1186/s12913-019-4855-x>
 - Manda-Taylor, L., Sealy, D. A., & Roberts, J.** (2017). Factors associated with



delayed Antenatal Care attendance in Malawi: Results from a Qualitative study. *Medical Journal of Zambia*, 44(1), 17-25.

17. **Miller, S., Abalos, E., Chamillard, M., Ciapponi, A., Colaci, D., Comandé, D., & Manuelli, V.** (2016). Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide. *The Lancet*, 388(10056), 2176-2192.
18. **Ministry of Health (MOH.** 2012). *National Guidelines for Quality Obstetrics and Perinatal Care*. Nairobi, Kenya: MOH.
19. **Openshaw, M. R., Bomela, H. N., & Pretlove, S.** (2011). An evaluation of the timing and use of healthcare during pregnancy in Birmingham, UK and Pretoria, South Africa. *ISRN Obstetrics and gynecology*.