

Healthcare Service Delivery Factors Influencing Uptake of Four Plus ANC Visits Among Mothers Attending MCH/FP Clinic at Rachuonyo South Sub County Hospital, Homabay County, Kenya

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ABSTRACT

Background: Antenatal care (ANC) is crucial for ensuring maternal and child health, yet many women in Kenya do not attend the recommended four or more ANC visits. Socio-demographic factors, such as age, marital status, education, and employment, alongside healthcare service delivery, influence ANC utilization. This study investigates these factors and explores their impact on ANC attendance in a selected community.

Methods: An analytical cross-sectional design was used, combining quantitative and qualitative methods to gather data from 319 mothers who attended ANC clinics at a public hospital between March and May 2024. Systematic random sampling was employed. The quantitative data were analysed using SPSS v29, while qualitative data were analysed thematically. Ethical approval was obtained, and statistical significance was set at $p < 0.05$.

Results: The study revealed that 53.9% of the respondents achieved four or more ANC visits. Regarding healthcare service delivery, service providers' attitude ($p=0.05$) was significantly associated with the uptake of four plus ANC visits, while factors such as the place of ANC service ($p=0.87$), transport means ($p=0.10$), and payment for services ($p=0.06$) were not significantly linked.

Conclusions: This study highlights that socio-demographic factors like age, marital status, education, and employment significantly influence ANC attendance. Additionally, healthcare service delivery, especially provider attitudes, plays a critical role. To improve maternal health outcomes, interventions should focus on addressing socio-demographic barriers and enhancing service delivery, including improving provider attitudes and ensuring better access to quality ANC services for all mothers.

Keywords: Four Plus ANC, Antenatal Care, Health Service Delivery, Maternal Health, Mothers attending NCH/PF Clinic

INTRODUCTION

Antenatal care (ANC) utilization is the accessibility and organization of maternal Child Health Care Services. Negative attitudes among healthcare workers were still a major deterrent to ANC attendance. Many women indicated that rude behaviour or breaches of confidentiality by healthcare providers caused them to delay or forgo ANC visits Chimatiro *et al.* (2019). Several studies have stated challenges within health service

organizations impact women's use of ANC services. According to Guevarra *et al.* (2019) in the Philippines women who faced obstacles such as scheduling difficulties and long waiting times were significantly less likely to attend ANC services regularly. These barriers, including distance to health facilities, lack of walk-in centers, and transportation issues, were common deterrents (Zeine *et al.*, 2020). A long commuting to healthcare facilities is another critical challenge for many pregnant women, particularly in rural areas. Magadi *et al.* (2021). High costs, inadequate quality of care, and excessive time demands on women due to family and household responsibilities are major barriers to attending the required number of ANC visits (Mina, 2019). Long commutes were physically and psychologically taxing, and mothers residing closer to healthcare facilities were more likely to begin ANC visits early in their pregnancies (Alemu & Aragaw, 2019). In sub-Saharan Africa also confirmed that long distances to health facilities discourage pregnant women from seeking regular ANC care Zibilim *et al.* (2019). In Nigeria, women in rural areas, travel longer distances, were significantly less likely to utilize ANC services compared to their urban counterparts. In Nepal, rural residents negatively influenced maternal health service utilization (Bhatt *et al.*, 2019). In Uganda, women often prioritize their daily tasks over seeking medical care, which leads to incomplete ANC visits (Kawungezi *et al.*, 2019). Rural women are less likely to attend ANC regularly due to challenges such as poor infrastructure and limited access to transportation (Gloria, 2020). In Kenya, healthcare workers' attitudes were pivotal in determining whether women continued to utilize ANC services. Healthcare worker behaviour discouraged women from returning for subsequent visits, while respectful and friendly interactions encouraged patients to seek regular care (Chimatiro *et al.*, 2019). Long wait times are common complaint among ANC patients in Kenya (Asweto *et al.* 2020). Long waiting times, lack of laboratory services, and inadequate infrastructure are identified as key sources of dissatisfaction among pregnant women. These factors are thought to contribute to delays in ANC attendance and reduce the overall effectiveness of maternal health services Chorongo *et al.* (2021). There are significant gaps in adherence to focused antenatal care (FANC) guidelines, which could have negative consequences for maternal and neonatal health outcomes Chweya *et al.* (2019). In Kenya, healthcare workers' attitudes are a significant barrier to ANC utilization, mothers were dissatisfied with the services they receive (Kariuki *et al.*, 2019).

Specific Objectives

1. To determine the Distance to the healthcare service delivery influencing uptake of four plus ANC visits Among Mothers attending NCH/PF clinic at Rachuonyo South sub-county Hospital, Homa bay County Kenya
2. To identify the availability of equipment for the healthcare service delivery influencing uptake of four plus ANC visits Among Mothers attending NCH/PF clinic at Rachuonyo South sub-county Hospital, Homa bay County Kenya
3. To determine Health workers attitude for the healthcare service delivery influencing uptake of four plus ANC visits Among Mothers attending NCH/PF clinic at Rachuonyo South sub-county Hospital, Homa bay County Kenya
4. To determine the waiting time for the healthcare service delivery influencing uptake of four plus ANC visits Among Mothers attending NCH/PF clinic at Rachuonyo South sub-county Hospital, Homa bay County Kenya

METHODS

Study Site

The hospital has a bed capacity of 70, catchment population of 138,025 and the ANC clinic target is 5538. Annual attendance of ANC in 2019 was 3766 for first ANC and 2054 for fourth visits in the entire Rachuonyo South sub-county (KNBS, 2019).

Study Design

This study employed a descriptive study design that was cross-sectional in nature utilizing both quantitative and qualitative approaches data collection tools and techniques among women attending MCH/FP clinic at RSSCH. Data was collected from respondents at one point in time from across section of the study population.

Study Population

The study population was 1848 mothers of reproductive age between 15-49 years of age who were attending Rachuonyo South Sub-County Hospital.

Sample Size Determination

Sample size was determined using Cochran's formula re-cited by (Mugenda and Mugenda, 2003), for a population less than 10,000.

$$n = \frac{n_0}{1 + \frac{(n_0-1)}{N}}$$

Where the actual sampled was = 319 and adjusted size = 351 participants.

Sampling Procedure

The study applied the systematic sampling procedure, whereby the 351 respondents were identified and selected from the study population of 1848. The first respondent was identified randomly then the rest were selected after the 6th interval from the register and were interviewed using questionnaires. Qualitative data was collected from Key informants using interview guide.

Data analysis

The data that was collected was reviewed for consistency, then was summarized and then entered into the computer using excel spread sheet. Then data was analysed using statistical package for social scientists SPSS version 26.0 Chicago. Descriptive statistical analysis, such as frequencies, standard deviations, and means, were employed to provide an overview and facilitate the understanding of the collected data. Inferential statistical analysis methods were used to examine the relationship between the dependent and independent variables, correlation analysis was conducted using the collected quantitative data. The significance level was set at 0.05, and a two-sided p-value with a 95 percent confidence level (CI) was used. Bivariate analysis was employed to compare each independent variable with the dependent variable, identifying the most significant variables. Qualitative data obtained from the Key Informant Interviews (participant notes) were cleaned and organized according to specific objectives. This qualitative data served as a valuable supplement to the quantitative data, providing additional insights and perspectives to enrich the overall analysis.

RESULTS

Health Care Service Delivery Factors Influencing Uptake of Four Plus ANC Visits

The study sought to determine the influence of healthcare service delivery on four plus ANC attendance. The results showed that 170/315 (54%) of the respondents who attended public hospital for ANC services achieved four plus ANC visits. Additionally, 147/266 (55.3%) of respondents attended by between 1-2 people utilized four plus ANC attendance. However, place attended ANC clinic ($p=0.87$) and number of people attended offered the services ($p=0.55$) were not significantly associated with the uptake of four plus ANC visits as shown in table 4.6. At least 60/94 (63.8%), and 37/62 (59.7%) of respondents who rated service providers attitude as good and average respectively achieved four plus ANC visits. However, Attitude of service providers ($p=0.05$) was significantly associated with the uptake of four plus ANC visits. Additionally, satisfaction with ANC services ($p=0.36$), Means of transport ($p=0.10$), Payment for health services ($p=0.06$), and Amount paid for ANC services ($p=0.09$) were not significantly associated with the uptake of four plus ANC visits as shown in table 4.6

Healthcare Service Delivery Influencing Uptake of Four Plus ANC Visits

Factors		Four Plus ANC Visits				Statistics
		Achieved		Failed		
		n	(%)	N	(%)	
Place attended ANC Clinic	Public hospital	170	54.0	145	46.0	Fischer exact test; p=0.87
	Private hospital	2	50.0	2	50.0	
Number of people attended to you	1-2 People	147	55.3	119	44.7	Fischer exact test; p=0.55
	3-4 People	22	46.8	25	53.2	
	Above 4	3	50.0	3	50.0	
Attitude of service providers	Very poor	69	46.3	80	53.7	Fischer exact test; p=0.05
	Poor	2	66.7	1	33.3	
	Average	37	59.7	25	40.3	
	Good	60	63.8	34	36.2	
	Very good	4	36.4	7	63.6	
Satisfied with ANC services	Very poor	1	25.0	3	75.0	Fischer exact test p=0.36
	Unsatisfied	1	100	0	0.0	
	Satisfied	42	53.8	36	46.2	
	Averagely satisfied	107	56.6	82	43.4	
	Very satisfied	21	44.7	26	55.3	
ANC Service accessible	Yes	94	58.4	67	41.6	$\chi^2=2.61$; df=1; p=0.11
	No	78	49.4	80	50.6	
Means of transport	None motorized	39	51.3	37	48.7	$\chi^2=4.52$; df=2; p=0.10
	Partly motorized	29	43.9	37	56.1	
	Motorized	104	58.8	73	41.2	
Payment for health services	Yes	2	18.2	9	81.8	Fischer exact test p=0.06
	No	145	47.1	163	52.9	
Amount paid for ANC services	≥ Ksh 150	2	18.2	9	81.8	Fischer exact test p=0.09
	<Ksh 150	145	47.1	82	52.9	

“The waiting time at the [ANC] clinic can be as long as two hours before the nurse arrives. However, when she does arrive, she tends to be unfriendly. If you mention that you have given birth to seven children, she becomes angry. Additionally, there have been instances where some of the children she refers to have been lost due to other unfortunate events. As a result, you become dissatisfied with the services provided and leave the clinic feeling upset

Regression Analysis on Healthcare Service Delivery Factors

Results from the logistic regression are presented in table 4.7. The likelihood of achieving four plus ANC was lower among respondents who attended private hospitals as were 0.85 times less likely to achieve four plus ANC visits (COR 0.85; CI= 0.13- 8.06; p=0.97) compared to the reference group. Women who mentioned that service providers attitude was good were 2.04 times (COR 2.04; CI= 2.31 – 72.40; p=0.001) more likely to achieve four plus ANC visits, and this was significantly associated with achieving four plus ANC visits.

Likewise, women who mentioned that service providers attitude was average were 1.72 times (AOR 8.19; CI= 1.63 – 41.29; p=0.01) more likely to achieve four plus ANC visits, and was also significantly associated with achieving four plus ANC visits. Similarly, achievement of four plus ANC was 0.69 times more likely for women who easily accessed ANC services (AOR 6.77; CI= 1.30 – 35.23; p=0.02) as shown in table 4.7

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Regression Analysis on Healthcare Service Delivery Factors

		COR	p-value	AOR	p-value	95% CI
Place attended ANC Clinic	Public hospital	Ref				
	Private hospital	0.85	0.87	1.04	0.97	0.13 – 8.06
Number of people attended to you	1-2 People	Ref				
	3-4 People	0.71	0.29			
	Above 4	0.81	0.80			
Attitude of service providers	Very poor	Ref				
	Poor	2.32	0.50	9.96	0.14	0.48 – 206.93
	Average	1.72	0.08	8.19	0.01	1.63 - 41.29
	Good	2.04	0.01	12.92	0.001	2.31 – 72.40
	Very good	0.66	0.53	3.70	0.20	0.49 – 27.73
Satisfied with ANC services	Very unsatisfied	Ref				
	Unsatisfied	1	-			
	Satisfied	3.50	0.29			
	Averagely satisfied	3.91	0.24			
	Very satisfied	2.42	0.46			
ANC Service accessible	Yes	Ref				
	No	0.69	0.11	6.77	0.02	1.30 – 35.23
Means of transport	None motorized	Ref				
	Partly motorized	0.74	0.38	0.74	0.41	0.37 - 1.51
	Motorized	1.35	0.27	1.20	0.54	0.67 - 2.12
Payment for health services	Yes	Ref				
	No	0.25	0.08	0.17	0.038	0.03 – 0.91
Amount paid for ANC services	≥ Ksh 150	Ref				
	<Ksh 150	4.0	0.08			

DISCUSSION

The study results showed that slightly more than half of the respondents who attended public hospital for ANC services achieved four plus ANC visits. Additionally, more than half of respondents attended by between 1-2 people utilized four plus ANC attendance. However, place attended ANC clinic and number of people attended offered the services were not significantly associated with the uptake of four plus ANC visits. The likelihood of achieving four plus ANC was lower among respondents who attended private hospitals of which were 0.85 times less likely to achieve four ANC visits compared to the reference group. Similarly, achievement of four plus ANC was times more likely for women who easily accessed ANC services. These findings are supported by a study conducted in Homa Bay County by Okoth and Kioko (2020), who identified long distances to health facilities as a significant barrier to ANC visits, with of rural mothers citing poor infrastructure and long travel times as the primary reasons for missed appointments. This also study found that at least most of respondents who rated service providers attitude as good and average respectively achieved four plus ANC visits. However, Attitude of service providers was not significantly associated with the uptake of four plus ANC visits. These findings are supported by, some studies which found mixed results regarding healthcare worker attitudes by Mbai (2019) who noted that despite some negative attitudes from healthcare providers, the majority of ANC service providers exhibited a positive demeanor, which helped to foster a supportive environment for patients. However, Chimatiro *et al.* (2019) disagreed and reported that negative attitudes among healthcare workers were still a major deterrent to ANC attendance. Many women indicated that rude behaviour or breaches of confidentiality by healthcare providers caused them to delay or forgo ANC visits. This finding agreed with (Chimatiro *et al.*, 2019) who conducted Kenya and found that healthcare workers' attitudes were pivotal in determining whether women continued to utilize ANC services. Unfriendly healthcare worker behaviour discouraged women from returning for subsequent visits, while respectful and friendly interactions encouraged patients to seek regular care.

CONCLUSION

The uptake of four-plus ANC visits among women in Rachuonyo South Sub-County Hospital is influenced by several socio-demographic and healthcare service delivery factors. A majority of them were aged between 20 to 29 years, with the majority being married, employed, and possessing post-primary education. The family support, particularly from husbands, played a critical role in encouraging women to attend ANC visits, with financial and emotional support being key motivators. Healthcare service delivery was a significant factor influencing the uptake of four-plus ANC visits, especially the attitude of service providers. Women who rated the attitude of service providers as good or average were more likely to attend four-plus ANC visits. Service providers' attitude greatly impacts the quality of care and satisfaction, which in turn affects ANC attendance. The long waiting times and unfriendly interactions with some service providers lead to dissatisfaction, which could discourage women from attending ANC visits regularly. Healthcare workers face challenges, such as long working hours and insufficient staff, which affected their ability to provide quality care. Improving the quality of healthcare services, particularly enhancing the attitude of service providers, is crucial to increase the uptake of four-plus ANC visits. Continued support from families and further expansion of accessible, affordable health services are key to ensuring more women attend ANC clinics regularly. To improve outcomes, the county health team should prioritize enhancing the service delivery experience and providing additional resources for healthcare workers to meet the needs of the growing population.

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Declarations

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Conflict of interest: None declared

Ethical approval: The study was approved by the Jaramogi Oginga Odinga Teaching and Referral Hospital-Ethical Review Committee and a permission by National Commission for Science, Technology and Innovation, Kenya. Written consent was obtained from the participants

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