

Prevalence of Utilization of Antenatal Services among Pregnant Females of Reproductive Age Attending Nyamata Level II Teaching Hospital

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ABSTRACT

Eight focused Antenatal services improve maternal and newborn healthy outcomes, yet completion of the World Health Organization eight-contact schedule remains limited at community household settings. It was these reasons that led to the study on the prevalence of the utilization of antenatal services and to determine the level of maternal health education achieved in the utilization of antenatal services among females of reproductive age attending Nyamata Hospital in Rwanda to mediate quality utilization of the 8 funded antenatal services and reduce obstetric complications. This was a mixed study, exploring descriptive, cross-sectional, and triangulation designs. In a survey, a semi structured questionnaires was administered to 423 ANC females of the reproductive age, and interviews were conducted using focus group discussions and key informant interviews. Data were managed in SPSS version 22 and analyzed using cross-tabulations of descriptive and inferential statistics. Results the majority were concentrated in the 20–24-year age group, which accounted for 30.3% (128), and least cohort age group was 45–49 years 2.4%, (10), with age range 27.9% (118). On marital status of the study area 62.4% (264) were married, either through civil or religious unions. The study opined that a prevalence of 295 (69.7%) , pregnant females of reproductive age at the facility had completed the 8 focused antenatal service .at the time of the study, 128 (30.3%) had labor word deliveries within the previous twelve months, as the cumulative incidence, significant quality ANC care with a p-value of 0.05. The results demonstrated that 399 (94.3%), had received quality health education during their regular antenatal visits during the ANC visits at triage before we are given ANC services. while only 24 (5.7%) indicated that they did not, with Significant P values of 0.023, service utilizations. The study found that level of health education as constantly enabled the utilization of antenatal services in the society of Rwanda thus need to promote more empowerments to community health worker to promote the sustainability of the ANC program

Keywords: Antenatal services, Eight-contact model, Health education, Socio-cultural factors, pregnant female

1. INTRODUCTION

Antenatal services (ANC) are a core platform for maternal and newborn health because it supports risk identification, prevention, and management of pregnancy-related and co-existing conditions, health promotion, and linkage to skilled delivery and postnatal care [1], [2]. In contemporary maternal health policy, ANC is positioned not only as a clinical service but also as a structured communication platform

through which women receive pregnancy-related knowledge and guidance necessary for healthy behaviors, recognition of danger signs, and birth preparedness [3]. The World Health Organization (WHO) reframed ANC within the “positive pregnancy experience” approach and recommends a minimum of eight ANC contacts starting within the first 12 weeks of gestation, with scheduled contacts across pregnancy to strengthen timely interventions and improve maternal and newborn outcomes and experience of care [4]. The eight-contact model is implemented through evidence-based components that include nutritional care, maternal and fetal assessment, preventive measures, management of common pregnancy discomforts, and health system strategies to support continuity and quality [5], [6]. The model further aligns with continuity-of-care concepts for maternal, newborn, and child health that emphasize coordinated services across pregnancy, delivery, and the postpartum period [7]. Despite the policy shift, sustained attendance remains challenging in many low- and middle-income countries, particularly in sub-Saharan Africa (SSA), where initial ANC contact can be high but continuation to the recommended number of visits is limited [8], [9], [10], [11]. Multi-country analyses consistently show that late booking, poverty, low education, rural residence, high parity, low insurance coverage, long distances to facilities, opportunity costs, and health system barriers are associated with reduced ANC continuity and quality [12], [13], [14].

2.0 Material and Methods

2.1.0 Material

2.1 .1 Prevalence of the Utilization of antenatal Services among pregnant females

The utilization of ANC services has improved globally, particularly following the WHO’s initiation of the ANC model in 2002, which underscored four evidence-based contacts during pregnancy [15]. Despite this progress, global data from 2007–2014 show that 64% of expecting females attended at least four ANC appointments, and more recent statistics indicate that while approximately 90% of females globally attend at least one ANC appointment, 57% only met at least the four-visit recommendation [2]. In Africa, these figures are even lower, with only 53% attending at least one skilled ANC visit and 49% completing four trips [11]. The WHO has since restructured its guidance, recommending eight ANC contacts as the lowest number of visits with the goal of improving health outcomes for both mothers and babies, especially in developing countries [2].

Nevertheless, many LMICs still encounter major obstacles in achieving adequate ANC coverage. Late initiation of ANC remains a major concern, with 72% of pregnant women in some regions starting ANC after the first trimester [15]. For instance, in Kenya, only 58% of women complete four ANC visits, and in Somalia, just 33% initiate care by the second trimester of pregnancy. In India, a large nationwide survey from 2015–2016 revealed that a mere 21% of females obtained the full package of ANC services in their last pregnancy, underscoring the persistent inequities in access to quality maternal health services [11].

In sub-Saharan Africa (SSA), disparities are particularly striking. Although maternal death has dropped globally by 34% with the period of 20 years from 2000 to 2020, SSA still bears the highest burden, accounting for three-quarters of global stillbirths and recording a maternal mortality ratio of 0.545% deliveries [16]. A study conducted by Lateef et al. (2024) indicated that ANC coverage varies widely across African sub-regions: Southern Africa shows the highest performance, with 75.5% of females attending four or more visits, followed by Central Africa (67.0%), West Africa (60.3%), and East Africa (54.7%). The percentage of women receiving less than only three visits ranges between 15.5% and 38.1% in Southern part of Africa Eastern part of Africa, respectively [17].

Country-specific disparities further illustrate this variation. Ethiopia reported the highest share of women with zero ANC visits (34.76%), and the lowest rate was observed in Burundi (0.75%). Though showing progress, Rwanda, had the top percentage of women receiving from one to three ANC visits (50.33%), while Ghana led in achieving more than four contacts (87.49%), and Guinea had the lowermost (34.74%) [17].

Rwanda has demonstrated remarkable advancement in ANC services utilization over the last twenty years, driven by robust health sector reforms and targeted policies. In the beginning of the 21st century, Rwanda's healthcare system faced important deficits, with maternal death rates around 1,007 per 100,000 deliveries and limited ANC access [18]. The government implemented successive Health Sector Strategic Plans (HSSPs) to rebuild infrastructure, train healthcare providers, and deploy community health workers (CHWs), particularly in rural areas [18]. By 2010, 35% of women received first-trimester ANC, rising to 47% by 2019–2020, while the proportion completing four or more visits increased from 38% to 59% in the same period [18], [19], [20], [21]. Initiatives like the Preterm Birth Initiative and group ANC (G-ANC) further improved care quality and maternal satisfaction [18]. These efforts were bolstered by strong political commitment, public-private partnerships, and CHW programs, which expanded coverage and reduced maternal death to 210 per 100,000 live childbirths by 2015 [22].

Despite these advancements, challenges persist in achieving universal ANC adherence, particularly to the WHO-recommended eight-visit model. The 2019–2020 RDHS revealed that 98% of pregnant females who showed up for a minimum of one ANC appointment, but only 47% initiate care in the first trimester, and 59% complete four or more visits [21]. A study by Twagirumukiza et al. (2024) revealed the disparities that remain linked to socio-economic factors. Women with higher education, wealth, and health insurance were more likely to utilize ANC adequately. In contrast, women in rural areas, with limited education or facing financial barriers, experienced delayed or incomplete care. The burden of long travel distances, unwanted pregnancies, and insufficient social support further discourages timely and consistent attendance to ANC services.

2.1.2 Health Educational Contribution to Utilization of the 8 Focused Antenatal Services.

Health education is a plausible and policy-relevant determinant of ANC utilization because it influences how women interpret pregnancy risk, understand the rationale for preventive attendance, and plan for repeated visits. Health education delivered during ANC visits can address misconceptions, increase perceived benefits of early booking, and provide practical scheduling guidance [23], [24].

Importantly, the effect of health education is not only a function of whether education is delivered, but also of its process quality, including frequency of exposure, clarity and understanding of messages, opportunity for interaction and questions, and explicit knowledge of recommended timing and scheduling [25], [26]. When education is interactive, repeated, and aligned with the pregnancy stage, it is more likely to translate into behavior change, including earlier initiation and improved continuity [27].

The level of formal health education a woman has significantly impacts her health-seeking behavior [28]. Better-educated mothers tend to recognize the value of timely and consistent antenatal check-ups and are better able to access and navigate health services [28].

Poverty and limited financial resources can prevent women from attending ANC due to costs. Females' awareness of the ANC importance, including prevention and management of diseases, plays a critical role. Studies have demonstrated that low awareness often results in delayed first visits and fewer total contacts during pregnancy [16]. Moreover, health education can influence positive behavioral change by dispelling myths, addressing socio-cultural misconceptions, and encouraging shared decision-making between

partners and families. It also improves women's confidence and capacity to interact with healthcare providers and demand quality services [29]. When delivered through effective channels such as community outreach programs, mass media, group sessions, or individual counseling, health education acts as a mediating factor that enhances the impact of socio-demographic, cultural, and health system-related determinants on ANC uptake [30], [31].

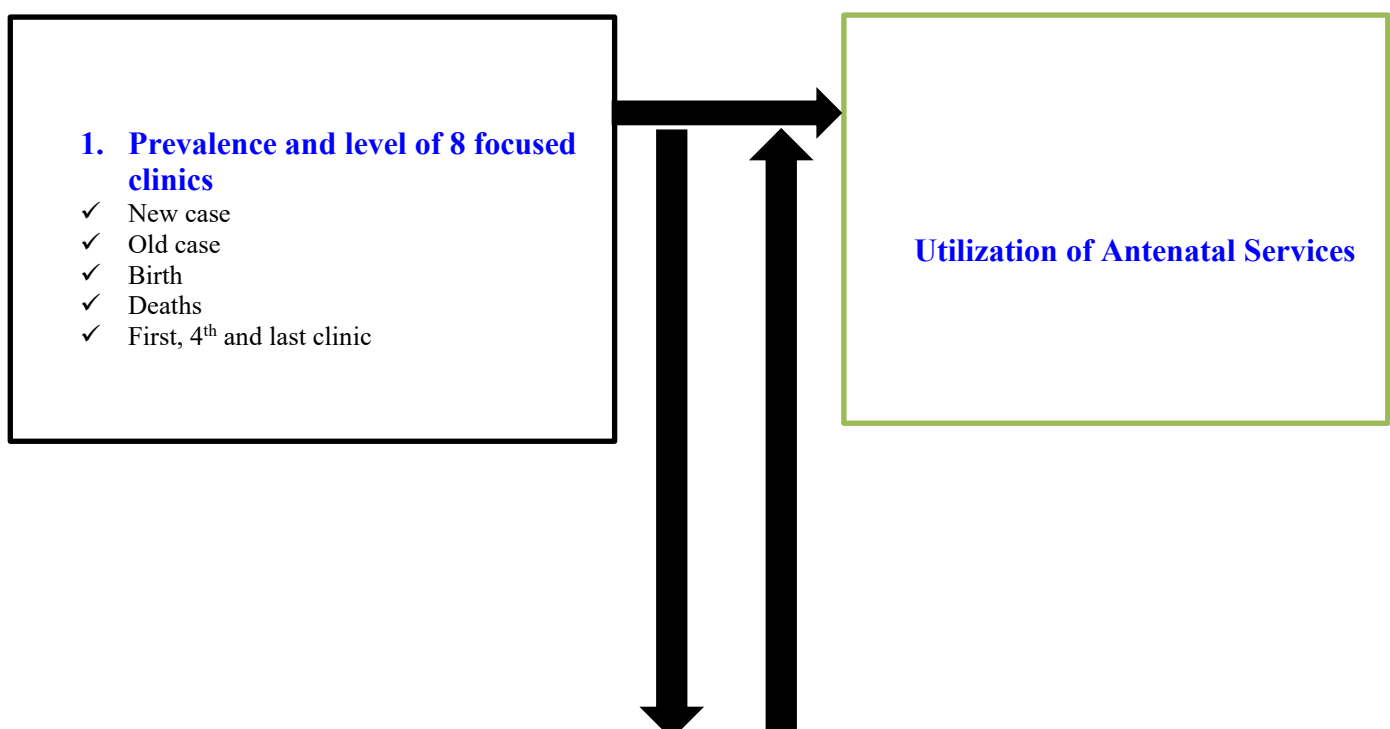
A study by Okafor & Yewande [32] in Nigeria demonstrated that health education has a significant constructive effect on the ANC use and facility-based delivery services. In their studies, before the involvement, there was no noteworthy variation in knowledge or utilization amongst the control and investigational groups. However, following the health education intervention, the experimental group showed a dramatic enhancement in information scores from a mean of 52.14 to 104.75, and a corresponding increase in utilization of hospital delivery services.

Rwanda has achieved near-universal coverage for at least one ANC visit by skilled providers, reflecting major health system investments and strong community-based delivery structures, including community health workers [18], [19], [33]. However, continuity remains suboptimal, with RDHS data indicating persistent gaps in first-trimester booking and completion of recommended visits, and district-level variation suggesting that national averages may mask localized constraints [21]. Evidence specific to the WHO eight-contact schedule at facility and district levels remains limited, particularly in Bugesera District. Nyamata Level II Teaching Hospital serves as a key facility for ANC, delivery, and postnatal services, but the extent of adherence to the eight-contact schedule and the local drivers of incomplete attendance require documentation to guide targeted improvement strategies. This study assessed ANC utilization among women attending Nyamata Level II Teaching Hospital and examined factors contributing to low utilization, with a specific focus on completion of eight contacts, socio-cultural influences, and the contribution of health education.

2.2.3 Conceptual framework

Background Variable

Outcome variable



Intermediate Variable

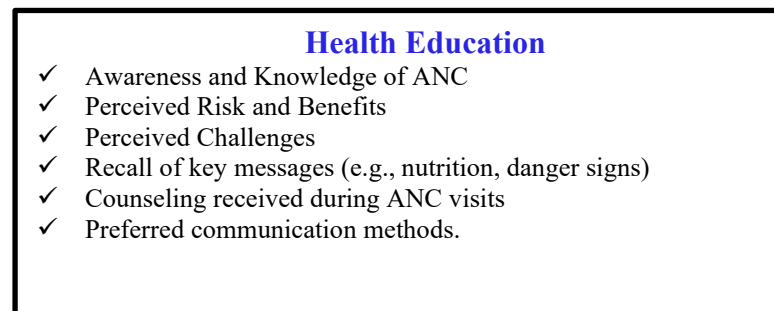


Figure 2.1: Conceptual framework, Source (45)

3.0 Methods

3.1 Study Design

A hospital-based, descriptive cross-sectional and triangulation designs was employed to capture antenatal services utilization patterns and their associated factors at a single point in time [34]. The study used a convergent mixed-methods framework, merging numerical data from structured instruments with in-depth contextual data from open-ended inquiries to comprehensively examine the factors contributing to low utilization of antenatal care (ANC) services among pregnant females attending Nyamata Hospital, Rwanda. The quantitative component involved administering structured questionnaires to assess the prevalence and level of ANC attendance, including adherence to the WHO-recommended eight-visit model. This will allow for the identification of statistical associations between key variables.

To complement the quantitative data, the qualitative component included focus group discussions (FGDs) and in-depth interviews (IDIs) aimed at exploring socio-cultural influences and the role of health education in shaping ANC-seeking behaviors. This offered deeper, context-specific insights that are not easily captured through survey data alone.

The research took place at Nyamata Level II Teaching Hospital, located in Bugesera District, Eastern Province, Rwanda. This facility serves as a district referral hospital, delivering a range of mothers and new born health services, including ANC, to both rural and peri-urban populations. It was selected due to its high patient volume, its diverse catchment area, and its relevance in representing the healthcare access challenges encountered in both rural and semi-urban Rwandan settings.

3.2 Study Area

This work was carried out at Nyamata Level II Teaching Hospital, a referral facility located in Bugesera District, located in the Eastern Province of Rwanda. The hospital plays a central role in delivering maternal and child health services, including ANC, to both rural and urban populations of the district.

According to the 5th census in Rwanda, (RPHC-2022), Bugesera District has a populace of 551,103 residents. The district has a largely female population (50.7%), and 59.9% of residents live in non-urban areas, while 40.1% reside in city settings [35].

Bugesera's population is largely youthful, with 59.3% of the population under 25 years of age, indicating high fertility levels in recent years with an average household size of 3.9 persons. The age group 0–17 years makes up 46.7%, while 16–30 years account for 26.3%, and the working-age population (16 years and above) constitutes 57.8% of the total. The elderly (60 years or above) represent just 5.6% of the district's residents [35].

The dominant religion in Bugesera is Christianity, with Catholics (32.2%), ADEPR (23.3%), Protestants

(16.1%), and Adventists (14.6%). Muslims account for 2.2%, while Jehovah's Witnesses make up 0.7%. Only a small fraction of the population adheres to traditional beliefs or no religion [35].

In terms of marital status, a total of 50.4% of the population above age 11 are presently married or partnered, while 42.4% have never married. The district has relatively low rates of widowhood (4.4%), separation (2.5%), and divorce (0.2%) [35].

Education levels show that 17.6% of the populace above 3 years of age have never attended school, while the majority (58.5%) have completed primary education. A smaller proportion attended lower secondary (9.5%), upper secondary (7.3%), and university (3.4%) [35].

Bugesera's economy is largely agrarian, with 66.4% of households involved in agriculture, 59.4% in farming and 42.8% in animal rearing. The employment-to-population ratio is 47.2%, higher in cities (50.1%) compared to countryside areas (45.3%) [35].

Additional indicators show a birth registration rate of 94.13%, which is consistent across rural and urban areas, and most households (85.6%) reside in Umudugudu (planned rural settlements), reflecting the government's rural development policy[35].

Given this demographic profile characterized by high fertility, youthful population, rural dominance, and modest educational attainment, Nyamata Hospital offered a relevant and strategic setting to investigate drivers of the ANC services utilization in Bugesera District

3.3 Target Population

The target population was pregnant females of reproductive age (15-49 years) attending ANC services at Nyamata Hospital and Postpartum females (up to 12 months after delivery) who received ANC services at the Nyamata Hospital facility.

3.4 Sampling techniques and sample size

3.4.1 Sample Size Determination

The number of respondents were calculated using Fisher's formula for cross-sectional studies:

$$n = \frac{Z^2 * p * q}{d^2}$$

Where:

Z = 1.96 (95% confidence level)

p = 0.47 (proportion of females completing ≥ 4 ANC visits from RDHS 2019-2020)

q = 1 - p (0.53)

d = 0.05 (5% margin of error)

Therefore,

$$n = \frac{(1.96)^2 * 0.47 * (1 - 0.47)}{(0.05)^2}$$
$$n = 384$$

The above calculation yielded a minimum of 384 participants. To account for potential non-response, the respondent number were increased by 10%.

$$n = 384 + \frac{10 * 384}{100}$$
$$n = 423$$

The above calculation provided total final samples of participant of 423 respondents.

3.4.2 Sampling Techniques

Participants were selected using a combination of systematic random sampling for the quantitative component and purposive sampling for the qualitative component [34]. Specifically, systematic random sampling was applied to pregnant and postpartum women attending ANC and PNC services at Nyamata Level II Teaching Hospital in order to obtain a representative sample for the quantitative survey. On the other hand, purposive sampling was used to recruit participants for the qualitative study, including women at different gestational stages, postpartum mothers, and key informants such as antenatal care providers, community health workers, and hospital administrators, to capture deeper insights into the socio-cultural and health education factors influencing ANC utilization. This dual approach ensured both statistical representativeness and richness of contextual data [34].

For the quantitative component, a systematic random sampling technique was applied to reduce selection bias and ensure equitable representation of the study population. The hospital's daily ANC attendance registers were used as the sampling frame. First, the total number of eligible clients expected during the eight-week data collection period (N) were estimated. The sample size ($n = 423$) was then used to calculate the sampling interval ($k = N/n$). A random number between one and k was chosen as the starting point, and thereafter every k th eligible participant was recruited until the required sample size is attained. This approach took into account the predictable flow of daily patients and guarantees fair inclusion across different days and clinic sessions.

For the qualitative component, a purposive sampling technique was used to identify participants who can provide in-depth perspectives on the study objectives. This included pregnant women at different gestational stages, postpartum women, and key informants such as antenatal care providers, community health workers, and hospital administrators. Selection will be based on the relevance of participants' experiences to antenatal care utilization, with emphasis on obtaining diverse viewpoints. Focus Group Discussions (FGDs) involved women attending ANC/PNC services who are available and willing to contribute, while In-Depth Interviews (IDIs) were conducted with health personnel and administrators. Sampling continued until thematic saturation reached, meaning that no new significant information emerged from additional participants.

The inclusion criteria comprised pregnant women of reproductive age (15–49 years) at any stage of pregnancy, postpartum women within twelve months after delivery, and all participants willing to provide informed consent. Exclusion criteria included women who received ANC services outside Nyamata Level II Teaching Hospital and those unable or unwilling to participate.

3.5 Research Tools And Instruments

To ensure a comprehensive assessment of the factors contributing to low utilization of ANC among pregnant females attending Nyamata Level II Teaching Hospital, the study employed both quantitative and qualitative data collection instruments. These instruments were developed based on existing literature, national health surveys, and WHO-recommended tools for assessing ANC service delivery.

Data were collected using a structured questionnaire administered by trained interviewers to pregnant and postpartum females receiving ANC or postnatal services at Nyamata Hospital. The instrument was adapted from established, validated sources, including the Rwanda Demographic and Health Survey (RDHS) and the WHO ANC Monitoring Framework.

The tool was developed in English and then translated into Kinyarwanda to enhance comprehension and participation. To preserve conceptual equivalence, a back-translation procedure was applied to verify the accuracy and consistency of meaning.

To explore contextual factors in-depth, two sets of semi-structured interview guides were used. The Focus Group Discussion (FGD) Guide was designed to gather perspectives from pregnant and postpartum females on socio-cultural influences, gender roles, community beliefs, and perceived quality of health education.

In-Depth Interview (IDI) Guide tailored for healthcare providers, community health workers, and hospital administrators to elicit insights on health education delivery, policy implementation, service challenges, and adherence barriers. The guides included open-ended questions, probing cues, and thematic prompts and was pretested to ensure contextual relevance and cultural appropriateness.

3.6 Piloting of Research Instruments

In this study, all research instruments were piloted before the main data collection to ensure clarity, cultural appropriateness, and ease of administration. The structured questionnaire and the qualitative guides for focus group discussions and in-depth interviews were pretested with a group of 30 pregnant and postpartum women at a comparable health facility within Bugesera District. The pretest focused on assessing comprehension of questions, the logical flow and sequencing of items, the suitability of the language used, and the average time required to complete each tool.

Feedback from participants and field experiences during the pilot were used to revise the wording, order, and structure of several questions to improve clarity, reduce ambiguity, and enhance cultural sensitivity. In addition, the piloting exercise informed minor adjustments to probing techniques and facilitation strategies for FGD and IDIs. This process helped to strengthen both the quantitative and qualitative components of the study prior to implementation at Nyamata Level II Teaching Hospital.

3.7 Testing for validity, reliability and establishment of trustworthiness

3.7.1 Reliability

To ensure consistency of the research instruments, several reliability checks were conducted. A pilot study involving 30 pregnant and postpartum females at a nearby health facility in Bugesera District helped to identify and correct unclear questions. Internal consistency of the structured questionnaire was assessed using Cronbach's Alpha, with a value of 0.7 or above considered acceptable [36], [37].

For qualitative data, inter-rater reliability was checked by comparing the thematic coding of transcripts done by two independent coders using Cohen's Kappa statistic. A value above 0.75 will indicate strong agreement [38]. Additionally, test-retest reliability was evaluated by re-administering the questionnaire to a small group of participants after two weeks to assess the stability of responses over time [39].

3.7.2 Validity

To strengthen the validity of the study instruments, multiple measures were implemented. In particular, content validity was addressed through review by public health experts and academic supervisors, who assessed whether the tools sufficiently captured core domains, including timing of ANC attendance, socio-cultural influences, and health education [40].

Face validity was assessed during pre-testing with a small group of participants to ensure questions are clear, culturally appropriate, and logically arranged. Feedback was used to refine the tools before full data collection as per Ikart (2019).

Construct validity was evaluated using exploratory factor analysis to confirm that items related to abstract concepts like ANC satisfaction and health education effectiveness, and the perceived effectiveness of health education are statistically grouped under the expected underlying constructs [42]. Criterion validity

were checked by comparing participants' self-reported ANC attendance with available records from ANC booklets or facility registers as per Yallew et al. (2025).

3.8 Ethical Consideration

Ethical considerations guided this study to ensure transparency, respect, and confidentiality throughout the research process. All respondents will be assured that the study will be conducted solely for academic purposes, and will be assured that their answers will be handled with firm discretion. Data were anonymously coded to prevent any link to individual participants, whether pregnant, postpartum, or key informants.

Participation was entirely voluntary, with no negative consequences for those who choose not to participate. Before data collection, participants were informed of the study 'goals, their rights, and any minimal risks involved, such as the time commitment alongside the potential benefits, including contributing to the enhancement of maternal healthcare services.

4.0 RESULTS and findings

4.1 Socio-Demographic Profile

A total of 423 women participated in the study, with respondent rate of 98% (420). The characteristics presented include age, marital status, level of education, religious affiliation, employment status, and occupation. These variables provide an overview of the background profile of the study population and give context to the findings on antenatal care services utilization.

The ages of respondents ranged from 16 to 49 years, with a mean age of 28.5 years and a median age of 27 years, indicating that most of the respondents were in their late twenties. The majority were concentrated in the 20–24-year age group, which accounted for 30.3% (128) and least cohort age was 45–49 years 2.4%, (10), with age range 27.9% (118).

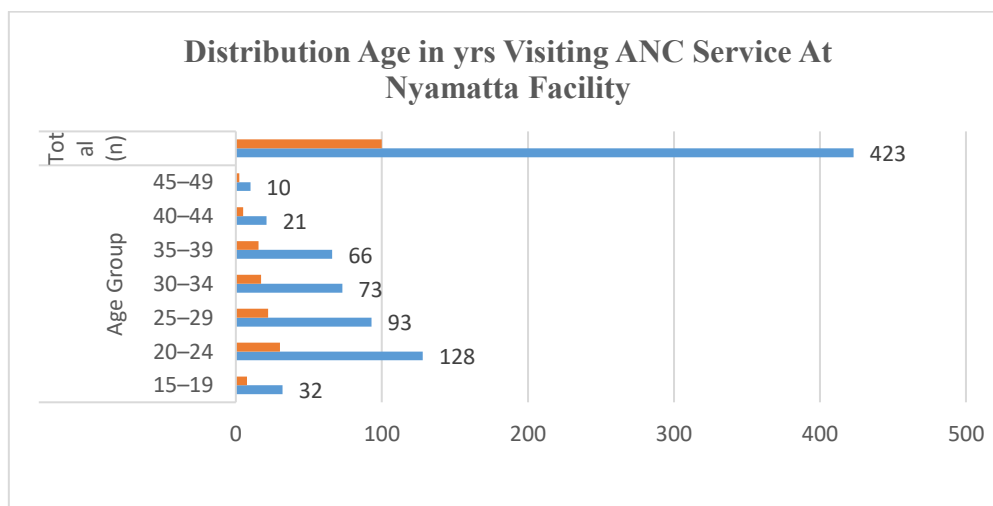


Figure 4.1 Distribution Age in yrs. Visiting ANC Service at Nyamatta Facility

On marital status of the study area 62.4% (264) were married, either through civil or religious unions. The second-largest category consisted of single women, while only 2.6% (11), were divorced or separated at the time of the study with significant P values 0.05 %, 95%CI. This distribution indicates that the majority

of respondents were in formal or recognized relationships, while a smaller proportion were unmarried or no longer in marital unions.

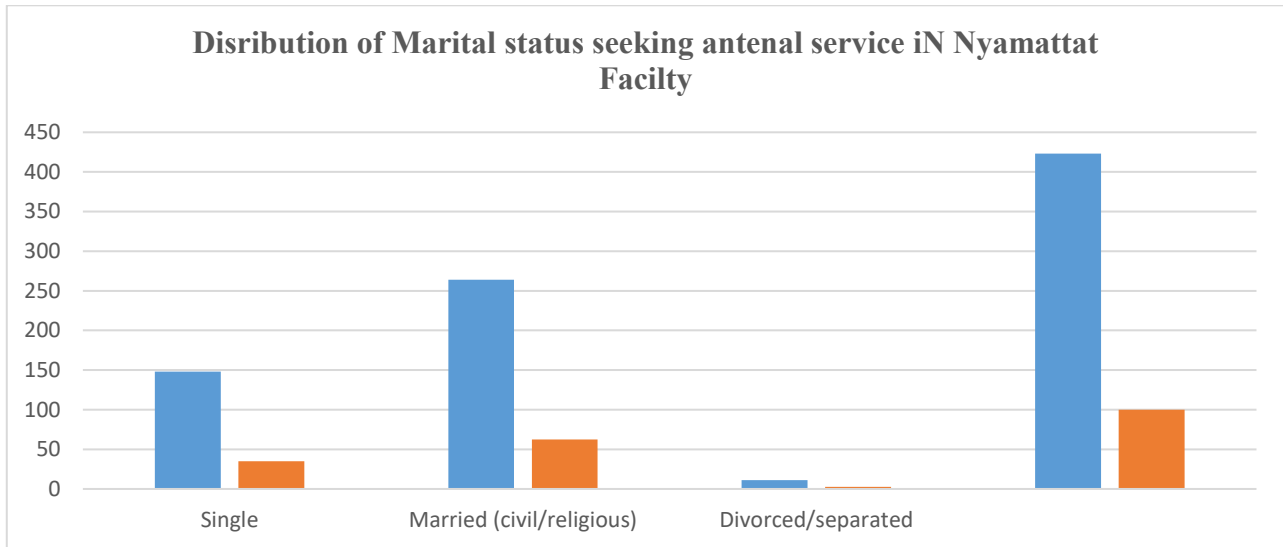


Figure 4.2 Distributions of Marital status seeking antenatal service in Nyamata Facility

4.2 Prevalence of Utilization of ANC Services at Nyamata Level II Teaching Hospital

Study opined that majority of the respondents 389 (91.9%) attended ANC services at least 5 ANC services, while 34 (8.1%), and did not attend any ANC visit. Overall attendance was significant with P values of 0.05%, 95%CI. This very high uptake demonstrates widespread contact with health facilities for maternity-related care within the study population

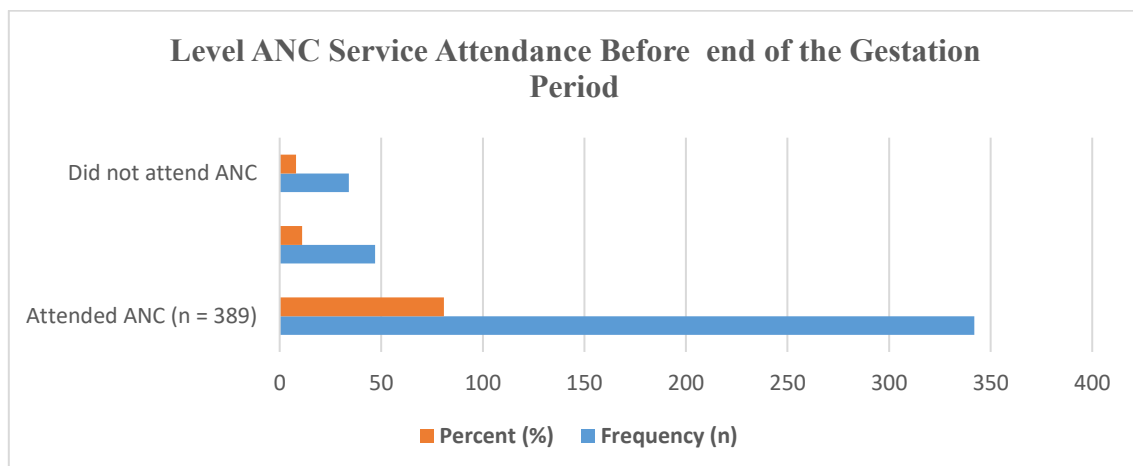


Figure 4.3. Level ANC Service Attendance Before the end of the Gestation Period

4.2 .0 Health Education Coverage, Sources, and Association with Utilization

The results demonstrated that 399 (94.3%), had received quality health education during their regular antenatal visits during the ANC visits at triage before we are given ANC services. while only 24 (5.7%) indicated that they did not with Significant P values of 0.023 service utilizations. This was also discussed in FGD session held at facility

“We have been receiving health education maternal child held care from the time of the first like me the visit, I came with my husband also learnt on these issues of maternal child health education” FGD discussion held on 23 October 2025.

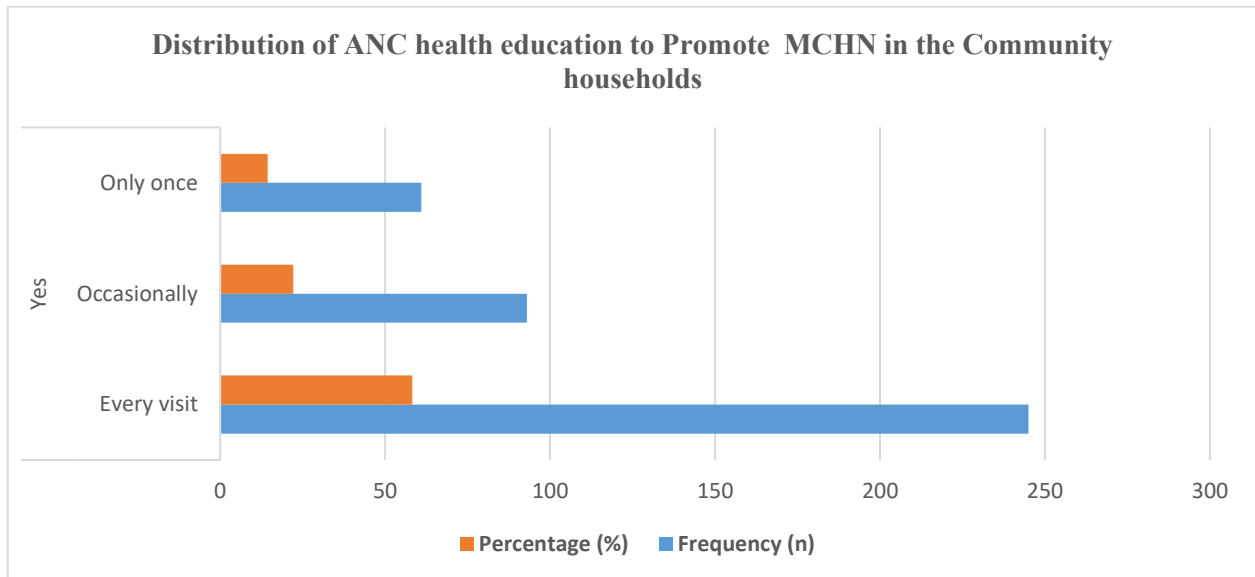


Figure 4.4 Distribution of ANC health education to Promote MCHN in the community Households

4.2.1 Sources of Initial Health Information at ANC Services

Figure below shows the distribution of respondents according to the source from which they first learned about ANC services. Understanding where women initially receive ANC-related information provides insight into the effectiveness of community and health communication channels.

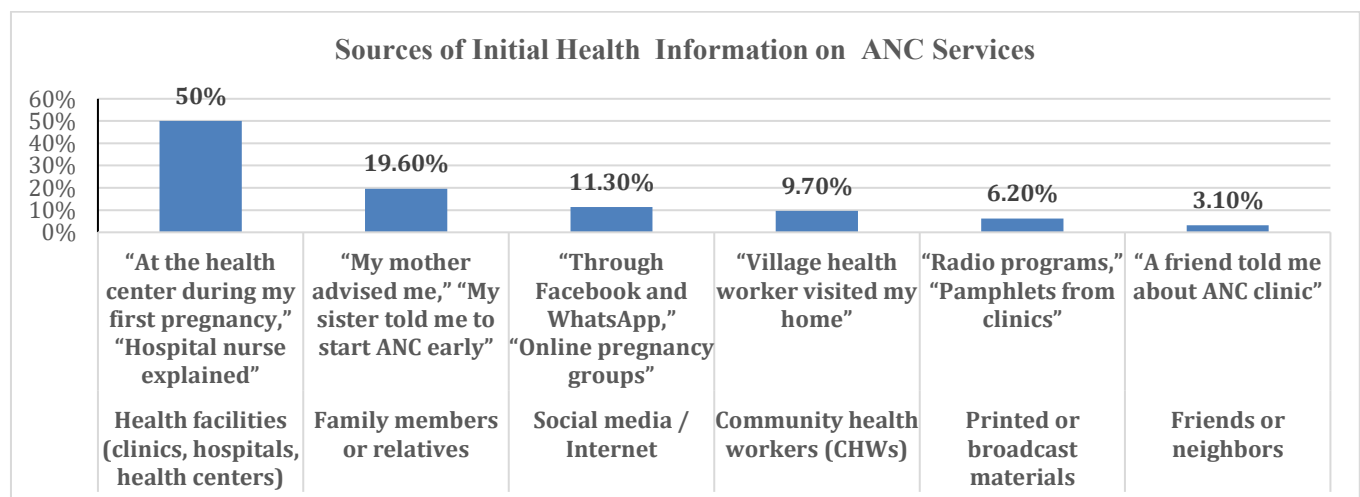


Figure 4.5. : Distribution of the various Sources of Initial Health Information on ANC Services

The majority of respondents (50.1%) 212 received health education on ANC services through formal health facilities visits, such as health centers, hospitals, and clinics and least said got health information from friends who were community health workers in the community health.

This was also reechoed in KII discussion, with a lady in her first prime gravida, “Me I was informed by the nurse during my first visit”. “My mother advised me” and “My sister told me to start ANC early.” FGD discussion held on 22 October 2025.

4.2.2 Expected Health Information on the Distribution of ANC Services from Respondents On ANC Visits

Behavior change is a critical outcome of antenatal health education, reflecting how information provided during ANC sessions translates into practical adjustments in maternal health practices. The results on the above were presented in the distribution of respondents according to whether they adopted any new or improved behaviors following health education sessions.

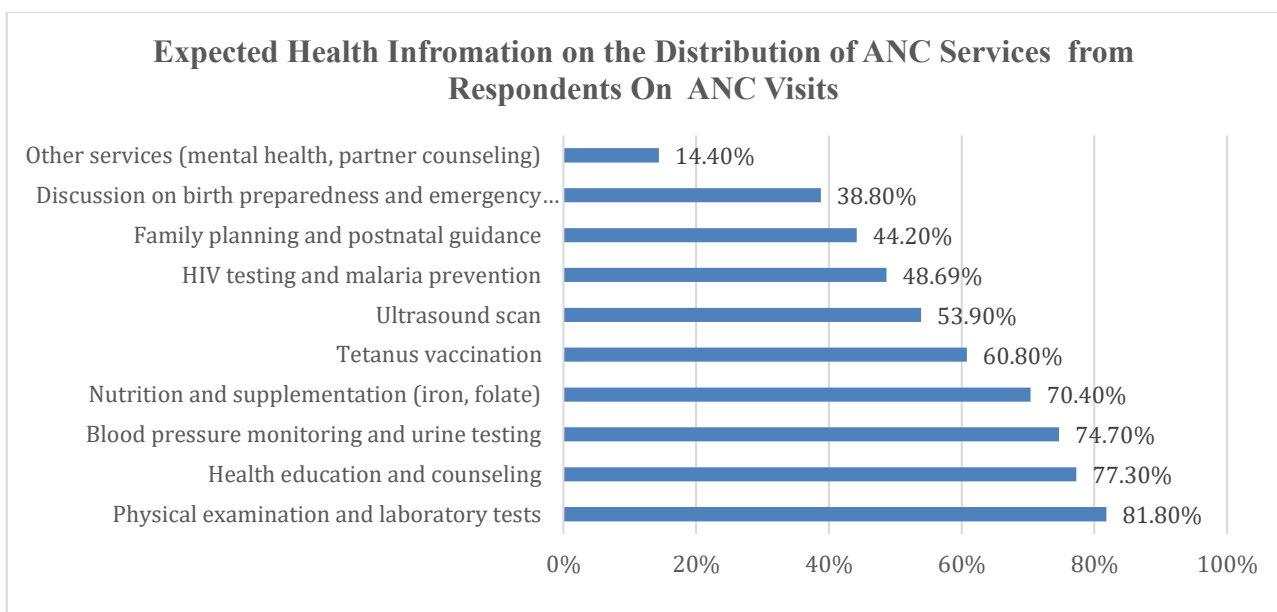


Figure 4.6. Expected Health information on the distribution of ANC Services from the respondents on ANC Visits

5.0 CONCLUSION

ANC engagement among women attending Nyamata Level II Teaching Hospital was generally high, with most respondents completing multiple visits, yet completion of eight or more contacts remained low. Socio-cultural influences were acknowledged by a minority, but they followed distinct patterns, including fear and misconceptions about medical services, the belief that ANC is needed only when sick or near delivery, social pressure, preference for traditional practices, and household permission dynamics. Health education coverage was high and significantly associated with ANC utilization, with completion predicted by education frequency, understanding, opportunities for interaction, and knowledge of the eight-visit model. Improving completion of eight contacts in this setting will require strengthening continuity through targeted, interactive counseling that addresses misconceptions and risk perception and reinforcing follow-up mechanisms that support scheduled attendance

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