

Original Article

# Exploring Perceptions about Enablers of Women's Attendance and Adherence to the Recommended Antenatal Care Visits in Rwanda: A Qualitative Study

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## Abstract

### Background

Antenatal care (ANC) helps ensure the best health conditions of the mother and foetus during pregnancy. However, achieving optimal ANC attendance and adherence to the World Health Organization (WHO) recommendations remains a global challenge, with significant disparities in attendance rates. A qualitative study was conducted exploring pregnant women's perspectives of various enablers to their attendance and adherence to recommended ANC visits in Rwanda.

### Methods

This exploratory qualitative study involved 22 pregnant women attending ANC in four public health centres in the Eastern province, of Rwanda. An interview guide with semi-structured questions was used to gather information about the moderators of ANC attendance and adherence among pregnant women. Data were audio-recorded and transcribed verbatim, and thematic analysis was used to categorize themes under the five-level Social Ecological Model (SEM).

### Results

Early recognition of pregnancy, financial stability, and female participation in decision-making were identified as intrapersonal enabling factors of ANC attendance and adherence; spousal support was identified as an interpersonal enabling factor; community health workers, and community relationships as community enabling factors; availability and cost of ANC services as institutional enabling factors; and media campaign, community outreach as public policy enabling factors contributing to the pregnant women's attendance and adherence to ANC visits.

### Conclusion

Enablers at multiple levels affect women's attendance and adherence to ANC visits. It is essential to consider each level when implementing effective strategies to maximize ANC attendance and adherence to the WHO recommendations in order to improve maternal-foetal well-being in Rwanda.

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**Keywords:** Antenatal care visits, pregnant women, socio-ecological model (SEM), enablers, Rwanda

## Background

Antenatal care (ANC) attendance and adherence are essential for protecting maternal-fetal health during pregnancy. [1] ANC involves identifying and managing pregnancy-related or concurrent diseases, educating and promoting health, and preventing and managing health risks associated with pregnancy.[2] An average of eight ANC contacts (ANC8+) are recommended by the 2016 World Health Organization (WHO) ANC model, with the first contact occurring in the first trimester (up to 12 weeks of pregnancy), two contacts occurring during the second trimester (at 20 and 26 weeks), and five contacts occurring during the third trimester. In this model, the word "contact" is used instead of "visit" because it implies a direct relationship between a woman and her healthcare provider.[2] However, it can be challenging to meet these recommendations, as the WHO doubled the number of contacts from the previous four visits focused on ANC (FANC) to eight.[3]

The ANC initiation rate and adherence to recommendations vary depending on the location. A study by Loller and colleagues showed a range of 48.1% in low-income countries (LIC) to 84.8% in high-income countries (HIC).[4] In sub-Saharan Africa (SSA), 38% of pregnant women initiated their ANC in the first trimester.[5] In East African countries, where Rwanda is located, the prevalence of first-trimester ANC contact was 35.2%.[6] In Rwanda, 47% of pregnant women attended at least four visits, according to the latest national survey.[7]

The variation in ANC initiation, attendance, and adherence rates vary due to numerous factors.[5,8–12] Many studies have assessed factors associated with ANC attendance. Some used a quantitative approach,[5,13,14] while others gathered deeper data by asking pregnant women for their opinions through interviews or focus groups.[15–17] Cultural and social factors significantly influence pregnant women's decision to attend ANC visits.[18]

Support from family members, especially the partner, can positively influence attendance.[19] The physical environment of the ANC institution,[20] community-based interventions and peer support, [21,22] and policies at the national level - such as the husband's attendance at the first ANC visit - all affect women's ANC attendance.[23] Understanding pregnant women's perspectives of various enabling factors is crucial for tailoring interventions and healthcare practices.

In Rwanda, several interventions such as training programs, referral systems, health facility deliveries, midwifery training, and community health worker outreach programs have been implemented to improve antenatal care (ANC) services.[21,24] The recommended number of four visits was followed, with the first visit ideally taking place before the 12th week of pregnancy. [25] Despite efforts to promote maternal health and ANC attendance, challenges persist in achieving timely ANC visits including adherence to recommendations. Policy shifts and interventions have been implemented to address these challenges and improve ANC services in Rwanda. This includes the 2016 WHO recommendations of ANC for a positive pregnancy experience with at least eight contacts,[3] which has not yet been launched but piloted in two Rwanda districts.

Pregnant women often have unique insights into the factors that positively influence their attendance and adherence to ANC appointments;[26] regarding antenatal care attendance and associated factors, several quantitative studies have been conducted and showed a number of barriers and what is needed to address for further studies. [27–31] Few qualitative studies, however, have been conducted in Rwanda on barriers to attending timely first ANC visits within providers' perspective; the barriers and solutions that affect ANC visits included many factors such as lack of knowledge; experience with previous births; issues with male partners not willing/able to attend the clinic; poverty and antenatal care culture. [32]

The list was not exhaustive and did not tackle all the angles of ANC attendance and adherence within a social-ecological model (SEM) and women's perspective. Therefore, this study aimed to explore the context-specific enablers that lead to pregnant women's attendance at ANC visits and adherence to the recommendations in the Eastern Province of Rwanda.

## Methods

### Design

This research employed an exploratory design to examine pregnant women's perspectives that facilitate their attendance and adherence at ANC visits. This qualitative approach was deemed most suitable for revealing and describing the phenomenon of the topic that is not well understood.[33]

#### Study setting

The study was carried out at eight public health centres (HC) in two districts Bugesera and Rwamagana of the Eastern Province of Rwanda. Rwanda's healthcare system ranges from community health posts to national referral hospitals.[34] Public HCs are the next level above health posts and provide ANC services to many pregnant women in the community. The Eastern Province was selected because it is the lowest of all provinces in the country in the proportion of pregnant women attending the recommended number of ANC visits, [35] and because of the diversity of rural health facilities. In the district, two selected HCs were located each in semi-urban and rural areas. Semi-urban and rural HCs were chosen based on the report that urban women (60%) were more likely than rural women (58%) to seek ANC services in the first trimester (RDHS 2020). In Rwamagana district, the chosen HCs are Rwamagana HC (semi-urban) and Nzige HC (rural). In Bugesera district: Nyamata HC (semi-urban) and Gihinga HC (rural).

### Study participants

A purposive sampling technique was used to recruit 22 pregnant women present for ANC at the HCs in the selected semi-urban and rural areas in the Bugesera and Rwamagana

districts of Eastern Province. Eligible candidates were selected from the facility records and included pregnant women aged 18 years or older attending their initial ANC appointment after the 12th week of pregnancy. The WHO guidelines categorized late attendees as those presenting for their first ANC appointment after the 12th week of pregnancy.[3] Potential participants were contacted and asked to join the research through healthcare providers (HCPs) at the HCs and community health workers (CHWs). Upon agreement, interviews were arranged at times convenient for the women.

### Data collection

A semi-structured interview guide was developed from the literature to assist with the in-depth interviews with respondents. The developed tool was in English and translated into Kinyarwanda. The interview guide had five open-ended questions asking about the awareness of ANC visits, perceptions, and beliefs that interfere with women's ANC attendance, the ANC services given to pregnant women, the facilitators of ANC adherence, and recommendations to improve ANC adherence, and demographic questions (marital status, education, number of pregnancies, occupations, and wealth index category).

### Procedure

In-depth interviews were conducted with the qualitative trained research assistant (RA) and the selected pregnant women who attended ANC services on the day of the data collection. Both the first author and the RA participated in all interviews. To ensure the quality of data, the principal investigator trained the RA on the study objectives, interviewing, and exercising reflexivity.[36] The interviews were conducted in a private place, where the respondents could be comfortable and freely share information. Interviews were audio-recorded with the permission of the participants and field notes were taken to complement the audio records. Interviews were conducted in the Kinyarwanda language each interview lasted about 45-60 minutes.



**Data analysis**

Findings were analysed by a thematic approach, using the Social Ecological Model (SEM).[37] The model shows factors at five levels of influence on an individual’s behaviour: intrapersonal, interpersonal, institutional, community, and public policy. This “model assumes that appropriate changes in the social environment will produce changes in individuals and that the support of individuals in the population is essential for implementing environmental changes”.[38] The recordings of the interviews were transcribed verbatim, translated into English, and checked for accuracy by the researcher. A thematic analysis was conducted, including the following steps: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. [39] The researcher generated the list of codes which were then analysed to identify patterns and themes. The whole research group discussed and interpreted themes and patterns. The final list of themes was categorized according to the SEM.

**Ethical Consideration**

The study protocol was approved by the Institutional Review Board of the University of Rwanda, College of Medicine and Health Sciences, (CMHS/IRB/212/2021). Permission to conduct the study was obtained from the ethics committee of the district hospitals. All participants gave written informed consent and consent for recording the interviews before their participation. Participants were assured that their identities would remain anonymous in all reporting of the study and that their personal information would be kept confidential. At the time of the interview, respondents were informed that they could leave the interview without penalty and were assured of the privacy related to their sensitive information. All methods in this study were carried out in accordance with relevant guidelines and regulations in the Ethical Declarations.

**Results**

**Characteristics of the participants**

Most of the women were married (95.5%). Their ages ranged from 21 to 45 years. Eighteen women (81.8%) had achieved primary education and three (13.6%) had secondary education, while only one (4.5%) had not attended school. Most of the women (77.3%) were multipara and 18 women (81.8%) were farmers. More than half (68.2%) were in the lower economic categories.

**Themes and subthemes**

The following five themes under SEM and subthemes emerged: a) intrapersonal enablers, b) Interpersonal enablers, c) community enablers, d) Institutional enablers, and e) Policy enablers (Table 1).

**Table 1. Identified themes and sub-themes**

Themes	Subthemes
Intrapersonal enablers	Early recognition of pregnancy A woman’s financial stability and involvement in decision-making
Interpersonal enablers	Spousal support
Community enablers	Community health workers support Community relationships
Institutional enablers	Health education at the health facility ANC fixed schedules Availability of HCPs
Policy enablers	Attending ANC without CBHI Mass media Community Outreach

**Theme 1: Intrapersonal enablers  
Early recognition of pregnancy**

Some of the participants reported that when they knew early that they had conceived, it influenced them to attend promptly and adhere to the given calendar shared at the HC; one participant reported:

*After noticing physiological changes and mild sickness, I came for testing at the health centre. Thus, I tested positive for pregnancy, and they gave me instructions and a calendar of antenatal care visits to follow. (HC2- P 6)*

Another respondent explained: *“If I had known very early that I was pregnant, I would have attended antenatal care on time. ... I immediately came to the health centre, where they did an abdominal ultrasound and found that I had become pregnant...but it was late because this was my second time attending”. (HC3-P 2)*

### **A woman’s financial stability and involvement in decision-making**

Some study participants reported attending the ANC visits because they were financially stable and involved in family decision-making. Most women rely on their spouses’ income generation; sometimes, it is not enough to sustain daily life at home. There was a need to empower women to generate income to support them while attending ANC at a health facility. For example, one participant noted, *“You can’t abandon attending antenatal care visits because, in the community, we have cooperatives for savings, for money support, where you can save like five hundred [Rwf] for not missing your appointment; we learn to have self-reliance”. (HC2- P 1)* Another participant reported that when their spouses financially support them, it motivates them to attend promptly ANC and adhere to subsequent visits. *“Sometimes, if the husband gives me the rights, I can use our means/finances and buy what I need, like attending ANC. For example, I live in a centre where I can purchase domestic food using his money, and he gave me that permission.” (HC2- P2)*

Empowering women with information about the importance of family planning and regular ANC check-ups; and involving them in decision-making enhances their autonomy and improves antenatal care attendance and adherence. One respondent reported,

*To have a long-lasting solution is that the family planning decision should not be on one side because if it is on one side, there will be misunderstandings between partners; the best way is to have common understandings for both partners on family planning and other family issues. The wife should decide on it because it is a big issue for the family. (HC2- P3)*

## **Theme 2: Interpersonal enablers**

### **Spousal support**

Husbands who had positive relationships with their wives showed love and supportive care. Some respondents highlighted that attending ANC together helped them understand what was taught during health education, and they can remind each other.

*When both the mother and father receive health advice together, it helps in practicing the recommendations. The husband can then identify a dangerous practice and say it was not recommended during the health education. (HC2-P5).*

Most respondents said that when the male partner is educated and responsibly involved in ANC, it helps pregnant women to be reminded and attend the ANC on time. Here are excerpts of two respondents about husbands providing support: *“When the husband is educated about the importance of attending antenatal care visits, he is the one who is responsible for reminding his wife about antenatal care; for example, if her appointment is next Friday, the husband must remind her that day”. (HC2-P6).*

Another participant narrated; *“He (husband) immediately came with me to the health centre, and he told me that all my challenging activities would be reduced to be safe with our baby, and he started to plan how he would be doing all his daily activities at home”. (HC2-P2)*

## **Theme 3: Community enablers**

### **Community health workers support**

The CHWs in the villages play a vital role in supporting pregnant women in their shared demographic environment.

The CHWs work in collaboration with HCPs. The CHWs remind pregnant women of their appointments, motivate them to attend ANC so they can register, and accompany them when necessary. A health facility nearby makes it easier for women to attend ANC on time. CHWs support pregnant women; so they will not be abandoned, as the following respondents recount:

*Nowadays, no one is still waiting for their pregnancy to reach three months because our leader always encourages us to attend antenatal care visits on time. When they know you are pregnant, a community health worker visits you, enabling you to go for ANC at the health centre. (HC2-P6)*

*In the village, some women don't attend antenatal care; for example, if it rains in the morning, some women may say they can't go to the health centre because it is raining. When the nurse knows that someone did not come for antenatal care on her appointment, that nurse calls a community health worker in charge of pregnant women. She goes to remind that woman to go for antenatal care even if she doesn't respect her appointment. (HC4-P2)*

### **Community relationships**

An important part of being in a community is the relationships and potential support from others who share a common neighbourhood. Community relationships and the involvement of neighbours and local leaders, especially in families with conflicts enabled pregnant women to attend ANC visits. One participant reported;

*As her neighbour who knows she is pregnant and has a family conflict, I can inform the community health worker. When she refuses to accept our advice to go for an antenatal care visit at the health centre, you can inform local authorities who appoint someone to take care of her to attend ANC. (HC2-P3)*

A respondent reported that it is better to teach constantly the women in the community as some have a bad attitude and misbeliefs about attending ANC.

*First of all, there is a need for continuous awareness/mobilization among those people who have beliefs/perceptions for not respecting guidelines/given rules as there is a proverb that says "Education or teaching is a persistent process"; they can change their bad attitudes and say let us go to the health centre for an antenatal check-up. (HC1-P3)*

### **Theme 4: Institutional enablers**

#### **Health education at the health facility**

Respondents reported attending ANC visits because they were encouraged to access comprehensive ANC services. They were taught important health information, including about nutrition, behaviours to keep them safe during pregnancy, avoiding traditional medicine, the danger signs of pregnancy and delivery complications, and birth plans and preparedness. Whereas others attended ANC as a means to feel safer than going to traditional healers. The following excerpts reveal their reasons for ANC attendance and adherence:

*They tell us to eat healthy food to keep our unborn baby in good condition so that the foetus can grow well without complications... We eat energy-giving foods, bodybuilding foods, and protective foods and go for antenatal care visits on time. (HC1-P1)*

*When you get ANC at a health facility as a pregnant woman, you are safe because you get all services such as parameters and urine samples, blood samples including HIV tests, blood sugar tests, and blood pressure that cannot be found with traditional healers. (HC2-P2)*

*They teach us to be ready for delivery, the essentials needed for the baby, including clothes and material for bathing, ... avoiding using traditional medicines, and being aware of danger signs during pregnancy. (HC2-P2).*



### **Antenatal care fixed schedules**

Respondents reported ways to enable more women attend ANC at the HCs. HCPs working in ANC services should define fixed working times and notify pregnant women of the times, in order to avoid waiting for so long unnecessarily. One participant reported;

*It is good to start on time with those who come [to ANC] and do things fast to help us go home on time... Healthcare providers must also come on time or fix a starting time to serve people... They have to give us a specified time, whether it is 8 o'clock or not. They don't welcome women who come late. (HC1-P1)*

Trained HCPs should perform more procedures locally, such as ultrasounds, to prevent unnecessary transfers. Nurses and or midwives should provide good services and need customer care training.

*There is a need to bring a doctor here because there is no other problem. Maybe other regular patients can be transferred there to the district hospital, but pregnant women staying here at the health centre and cared for by a doctor using ultrasound, for example, would be better (HC2-P3).*

### **Availability of Health Care Providers**

The number of HCPs should be increased, as there appears to be a staff shortage. Five respondents shared their suggestions to increase ANC attendance and adherence to recommendations:

*An increase in staff may provide a better service, but I am unsure if there is a staff shortage or... They are not competent enough. You can come here by appointment at 8 am, and they will receive you at 3 pm. You reach home at 9 pm without taking anything due to poor service. Imagine, sometimes, you don't have money for something to drink or eat (HC1-P2).*

## **Theme 5: Public policy enablers**

### **Attending Antenatal Care without Community Based Health Insurance**

All policies must be revised and improved to help clients, especially pregnant women,

concerning the use of CBHI in antenatal care services, to avoid delay and nonattendance. One participant narrated:

*For some pregnant women, it is impossible to pay CBHI; if possible, can we remove the need for CBHI and go back to the way it used to be?" (HC3-P6)*

Policy and decision-makers should advocate for pregnant women by raising donor funds to support them. Here are some of the respondents' responses: "Regarding health insurance, some people do not fit into the category they are in now; for example, some people in ubudehe [economic] category three do not deserve this category. I suggest improvement on this". (HC4-P2)

*Depending on the person coming with hunger or energy loss, the government may have or find donors who wish to help pregnant women. Maybe I don't know how to express it, but when pregnant women come for antenatal care, they can get something, some help. (HC1-P2)*

### **Mass media**

Others narrated that providing information and clarification about ANC visits is essential when there is a campaign or mobilization on different media. This was explained in the following excerpts:

*I like to attend all recommended antenatal care visits because I hear information on the radio that it is not good for a baby's life if you don't go. That's why I must attend all antenatal care visits on time (HC4-P4).*

*My suggestion is to encourage everyone to use all means possible to benefit from ANC visits, including how to monitor the baby's and mother's health. Also, men in the villages should be trained about the benefits of ANC (HC1-P3).*

### **Community outreach**

Decentralization of health services, including ANC, could provide a better service in the community whereby HCPs visit villages to sensitize and educate people, both women and men, about pregnancy and family planning.

One respondent explained:

*They could send a nurse to the village at least once a month or in a trimester to educate people about reproductive health, pregnancy, and family planning; the nurse may come and encourage all people to know the mentioned subjects. This is the best way for things to go well instead of only a community health worker. (HC4-P2)*

## Discussion

This qualitative study explored the multiple levels of enabling factors that increase pregnant women's ANC attendance and, consequently, adherence to adequate ANC, according to the WHO recommendations. Twenty-two pregnant women were interviewed while attending ANC at a public HC in the Eastern Province of Rwanda. Actively involving pregnant women in voicing their views of enablers is vital to health education and essential to improving ANC attendance in Rwanda. There was an interconnection between levels of enablers, from individual to the policy level. After a recognition of being pregnant and when a pregnant woman is supported by a husband and community to attend the ANC visit and find at HC the availability of quality and cost-effective services may enable them to attend and adhere to ANC.

Our findings revealed that individual characteristics of women, such as early recognition of pregnancy, financial stability, and involvement in decision-making, influenced their adherence to ANC visits. Some women attended ANC services after recognizing they were pregnant. In contrast, like in a similar study conducted in Ethiopia,[40] others delayed for the first visit, thinking that they were sick and not being aware that they were pregnant. This finding highlights the importance of early access to ANC services and that improved communication and outreach strategies should be implemented to increase awareness. Women's financial stability was essential to their ability to access ANC services, possibly through an organized

cooperative where they could save and share the money. For instance, in Ghana and Nigeria, women with higher financial security were more likely to seek ANC services than those without.[40,41]

Women's involvement in decision-making was also a critical factor in their ability to obtain ANC services, which was the same finding as women in Nigeria and Uganda, where a decision-making role versus no role increased attendance.[42,43] Women's exposure to adequate information, education, and advice at ANC visits was found to significantly increase attendance,[44] and improve maternal child health outcomes.[45] These intrapersonal factors show that women's empowerment enabled their attendance at ANC services. Our respondents reported that they felt secure and confident when their husbands accompanied them to ANC, and this created a strong relationship; yet, men's support of ANC is still low in LMIC.[46–48] Interpersonal factors include family and social support as well as healthcare provider communication. An added benefit of the husbands' presence at ANC is that it allows HCPs to educate and advise the couple, which our respondents valued when they were at home. A study in Ethiopia showed that the husband's presence at an ANC visit significantly increased the wife's likelihood of giving birth at a healthcare facility.[49] Husbands can also provide physical protection during ANC visits and discuss what they learned from the health facility when they return home. This can help to reduce the risk of domestic violence, which is a barrier to ANC attendance, and ensure that the partner's needs are met. Emotional support from husbands can also be beneficial, especially during difficult times. Our findings show that the primary interpersonal factor was the husband's presence and support during the ANC initial visit, which benefits both the wife and the husband. It enabled somehow women as it is interconnected to the motivation of HCPs to start with those accompanied by husbands to facilitate them to go back to their usual work early.



These findings align with the results of a recent study conducted in Tanzania, which found that despite naming the ANC as the responsibility of the woman, ANC space as a female-dominated area, and long waiting services, pregnant women perceived their husband's participation in ANC as beneficial for a pregnant woman and unborn baby.[50] Healthcare providers can implement education campaigns to stress the importance of male involvement in pregnancy and childbirth in order to encourage more husbands to accompany their wives to ANC appointments. In addition, creating a welcoming and inclusive environment in healthcare facilities can increase men's participation in ANC visits. Addressing cultural barriers and societal norms that discourage male involvement can help promote greater husband support during these critical times.

In Rwanda, it is a national policy that the husband must attend the first ANC visit with his pregnant wife.[51] Respondents shared that the wife would be “chased away” and denied services by HCPs if he (the husband) were not by her side. Therefore, he is needed; and his presence makes her feel more comfortable than when alone. Institutional factors included the availability and cost of ANC services, with respondents preferring the healthcare setting where they felt safer rather than with traditional healers. Even though accessing traditional healers is prevalent in SSA for pregnancy “safety”, [52] more women felt comfortable with the evidence-based care provided at health centres due to a lack of trust in traditional healers. Continuity of care in maternity services, where nurses, midwives, or community health worker follow-up a woman from pregnancy to delivery, was another factor described by respondents. This consistent care keeps women informed and reduces the risk of developing pregnancy complications, as providers can detect and intervene earlier in case of potential problems.[53] It also builds trust between the HCP and the patient, enhancing maternal health-seeking behaviour.[54]

Respondents were encouraged to visit the HCs to obtain a package of available ANC services based on their family wealth category. This package includes regular check-ups, counseling, and nutrition advice services, which, according to the respondents, increased their confidence. Thus, it is essential for health services to be easily accessible and provide adequate staffing and information to meet the needs of pregnant women.

Respondents shared the community's role in shaping and supporting ANC adherence. For example, community health workers (CHWs) are crucial to identifying and registering pregnant women and encouraging them to attend regular ANC visits. They can also provide information about the visits and health education. CHW can encourage women to discuss health issues and concerns with HCPs.[55] Similar to other studies in Uganda and Nigeria,[41,56] the health facility location facilitated the pregnant women's attendance. Some health facilities are located in areas where pregnant women live, making it easier to access services. [42] Lastly, the CHW can enable pregnant women to access ANC and not delay their initial visit by seeking permission from the community leader to proceed if the husband is unable or unwilling to accompany his wife to the health centre.

The government's strategy of sensitizing women to participate in ANC through media campaigns was the main source of the respondents' pregnancy information. These campaigns should be intensified to the general population to increase women's and men's awareness to maximize ANC attendance. These findings are consistent with others from Nigeria and South Asia, showing the benefit of mass media exposure and dissemination of information to increase maternal- foetal health. [42,57] This highlighted the importance of mass media campaigns to increase ANC attendance in our study and how women relied on the media to learn about ANC. It is also important to do community outreach to provide reproductive health services

in rural areas and encourage women to attend ANC. Dissemination and implementation of policies enabling ANC attendance should include stakeholders at all levels of healthcare in urban and rural areas.

Our analysis provides insights into the enablers that affect a pregnant woman (intrapersonal) and social environment at the interpersonal dimension, institutional, community, and public policy levels. [38] Considering the 2016 WHO recommendations during pregnancy, these levels can provide opportunities to target health promotion interventions to change behaviour, namely, increase ANC attendance, and help pregnant women meet the WHO standard of eight contacts.

### **Study limitations**

This qualitative study has limitations to consider when interpreting its findings. This study was conducted in one district and the results may not be representative of the general population. Additionally, the subjective nature of qualitative data collection methods, such as interviews can introduce bias and affect the interpretation and application of the results. The researcher's beliefs, attitudes, and preconceptions can influence the questions asked, how responses are interpreted, and how data are analysed. It is also possible for participants to be influenced by social desirability bias, which may influence their responses to meet societal expectations.[58] Future research could employ mixed methods to overcome these qualitative study's limitations. A more comprehensive understanding of the research topic can be gained by combining qualitative and quantitative data collection methods, such as interviews and surveys. The results would be more generalizable because of a larger sample size and more objective data analysis. Nevertheless, we believe that the information obtained in this study can be used to improve ANC attendance of individual pregnant women and improvement in service provision by the HCPs.

### **Conclusion**

This qualitative study shows various enablers at multiple levels facilitating pregnant women to attend and adhere to ANC visits schedule in Rwanda. The identified individual enablers were categorized under five levels of SEM. Some of the levels of enablers were interconnected from individual level to the policy level and identify opportunities for targeted interventions. The study showed that women need to be empowered at the intrapersonal level with increased evidence-based information on pregnancy which would likely increase their decision-making ability. In addition, they need assistance with income-generating activities to support ANC attendance financially. There is a need to increase the number of HCPs and avail all services including ultrasound at HC level. To further increase ANC attendance and adherence to recommendations, husbands and other potential enablers at the interpersonal, institutional, community, and policy levels should be encouraged and advised to support women during pregnancy to improve maternal, foetal, and newborn outcomes. As this study was conducted among women only, further research is needed to explore the HCPs and male spouses' perspectives in order to have a comprehensive understanding about enablers of ANC attendance and adherence to recommendations.

### **Author's contributions**

Authors contributed equally, OT, PM, SR, LN conceptualized, study design, OT, JR, PM, AN, collected and analysed data, OT drafted the manuscript, AN, PM reviewed the manuscript drafts. All authors reviewed and approved the version for publication.

### **Competing interests**

All authors declared that there is no conflict of interest.

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