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**Table 10: Binary Logistic regression for need factors and late initiation of ANC**

Need factors	Adjusted OR	CI(95%)	P value
<b>Pregnancy planned</b>			
Yes	<b>reference</b>		
No	2.014	[1.334-3.040]	0.001
<b>Knowledge about right time of first ANC( Gestation age in weeks)</b>			
≤12	<b>Reference</b>		
>13	3.000	[2.062-5.000]	<0.001

**Source: Primary data, (2022)**

## DISCUSSION

The main objective of this study was to determine prevalence and assess factors associated with late initiation of antenatal care among pregnant women attending Gitwe Hospital, Rwanda. The study revealed that prevalence of late initiation of ANC among pregnant women attending Gitwe hospital was 43%. This result can be well explained that Government of Rwanda put more efforts in maternal and child health services including training of community health workers to provide community based maternal and newborn health such as early pregnancy test and refer mother to ANC within 12 weeks of gestation, visiting and counselling pregnant women health, encouraging pregnant women to consult health center for ANC services, paying health insurance for poorer families, provision of porridge powder for poor pregnant women and breastfeeding mothers, recruitment of midwives at health center, avail of ultra sound at health center, provision of PBF for ANC standard visits of health center staffs all those efforts contribute to increase number of pregnant women who initiate ANC early but still 43% of ANC delay is still high and

it affects other following ANC visits which leads to poor pregnancy outcomes. Women have not yet understood the importance of early initiation of ANC.

This result of present study is almost similar with results of study conducted in Cameroon at Douala general hospital in 2017 found that 44% booked ANC late (Tolefac et al., 2017) and slightly higher than prevalence of late initiation of ANC in Rwanda found in DHS which was 41% (RDHS, 2019-2020). This findings of current study is really higher than results found in the study done in United States of America in 2016 and revealed that 21.3% of pregnant women lately began antenatal care (Osterman & Martin, 2016). Finding from current study is lesser than prevalence of late ANC found in similar study which was conducted in Northern Bangladesh in 2016 and found that 88.8% of pregnant women late initiated (Sarker et al., 2021). Difference of findings may be due to different study designs, research settings and sample size used in the studies.

This study found that mothers from rural were more likely to late initiate ANC than mothers from urban area. In fact, there is a limitation to access reproductive health information, services and products. People in rural areas majority are not educated and know one another which leads to hide information to your neighbors so that she or he will not spread it out to other neighbors. Other study done in Myanmar 2014, where women from rural area was significantly found to be factor influencing starting of ANC early (Aung et al., 2016). Another study which was done in South Sudan, in 2010 showed that women living in Rural settings booked late Antenatal care (Mugo et al., 2010).

Mothers from big family size of 6 people and above were more likely to late initiate ANC compared to mothers from small family size. In fact, more you have many children, more scarcity of resources, more you work hard to find food for them and responsibilities increase, and love of children decreases because they stress you out when you do not have enough money. Other similar study done in Zamboni in 2014 revealed that women with 5 children and above were found to be factors which influence late beginning of ANC (Sinyange et al., 2016).

This study showed that mothers without health insurance were more likely to delay ANC compared to mothers who had health insurance. In Rwanda, Government pays health insurance for poor families (ubudehe category one) so that they can afford cost of maternal services. When mothers are not categorized in ubudehe category one, they pay health insurance themselves so when they get pregnant without health insurance, they wait for paying health insurance first then

they go to consult health center for ANC initiation. There is a similar study done in Tanzania and found that having health insurance was associated with proper timing of 1st ANC attendance (AOR=1.89,  $p<0.001$ ) and skilled birth attendance (AOR=2.01,  $p<0.01$ ) (Kibusi et al., 2018).

This study showed that mothers who got unplanned pregnancy were more likely to book ANC late than mothers who wanted and planned to get pregnant. When women are not proud of being pregnant, they do not even want to go out where people can see them. They are stressed thinking about how a baby shall be taken care and funds to be spent on a baby. Unplanned pregnancy makes woman psychologically disturbed. There is another similar study done in Malaysia 2016, women with unplanned pregnancies, women with perception of presenting marriage certificate during ANC as challenge, women who did not experience pregnancy complications during past pregnancies were associated with late start of ANC (Jiee et al., 2018).

This study showed that mothers with perception of initiating ANC after 12 weeks of gestation were more likely to delay ANC compared to mothers who perceived to start ANC within 12 weeks of gestation. Women think that pregnancy is not a disease. There is no need to go to health center while pregnancy is still small. They think it is a good to consult HC while a baby in kicking inside womb. In Rwandan context especially in rural, some women hide pregnancy thinking that wicked people can poison and stop early pregnancy. Another similar study in northwest Ethiopia which was done and found that mothers who perceived to start ANC within 12 weeks of gestation were more likely to initiate early compared to mothers who perceived to start ANC within second trimester {OR: 2.39, CI(95%): [2.23–9.86]} (Belaynehetal.,2014). Another study was done in Nigeria in 2010 revealed that not to know right time to initiate antenatal care, misunderstanding of purpose of antenatal care, fear of being poisoned during early pregnancy and poverty are associated with late booking of antenatal care (Ndidi&Oseremen, 2010).

Lastly, this study revealed that mothers who had experienced family conflict were more likely to late book ANC compared to mothers who did not experienced family conflict. When a woman is not loved and cared, she does not love herself and her baby because she is not mentally healthy. The similar study which was done in Madang, Papua New Guinea and found that family conflict affects initiation of antenatal care visit (Andrew et al., 2014).

## Conclusion

This study was done to determine prevalence of late initiation of antenatal care and assess factors associated with late initiation of antenatal care among pregnant women attending Gitwe hospital, Rwanda. The findings of this study revealed that there is a high prevalence of late initiation of ANC among pregnant women attending Gitwe hospital and factors such as living in rural areas, high family size ( $\geq 6$  people), lack of health insurance, unplanned pregnancy, lack of knowledge about recommended time of first ANC and experiencing family conflict during pregnancy were significantly associated with late initiation of ANC.

## Limitations of the study

The research was conducted in public health centers of Gitwe Hospital catchment area in Ruhango district, and it is located in rural setting, its findings might not be generalized to all settings. It was a cross-sectional study conducted only in Gitwe hospital.

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