Original Article

Maternal care gaps; a study on Antenatal care visit patterns and the reported challenges to Prenatal Care access in public sector hospitals of Rawalpindi

Bilal Sadiq[1], Aqib Hussain[2], Sibgha Arshad Chaudhary[3], Sakina[4], Mehreen Noor[5], Khola Noreen[6]

[1,2,3,4]Student of 4th MBBS, Rawalpindi Medical University

[5]Post-graduate Trainee, Community Medicine, Rawalpindi Medical University

[6]Associate Professor, Community Medicine, Rawalpindi Medical University

Author's Contribution

[1,2,3,4,5,6] *Conception of study*
[1,2,3,4,5,6] *Experimentation/Study Conduction*
[1,2,3,4,5,6] *Analysis/Interpretation/Discussion*
[1,2,3,4,5,6] *Manuscript Writing*
[1,2,3,4,5,6] *Critical Review*
[1,2,3,4,5,6] *Facilitation and Material analysis*

Corresponding Author

Bilal Sadiq,
4th Year MBBS Student,
Rawalpindi Medical University,
Rawalpindi
Email: bilalsadiq5317@gmail.com

Article Processing

Received: 08/01/2025
Accepted: 25/01/2025

Cite this Article: Sadiq B, Hussain A, Chaudhary SA, Sakina, Noor M, Noreen K. Maternal care gaps: a study on antenatal care visit patterns and the reported challenges to prenatal care access in public sector hospitals of Rawalpindi. Students' Supplement. J Rawalpindi Med Coll. 2024;28(S2):89-99.

Conflict of Interest: *Nil*
Funding Source: *Nil*

Access Online:

Abstract

Background: Maternal and Child Health (MCH) is essential for the well-being of both mothers and children, yet inadequate services lead to high maternal mortality. Antenatal care (ANC), promoted by WHO as a pillar of safe motherhood, often faces barriers such as social, economic, and geographic challenges.

Objectives: To determine the frequency of ANC visits and the reported barriers, also to establish the association between ANC visits and these barriers among the pregnant women in Rawalpindi.

Materials and Methods: This cross-sectional study uses a self-administered questionnaire to collect data from 348 postpartum women in tertiary care hospitals of Rawalpindi. The questionnaire assessed sociodemographic factors, obstetric history, ANC visit patterns, and barriers to ANC access. Data was collected through one-on-one interviews with informed consent and maintained confidentiality. Data was analyzed using SPSSv26.

Results: The mean age was 28.26 years. ANC coverage was 97.7%, with 79.9% receiving at least 4 visits and 25% completing 8. C-sections accounted for 84.8% of deliveries, while 15.2% were SVDs. Barriers included transport costs (p=0.015), husband's education (p=0.042) and employment (p=0.032), language barrier (p=0.010), urban residence (p=0.017), and lack of awareness (p=0.000), all significantly affecting ANC access.

Conclusion: This study shows that considerable number of participants in Rawalpindi received at least 4 ANC visits, but barriers like lack of awareness and geographic difficulties need to be addressed. Improving maternal health requires addressing these challenges and strengthening primary healthcare services.

Keywords: Antenatal Care, Frequency, Barriers, Maternal Healthcare, Maternal Morbidity.

Introduction

Maternal mortality is alarmingly high and women die as a result of complications during and following pregnancy and childbirth.[1] One of WHO's four pillars of safe motherhood is antenatal care (ANC) which refers to routine care provided during pregnancy before labour.[2] ANC is crucial for ensuring maternal and child safety and reducing the risk of complications, disability, and death.[3] WHO recommends at least 4 ANC visits for uncomplicated pregnancies: first at 8-12 weeks, second at 24 -26 weeks, third at 32 weeks and final at 36-38 weeks. Since 2016, the updated WHO model recommends eight visits (contacts) during pregnancy: at 12, 20, 26,30, 34, 36, 38 and 40 weeks.[4] Various barriers prevent women from receiving ANC services forcing them to choose midwives or home deliveries increasing both neonatal and maternal mortality.[5]

According to 2020 WHO Statistics the Maternal Mortality Rate(MMR), may reach 223 deaths per 100,000 live births, with only 69% of pregnant women receiving at least 4 ANC visits globally.[6] In industrialized nations like America and Eastern Europe MMR was much lower with 13 deaths per 100,000 live births in 2020 which may have been influenced by the large percentages of ANC visits—92 and 99% in America and Eastern Europe, respectively—that led to at least 4 ANC visits.[6,7] In South Asia 138 Women die per 100,000 live births in 2023 with only 55% receiving at least 4 ANC visits, contributing to high MMR.[6,8]

Pakistan being one of these countries is on red alert as well. In Pakistan, ANC is provided through the maternal and child health (MCH) services that are part of the existing primary healthcare system. As per recent data, about 154 women for every 100,000 live births and 39 neonates for every 1000 live births die in Pakistan.

In Pakistan 49% of women miss recommended 4 ANC consultations, resulting in high MMR of 154 per 100,000 live births in 2023.[6,9] The ANC coverage in the Punjab province of Pakistan is only 53% and there is inequity in provision of ANC services to rural population as depicted by some studies which is 50% in comparison to 71% of urban women.[10] These are due to barriers such as financial constraints, lack of awareness, cultural and religious norms, geographic inaccessibility, low education.

Few studies with small sample size have been conducted in Pakistan, still little is known about the factors the influence the utilization of ANC services. Due to limited availability of regional data, lack of focus on specific ANC barriers, and insufficient research on the association between ANC patterns and barriers, this study seeks to shed light on access to ANC services, barriers and the association between ANC visit patterns and the reported barriers. The research focuses on identifying local gaps in maternal health care aiming to address maternal mortality and take measures to reduce it. The research also aims to overcome barriers and reduce delivery complications improving maternal and fetal health.

Materials and Methods

A descriptive cross-sectional study was conducted to identify barriers influencing the frequency of ANC visits among pregnant women in Rawalpindi. The research was conducted in the Obstetric and Gynecological departments in the public sector tertiary care hospitals of the Rawalpindi District. The study included women who delivered via spontaneous vaginal delivery (SVD) or cesarean section (C-section) during our study period of 6 months and met our inclusion criteria. All those pregnant women attending

tertiary care hospitals of Rawalpindi who have had either SVD or C-section were included in our research. Those pregnant women who failed to give informed consent and couldn't comprehend the questionnaire were excluded. Inclusion and exclusion criteria helped focus the research on women who had relatively typical birthing experiences in the tertiary care setting. Women who delivered their babies via SVD or C-section were included unless admitted to ICU or unable to give informed consent. The study spanned six months after research synopsis approval.

The WHO calculator with a 95% confidence interval, a 5% margin of error, and a 50% population proportion gave a sample size of 348 participants. Non-probability convenience sampling was used to select easily accessible participants. A 51 self-structured questionnaire was developed based on a literature review covering demographics, ANC visits frequency and barriers to ANC. The third section used a Likert scale, from 'Not a Barrier' to 'Extremely a Barrier,' to assess perceived barriers. Data was collected through one-on-one interviews, where participants completed the questionnaire after informed consent. The questionnaire was validated and adapted from existing literature. Ethical approval from Ethical Review Board of Community Medicine Department ensured confidentiality, anonymity and written informed consent.

SPSS version 26 was used with means and standard deviations for numeric variables, and frequencies and percentages for categorical variables. Chi-square test was applied to assess associations with significant set at $p<0.05$. This approach ensured accurate results offering insights into factors influencing ANC visit frequency.

Results

This study was conducted on 348 participants with the objectives to determine the frequency of ANC visits and reported barriers faced by pregnant women to ANC access. Shown in Table-I below, are the demographics of the 348 participants including the education level of participants and their husbands, participant's occupation and husband employment status, family monthly income and the socioeconomic status of the study participants. The mean age was 28.29, ranging from 15 to 40 years. Majority of the study participants and their husbands were educated till matriculation level (50.4% and 61.1% respectively). 97.1% of the pregnant women were housewives while only 2.6% were working. 46.1% of participants belonged to the lower class.

Table-I Demographic profile of the participants

Variable	Frequency	Percentage
The education level of the patient		
No formal Education	64	18.3%
Primary	61	17.5%

Secondary	47	13.5%
Matric	86	24.6%
Intermediate	38	10.9%
Graduation	39	11.2%
Post-Graduation	13	3.7%
Education level of the Husband		
No formal Education	55	15.8%
Primary	43	12.3%
Secondary	37	10.6%
Matric	137	39.3%
Intermediate	38	10.9%
Graduation	28	8.0%
Post-Graduation	10	2.9%
Patient's Occupation		
Housewife	339	97.1%
Working Woman	9	2.6%
Husband Employment status		
Unemployed	169	48.4%
Employed	179	51.3%
Place of Residence		
Rural	120	34.4%
Urban	228	65.3%
Family's Monthly Income		
Less than Rs 25,000/-	150	43.0%
Rs 26,000/- to Rs 50,000/-	150	43.0%
Rs 51,000/- to Rs 100,000/-	46	13.2%
More than RS 100,000/-	1	0.3%

97.7% of participants utilized at least one visit to ANC services in which 79.9% participants had at least 4 ANC visits while only 25% participants had recommended 8 ANC visits. 61.3% had their 1st visit in their 1st trimester, 20% at 2nd trimester and 16.3% at 3rd trimester. 39.7% of participants had the opinion that women ought to visit ANC centers at least once every month.

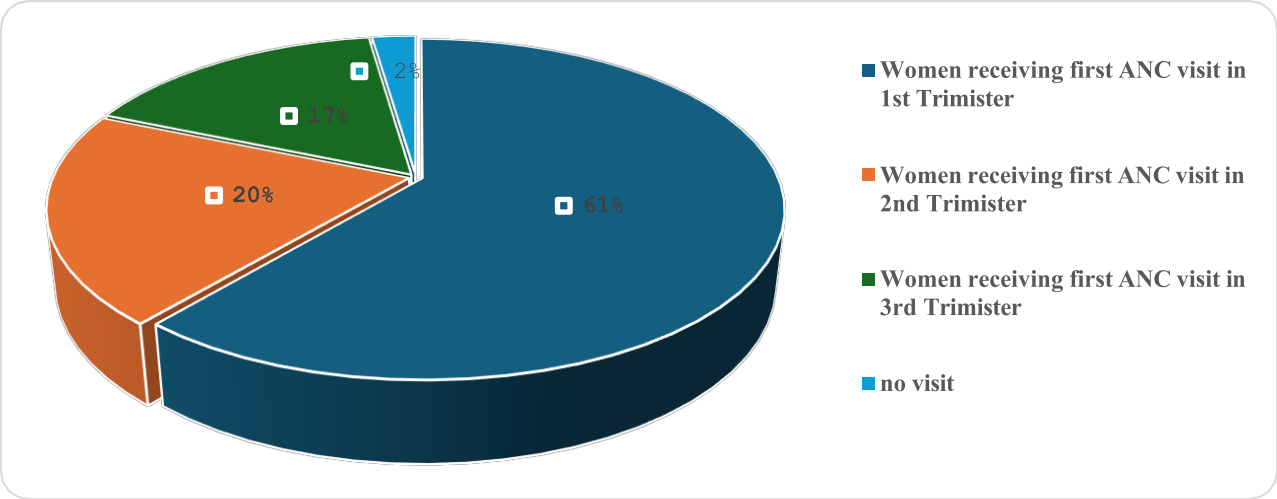

Figure 1 Antenatal care visit utilization

Table-II Antenatal care visit utilization.

Variable	Frequency	Percentage
Has the patients received any antenatal care visits during pregnancy?		
No	8	2.3%
yes	340	97.7%
How many ANC visits has the patient received so far?		
No visits	8	2.3%
1-3 visits	63	18.1%
minimum 4 visits	278	79.9%
5-7 visits	116	33.3%
8 or more than 8 visits	87	25%
1st ANC visit was attended at which month of pregnancy?		
Not applicable	8	2.3%
1st trimester	213	61%
2nd trimester	70	20.1%
3rd trimester	57	16.3%
Ideally how often would the patient like to have ANC visits?		
Once every month	138	39.7%
Every other month	134	38.5%
Once a trimester	32	9.2%
Others	44	43%

Table-III: Barriers associated with ANC visits

S. No	Variables	Not a barrier	Slightly a barrier	Moderately a barrier	Very much a barrier	Extremely a barrier
1.	Cost of ANC services	42.7% (149)	12.0% (42)	14.6% (51)	18.9% (66)	11.5% (40)
2.	Lack of money for costs associated with transportation	37.0% (129)	10.6% (37)	11.5% (40)	24.9% (87)	15.5% (54)
3.	Lack of transportation to reach ANC facilities	43.3% (151)	12.0 % (42)	13.2 % (46)	19.2 % (67)	12.0 % (42)
4.	Geographic accessibility	38.7% (135)	12.6 % (44)	13.5 % (47)	20.1% (70)	14.9% (52)
5.	Long waiting hours at ANC center	28.4% (99)	18.6 % (65)	16.6 % (58)	23.5 % (82)	12.3 % (43)
6.	Inconvenient Hours for ANC center	48.7% (170)	20.9 % (73)	12.0 % (42)	11.5 % (40)	6.3 % (22)
7.	Language barriers with healthcare providers	79.4% (277)	10.9% (38)	4.9 % (17)	2.6 % (9)	1.4 % (5)
8.	Dissatisfied with ANC services	68.5% (239)	17.2% (60)	4.6% (16)	6.0% (21)	3.2% (11)
9.	Lack of childcare for other children while attending ANC visits	63.0% (220)	10.9% (38)	10.9% (38)	10.6% (37)	4.3% (15)
10.	Cultural or religious beliefs discouraging ANC visits	84.2% (294)	8.9% (31)	4.3% (15)	2.3% (8)	(0)
11.	Requiring permission from family spouse and women's low decision- making power/autonomy	82.8% (289)	8.6% (30)	2.6% (9)	4.0% 14()	1.7% (6)
12.	Being too busy with house chores and having no time for ANC visits	54.7% (191)	15.8% (55)	12.0% (42)	12.3% (16)	0.3% (1)
13	Preference for traditional birth attendants over healthcare providers	85.7% (299)	5.7% (20)	3.2% (11)	3.2% (11)	2.0% (7)
14.	Home delivery being usual practice or feeling more comfortable at home	87.1% (304)	5.2% (18)	2.0% (7)	3.7% (13)	1.7% (6)

15.	Feeling uncomfortable or being judged by healthcare providers	68.5% (239)	18.6% (65)	6.6% (23)	3.7% (13)	1.7% (6)
16.	Lack of perceived need (women indicating an absence of illness or indicating that they are doing fine)	66.2% (231)	16.0% (56)	10.0% (35)	5.7% (20)	1.7% (6)
17.	Having no knowledge about where to go for ANC services	73.4% (256)	14.0% (49)	8.9% (31)	2.6% (9)	0.9% (3)
18.	Fear of medical procedures	51.3% (179)	19.8% (69)	14.3% (50)	9.7% (34)	4.3% (15)
19.	Shyness, fear or shame	60.2% (210)	14.6% (51)	12.6% (44)	6.9% (24)	4.9% (17)
20.	Fear of surgery and episiotomy	47.9% (167)	13.5% (47)	16.3% (57)	12.0% (42)	10.0% (35)
21.	Lack of awareness about importance of ANC visits	72.5% (253)	12.9% (45)	4.9% (17)	7.7% (27)	1.7% (6)
22.	Inadequate staff/ inadequate facilities at ANC	55.6% (194)	19.5% (68)	9.7% (34)	8.3% (29)	6.3% (22)
23.	Language and attitude of staff	45.3% (158)	20.1% (70)	13.8% (48)	0.3% (1)	14.0% (49)
24.	Unsatisfactory quality of care at ANC	64.2% (224)	13.8% (48)	8.0% (28)	7.7% (27)	6.0% (21)
25.	Lack of continuity of care due to rotating roasters of doctors and service providers.	69.9% (244)	14.9% (52)	5.4% (19)	3.2% (11)	6.3% (22)

The significant barriers were lack of transportation, education, inadequate income of male partner, lack of qualified health care staff at ANC center and language barriers were significant along with parity and rural residence, with p value less than 0.05 as shown in table-IV below. Other barriers like financial issues, cultural and religious norms and geographical accessibility weren't significant at all.

Table-IV: Significant association found between different variables and ANC visits

Categories	Associated variables	p- values
Socio-demographic details	Employment status of the husband	0.032
	Education level of the husband	0.042
	Place of residence	0.017
Obstetric history	Parity	0.000
Socio-economic barrier	Lack of money for cost associate d with transport	0.015
Socio-cultural barrier	Language barriers with health care providers	0.010
Motivational barrier	Lack of knowledge about where to go to receive ANC services	0.000
	Lack of awareness about ANC visits	
ANC facilities	Inadequate staff and facilities at ANC centers	0.018

Discussion

A total of 348 pregnant women participated in this study, providing a comprehensive overview of ANC visit frequency and reported barriers to ANC service utilization within Rawalpindi district's tertiary care hospitals. The significance of antenatal care during pregnancy cannot be overstated.

This present study results revealed a highly encouraging statistic where 97.7% of participants utilized prenatal care services and 79.9% participants reported having at least four ANC visits. This is in contrast with research from Bangladesh, where only 43% of women achieved the recommended four visits.[11] While it compares favorably with a European study that reported an even higher rate, with approximately 92% of pregnant women attending at least four prenatal consultations.[12] These disparities may be attributed to the greater accessibility of healthcare services, particularly ANC, in these regions.

Numerous demographic and health surveys have highlighted the underutilization of ANC services due to various barriers, including financial constraints, lack of awareness, cultural and religious norms, and geographical accessibility.[13,14,15] Lack of funds for

transportation was a statistically significant barrier for underutilization of ANC services (p-value of 0.015) and is also corroborated by studies conducted in Saudia, Australia and other countries.[12,13,14,15,16] A lack of education of the male partner was found to be a significant variable in this study with a p value(0.042) as is also the case in other low income countries like Ghana and Nigeria.[17] Lack of awareness about the importance of ANC can also prevent women from seeking care, as found in this study (p-value of 0.000) and supported by other researches of Saudia and South Africa.[12,18] This may be due to limited access to healthcare education and cultural barriers inhibiting open discussions about reproductive health. Lack of qualified healthcare staff and language barriers were also relevant in this study (p-value:0.018, p- value:0.010), aligning with findings from other researches done in Australia and Canada. Finally, this study, along with a study conducted in Ethiopia, found that urban residence grants greater access to ANC services(p-value:0.042) compared to rural areas.[19]

Parity can influence ANC visit frequency. Women with prior pregnancies might be more familiar with the healthcare system and have a higher frequency of ANC visits, as was found in this study but this was not the case in several other studies as referenced in this meta-analysis indicating that women with a higher parity are less likely to receive the recommended number of ANC visits.[16]

Conclusion

In conclusion, this study explored that nearly all participants (97.7%) utilized prenatal care services, with a notable 79.9% attending at least four ANC visits—a positive outcome in a region like Pakistan. Notably financial constraints and transportation challenges emerged as significant barriers, however the cost of ANC services did not affect utilization due to the free services provided by public hospitals. The education level of male partners and maternal awareness of ANC were decisive factors of visit frequency. On the top of that, issues like language barriers were more prevalent in hospital settings, restraining women from attending. On the other hand, cultural factors and geography did not exhibit significant barriers. Parity positively influenced ANC visit frequency; however, findings were contradictory with other studies.

This study has some limitations that need to be considered when interpreting the results. Limitations include issues with sample representativeness and reliance on women's recall of their ANC visits, which might constrain the findings. The study's short duration and small sample size can also introduce bias. The low sample size and convenience sampling may not represent the entire population of pregnant women in Rawalpindi. A larger, more geographically diverse sample could provide more generalizable findings. The cross-sectional design does not allow for establishing causal relationships between the identified barriers and ANC utilization. Longitudinal studies could provide a clearer understanding of how these factors influence healthcare seeking behavior over time. Women's recall of the number of ANC visits might be subject to bias. Medical records could provide more accurate data on ANC utilization. Longitudinal studies might offer more precise understanding of these factors and include data from pregnant women who did not visit hospitals for ANC services.

Based on the study's findings, several recommendations are suggested to improve ANC utilization in Rawalpindi. Efforts should aim at increasing male partner involvement

through targeted educational programs, as their education and awareness significantly affect ANC visit frequency. Improving transportation access and reducing waiting times at hospitals can address key barriers, while offering multilingual support can minimize language issues, particularly in urban areas. Public health campaigns should emphasize the importance of regular ANC visits, and further research, including a broader longitudinal study, is important for developing clearer insight. Policymakers should take into account these findings to improve maternal health services by addressing these identified barriers.

References

1. World Health Organization. Maternal mortality [Internet].
2. Geneva: World Health Organization; 2024 [cited 2024 Aug 7]. Available from: https://www.who.int/news-room/fact-sheets/detail/maternal-mortality
3. Maharaj R, Mohammadnezhad M. Perception of pregnant women towards early antenatal visit in Fiji: a qualitative study. BMC Pregnancy Childbirth. 2022;22(1):111. doi: 10.1186/s12884-022-04455-y. PMID: 35144576; PMCID: PMC8832671
4. Hu W, Hu H, Zhao W, A, Yang Q, Di J. Current status of antenatal care of pregnant women-8 provinces in China, 2018. BMC Public Health. 2021;21(1):1135. doi: 10.1186/s12889- 021-11154-4. PMID: 34120600; PMCID: PMC8201670.
5. World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience [Internet]. Geneva: World Health Organization; 2016 [cited 2024 Aug 7]. Available from: https://www.who.int/publications/i/item/9789241549912.
6. Wax JR, Lucas FL, Lamont M, Pinette MG, Cartin A, Blackstone J. Maternal and newborn outcomes in planned home birth vs planned hospital births: a metaanalysis. Am J Obstet Gynecol. 2010;203(3):243.e1–e8. doi: 10.1016/j.ajog.2010.05.028.
7. UNICEF. Antenatal Care [Internet]. 2024 [cited 2024 Aug 7]. Available from: https://data.unicef.org/topic/maternal-health/antenatal-care/
8. Alkema L, Chou D, Hogan D, Zhang S, Moller AB, Gemmill A, et al. Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. World Health Organization. 2019;18(1):1-22. doi: 10.1186/s12963-019-0085-1.
9. UN Women. Pakistan midwife training programme addresses maternal mortality [Internet]. 2023 [cited 2024 Sep 1]. Available from: https://www.unwomen.org/en/news-stories/feature-story/2023/09/pakistan-midwife-training- programme-addresses-maternal-mortality
10. Abbas S, Khan US. Determinants of utilization of antenatal care services among Pakistani women: A review of literature. Pak J Med Sci. 2014;30(2):431-436. doi: 10.12669/pjms.302.4549.
11. MajroohMA, HasnainS, AkramJ, SiddiquiA, MemonZA (2014) Coverage and Quality of Antenatal Care Provided at Primary Health Care Facilities in the 'Punjab' Province of 'Pakistan'.PLoSONE9(11):e113390.doi:10.1371/journal.pone. 0113390
12. UNICEF. Bangladesh Country Profile [Internet]. 2024 [cited 2024 Aug 7]. Available from: https://data.unicef.org/wp-content/uploads/country_profiles/Bangladesh/country%20pr ofile_BGD.pdf.
13. Eurostat. Healthcare – Statistics Explained [Internet]. 2021 [cited 2024 Aug 7]. Available from: https://ec.europa.eu/eurostat/web/health.
14. Roozbeh N, Nahidi F, Hajiyan S. Barriers related to prenatal care utilization among women. Saudi Med J. 2016;37(12):1319–1327. doi:
15. Penman SV, Beatson RM, Walker EH, Goldfeld S, Molloy CS. Barriers to accessing and receiving antenatal care: Findings from interviews with Australian women experiencing disadvantage. J Adv Nurs. 2023;79(12):4672-4686. doi: 10.1111/jan.15724. PMID: 37366583; PMCID: PMC10952242.
16. Heaman MI, Sword W, Elliott L, et al. Barriers and facilitators related to the utilization of prenatal care by inner-city women: perceptions of health care providers. BMC Pregnancy Childbirth. 2015;15:2. doi: 10.1186/s12884-015-0431-5.
17. Adewuyi EO, Auta A, Khanal V, et al. Prevalence and factors associated with underutilization of antenatal care services in Nigeria: A comparative study of rural and urban residences based on the 2013 Nigeria Demographic and Health Survey. PLoS One. 2018;13(5):e0197324.doi:10.1371/journal.pone.0

197324.

18. Morgan AK, Awafo BA, Quartey T, et al. Husbands' involvement in antenatal-related care in the Bosomtwe District of Ghana: inquiry into the facilitators and barriers. Reprod Health. 2022;19:216. doi: 10.1186/s12978-022-01506-7.
19. de Jongh TE, Gurol-Urganci I, Allen E, et al. Barriers and enablers to integrating maternal and child health services to antenatal care in low and middle-income countries. BJOG. 2016;123(4):549-57. doi: 10.1111/1471-0528.13898.
20. Wake SK, Botore A, Mohammed A, et al. Disparities in antenatal care visits between urban and rural Ethiopian women. J Pregnancy. 2023;2023:9031344. doi: 10.1155/2023/9031344. PMID: 37799709; PMCID: PMC10550413.
21. Alibhai KM, Ziegler BR, Meddings L, Batung E, Luginaah I. Factors impacting antenatal care utilization: a systematic review of 37 fragile and conflict-affected situations. Confl Health. 2022;16(1):33. doi: 10.1186/s13031-022-00459-9. PMID:35690840; PMCID: PMC9188725.