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Research Article



Assessment of Ante-Natal Care services among women in Rural areas of Dehradun District: A cross - Sectional Study

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Abstract

Maternal health remains a critical component of public health and socio-economic development, particularly in developing countries like India. Antenatal care (ANC) services play a vital role in ensuring safe pregnancy and reducing maternal and infant mortality. Despite the implementation of various government initiatives, the utilization of ANC services in rural areas continues to be inconsistent. The present study examines the utilization of antenatal care services among women in selected rural villages of Dehradun district. The study is based on primary data collected from a sample of 80 respondents, including pregnant women and recently delivered mothers, using purposive sampling. The research analyzes the socio-economic profile of respondents, their level of awareness regarding ANC services, and the extent of utilization of these services. The findings reveal that although awareness of antenatal care services is relatively high, complete utilization remains moderate. A significant proportion of women do not complete the recommended number of ANC visits due to various constraints. The study identifies key factors influencing ANC utilization, including education, income, accessibility to healthcare facilities, and socio-cultural practices. Distance to health centers and lack of transportation emerge as major barriers, particularly in rural areas. Additionally, financial limitations and limited decision-making power among women further restrict access to maternal healthcare services. The study concludes that improving the utilization of antenatal care services requires a multi-dimensional approach that addresses socio-economic, cultural, and infrastructural barriers. Strengthening awareness programs, enhancing healthcare accessibility, and improving the quality of services are essential for achieving better maternal and child health outcomes. The findings of the study provide valuable insights for policymakers, healthcare providers, and development agencies to design targeted interventions for improving maternal healthcare utilization in rural settings.

Keywords: Antenatal Care (ANC), Maternal Health, Rural Healthcare, Healthcare Utilization, Socio-Economic Factors, Dehradun, Uttarakhand, Primary Data, Public Health, Women's Health.

Introduction

Antenatal care (ANC), also known as prenatal care, refers to the medical attention and support a woman receives during her pregnancy. In India, antenatal visits are essential to ensure the health of both the mother and the developing fetus. These visits help detect and manage complications, provide education on healthy practices, and prepare women for childbirth and parenting. According to the World Health

Organization (WHO), antenatal care plays a crucial role in reducing maternal and infant morbidity and mortality. In a country like India, where maternal health remains a major public health issue, ANC is vital to achieving the Sustainable Development Goals (SDGs), especially SDG 3, which aims to reduce maternal mortality to less than 70 per 100,000 live births. (World Health Organization. (2016)). The health status of women during pregnancy not only affects maternal outcomes but also determines the survival, growth, and

development of the newborn. In developing countries like India, maternal health continues to be a major concern due to persistent inequalities in access to healthcare services (Ghosh, S., & James, K. S. (2010)). Despite improvements in healthcare infrastructure and policy interventions, a significant proportion of women, particularly in rural areas, still lack access to essential maternal healthcare services.

Antenatal Care (ANC) is an important aspect of maternal healthcare that focuses on ensuring a safe pregnancy and healthy childbirth. It includes a range of preventive and curative services such as regular health check-ups, screening for complications, immunization (like tetanus toxoid), iron and folic acid supplementation, and counseling on nutrition and hygiene (WHO,2016) . Proper utilization of ANC services helps in the early detection and management of pregnancy-related risks, thereby reducing maternal and infant mortality rates. From an economic perspective, investment in maternal health also contributes to improved human capital formation and long-term productivity. Recognizing the importance of maternal healthcare, the Government of India has launched several programs under the National Health Mission (NHM). These initiatives aim to provide accessible, affordable, and quality healthcare services to women, especially in rural and underserved areas. Schemes such as free antenatal check-ups, Janani Suraksha Yojana (JSY), and the involvement of Accredited Social Health Activists (ASHAs) have played a significant role in increasing institutional deliveries and improving awareness about maternal health services (Lim, S. S., Dandona, L., Hoisington, J. A., James, S. L., Hogan, M. C., & Gakidou, E. (2010)).

ASHA workers, in particular, act as a vital link between the healthcare system and rural communities by facilitating access to ANC services and promoting health education. The situation becomes more complex in geographically challenging regions such as Uttarakhand. Being a predominantly hilly state, Uttarakhand faces unique challenges in delivering healthcare services to its rural population. Moreover, socio-economic conditions in rural areas of Dehradun also play an important role in shaping healthcare-seeking behaviour.

Within Uttarakhand, Dehradun district is considered relatively developed in terms of infrastructure and availability of healthcare facilities. However, significant disparities still exist between urban and rural areas. While urban populations have better access to hospitals and specialized care, rural areas often struggle with limited healthcare infrastructure, shortage of trained medical personnel, and inadequate outreach services. In many villages, health centres are located at considerable distances, and transportation facilities are either limited or costly, which discourages regular visits for antenatal check-ups.

Principles and Scope of Services

- Antenatal care provides an essential link between women and the health system and offers essential health care services in line with national policies, including:
- Counseling about the danger signs of pregnancy and delivery complications and where to seek care in case of emergency
- Counseling on birth preparedness, emergency readiness, and the development of a birth plan
- Providing advice on proper nutrition during pregnancy
- Detecting conditions that require additional care and providing appropriate treatment for those conditions
- Detecting complications that influence choice of birthing location
- Supplying Iron and Folate supplement
- Supplying low dose supplement of vitamin A
- In certain settings, providing treatment for conditions that affect women's pregnancies, such as malaria, tuberculosis, hookworm infection, iodine deficiency, and sexually transmitted infections, including HIV/AIDS
- Providing tetanus toxoid immunization
- Rapid test for Syphilis.
- Providing voluntary HIV testing and counseling
- Providing information about breastfeeding and contraceptives

Moreover, socio-economic conditions in rural areas of Dehradun also play an important role in shaping healthcare-seeking behaviour. Low household income, lack of education, and limited exposure to health information restrict the ability of women to utilize available services effectively (Kandpal, V., & Negi, K. (2019)). Traditional beliefs and practices related to pregnancy and childbirth further influence the decisions of families, sometimes leading to reliance on home-based care instead of institutional healthcare services.

Importance of Antenatal Visits

1. **Monitoring Fetal Development**-ANC helps track the growth and development of the fetus through physical examinations, ultrasounds, and blood tests.
2. **Preventing Complications**-Through routine tests, healthcare providers can detect conditions like anemia, gestational diabetes, preeclampsia, and infections early, reducing the risk of complications during pregnancy and childbirth.
3. **Nutritional Support**-Pregnant women receive essential supplements like iron, folic acid, and calcium, which are crucial for fetal development and preventing conditions like neural tube defects.
4. **Health Education**-Women are educated on nutrition, hygiene, breastfeeding, birth preparedness, and postnatal care.

5. Immunization-ANC provides vaccines like TT (Tetanus Toxoid) or Td (Tetanus and Diphtheria) to prevent infections during pregnancy and childbirth.

Statement of the Problem

Despite the expansion of maternal healthcare services and the implementation of various government initiatives in India, the effective utilization of antenatal care (ANC) services continues to remain a challenge, particularly in rural areas. Programs under the National Health Mission have significantly improved the availability of healthcare facilities and services; however, accessibility does not always translate into actual utilization. In many rural settings, including the villages of Dehradun district, a considerable number of pregnant women either do not register for ANC services on time or fail to complete the recommended number of antenatal visits.

One of the key issues is that many women do not receive the full range of essential ANC services, such as iron and folic acid (IFA) supplementation, tetanus toxoid immunization, regular medical check-ups, and counselling on nutrition and hygiene. While some women may attend initial check-ups, continuity of care throughout the pregnancy period is often lacking. This incomplete utilization reduces the effectiveness of maternal healthcare programs and limits their ability to prevent complications during pregnancy and childbirth.

The gap between the availability and utilization of ANC services indicates the presence of multiple underlying barriers. Socio-economic factors such as low income and limited education restrict women's ability to access healthcare services regularly. Cultural beliefs and traditional practices also play a significant role, as some families may not consider regular medical checkups necessary unless complications arise. Additionally, institutional challenges such as inadequate healthcare infrastructure, shortage of trained personnel, and irregular availability of services further discourage women from seeking timely care.

It also affects fetal health, resulting in low birth weight, premature births, and higher infant mortality rates.

Significance of the Study

This study is significant as it focuses on identifying the socio-economic, cultural, and institutional factors that influence the healthcare-seeking behaviour of women in rural areas of Dehradun district. By analysing variables such as education, income, awareness, and accessibility, the study provides valuable insights into the reasons behind the underutilization or partial utilization of ANC services. Understanding these factors is crucial for addressing the root causes of maternal health issues and for improving the effectiveness of existing healthcare programs.

Another important aspect of the study is its relevance for policymakers and healthcare providers. The findings can serve as a basis for designing targeted interventions aimed at improving awareness, strengthening healthcare infrastructure, and ensuring better outreach of services in rural areas. For instance, enhancing the role of frontline health workers, improving transportation facilities, and increasing community-level awareness programs can significantly boost the utilization of antenatal care services.

From an academic perspective, the study contributes to the broader field of health economics by examining how economic and social determinants affect the demand for healthcare services. It highlights the relationship between income levels, education, and healthcare utilization, thereby linking micro-level behaviour with broader development outcomes. Such analysis is important for understanding how investments in maternal health can lead to improved human capital formation and long-term economic growth.

Aim of the Study

To assess the utilization of antenatal care (ANC) services among women in rural areas of Dehradun district.

Research Objectives

1. To assess the socio-demographic profile (age, education, income, parity, etc.) of the women .
2. To assess the pattern of antenatal care health services .
3. To assess awareness and knowledge regarding antenatal care services among women.
4. To study barriers to utilization of ANC services (financial, geographical, social, health system-related) .
5. To examine the role of healthcare services/providers (ASHA, ANM, PHC) in promoting ANC utilization .

Research Methodology

Area of the Study

The study has been conducted in selected rural villages of Dehradun district in Uttarakhand. Two villages were selected: Chidderwala from Doiwala block and Nathuwala from Raipur block. Both villages have a considerable population of women in the reproductive age group (15–49 years), making them suitable for assessing the utilization of antenatal care services.

Sample Size

The study is based on a primary survey of 80 respondents, consisting of pregnant women and recently delivered mothers residing in the selected rural villages.

Data Collection Tools and Techniques

A structured questionnaire was used as the main tool for data collection. The questionnaire was designed in a simple and understandable manner to ensure that respondents could easily provide accurate information. In addition to the questionnaire, informal discussions and observations were also used to supplement the data and understand the local context better.

Data Analysis and Interpretation

This presents the analysis and interpretation of primary data collected from 80 respondents (pregnant women and recently delivered mothers) from selected rural villages of Dehradun district. The data has been analyzed using percentage method and presented in tabular form for better understanding. Each table is followed by a brief interpretation.

1- Socio-Economic Profile of Respondents

Table 1 : Age of Respondents

Age Group	Frequency	Percentage (%)
Below 20 years	10	12.5%
20–25 years	28	35%
26–30 years	25	31.25%
Above 30 years	17	21.25%
Total	80	100%

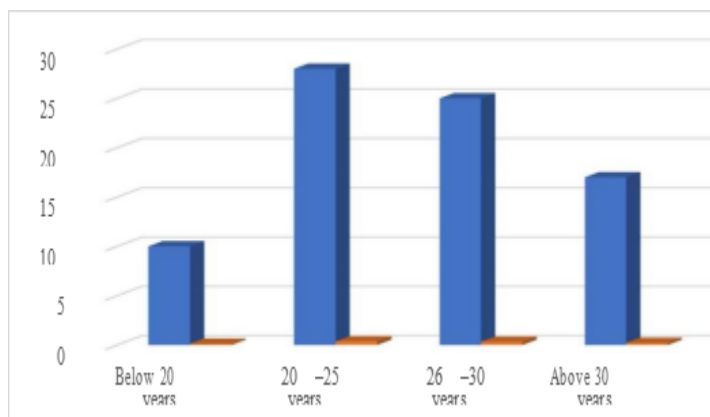


Fig 4.1

Interpretation

Above data suggests that most respondents are concentrated in the 20–30 years age bracket, which is generally considered the most suitable reproductive age. This age distribution is important for the study as it highlights the need for effective antenatal care services targeted toward women in this dominant age group to ensure better maternal and child health outcomes.

2-Monthly Household Income

Income Level	Frequency	Percentage (%)
Below ₹10,000	20	25%
₹10,000–₹20,000	30	37.5%
₹20,001–₹30,000	18	22.5%
Above ₹30,000	12	15 %
Total	80	100%

Table 2

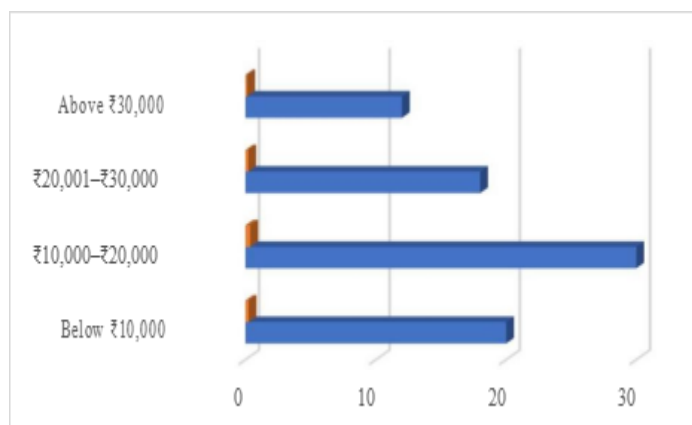


Fig 4.2

Interpretation

Overall, the income distribution indicates that the majority of respondents belong to low and middle-income groups, which has a direct impact on the utilization of antenatal care services. Financial limitations, along with other socio-economic factors, play a crucial role in determining healthcare access and utilization patterns in rural areas.

3-Utilization of ANC Services

Table 3 :Registration of Pregnancy

Response	Frequency	Percentage (%)
Yes	65	81.25%
No	15	18.75%
Total	80	100%

Interpretation

Overall, the data indicates that while the majority of women are accessing initial antenatal care services through pregnancy registration, there is still a need to ensure universal registration coverage. Strengthening awareness campaigns and improving

accessibility in remote rural areas can help achieve complete coverage and better maternal health outcomes.

Table 3 : Number of ANC Visits

Visits	Frequency	Percentage (%)
None	5	6.25%
1-2 visits	20	25%
3 visits	18	22.5%
4 or more visits	37	46.25%
Total	80	100%

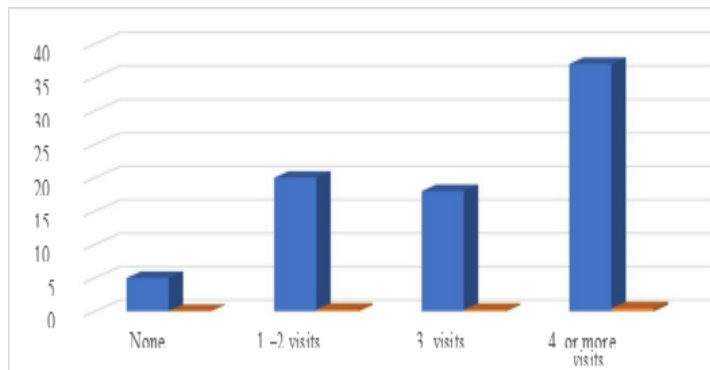


Fig 4.4

Interpretation

Overall, the data reflects that while a significant proportion of women are utilizing antenatal care services adequately, there still exists a gap in achieving universal and complete ANC coverage. Efforts need to be strengthened to ensure that all pregnant women complete the recommended number of visits for improved maternal health outcomes.

4-Factors Affecting ANC Utilization

Table 4 : Major Difficulties in Accessing ANC Services

Factor	Frequency	Percentage (%)
Distance to health center	28	35%
Lack of awareness	18	22.5%
Financial problems	16	20%
Family restrictions	18	22.5%
Total	80	100%

Interpretation

Overall, the findings indicate that ANC utilization is influenced by a combination of geographical, socio-economic, and socio-cultural factors. Addressing these challenges

requires improved healthcare accessibility, enhanced awareness programs, financial support mechanisms, and community-based interventions to ensure better maternal health outcomes in rural areas.

Conclusion of the Study

The present study concludes that while antenatal care services are available in rural areas of Dehradun, their utilization is not fully optimal. There exists a noticeable gap between the availability of services and their effective use by pregnant women. Although awareness levels have improved due to government initiatives and the efforts of frontline health workers, complete utilization of ANC services remains limited. Socio-economic factors such as education and income significantly influence the utilization of antenatal care services. Women with higher education levels are more likely to understand the importance of regular check-ups and follow recommended healthcare practices. Similarly, better economic status enables access to healthcare facilities and reduces financial barriers. On the other hand, women from lower socio-economic backgrounds face multiple challenges that limit their ability to utilize these services effectively. Accessibility issues, particularly distance to healthcare centers and lack of transportation, play a crucial role in determining ANC utilization in rural areas. Overall, the study highlights that improving antenatal care utilization requires a multidimensional approach that addresses not only healthcare availability but also socio-economic, cultural, and infrastructural barriers. Strengthening awareness programs, improving accessibility, and enhancing the quality of healthcare services are essential for achieving better maternal and child health outcomes.

Discussion with comparison to previous studies

The present study on utilization of antenatal care services among women in rural areas of Dehradun revealed that most women had registered their pregnancy and utilized antenatal care services to some extent. However, variations were observed in the number of ANC visits, intake of iron and folic acid tablets, awareness regarding pregnancy care, and utilization of government maternal health services. The findings of the present study showed that educational status significantly influenced antenatal care utilization. Women with better education were more likely to attend regular ANC visits and follow medical advice. Similar findings were reported in a study conducted in rural Telangana by Das et al., where higher education and better socio-economic status were associated with improved utilization of antenatal care services among rural women.

The present study also found that socio-economic condition and accessibility to health facilities affected the utilization of ANC services. Women belonging to financially stable families were more likely to complete recommended antenatal visits and undergo investigations. Comparable findings were reported in a study conducted among rural women in Uttar

Pradesh, which observed that maternal healthcare utilization was strongly associated with education, economic status, and access to healthcare services.

The present findings are also supported by recent national-level evidence from NFHS-5, which reported that adequate quality antenatal care utilization in India is influenced by women's education, economic condition, place of residence, and healthcare accessibility. Overall, the findings of the present study are consistent with earlier studies conducted in different parts of India, indicating that awareness, education, socio-economic status, and accessibility remain important determinants of antenatal care utilization among rural women.

Author Contributions

The author has significantly contributed to the study's conception, design, data collection, analysis, and interpretation. All authors were involved in writing the manuscript or critically reviewing it for its intellectual value. They have reviewed and approved the final version for submission and publication and accept full responsibility for the content and integrity of the work.

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Conflicts of Interest

The authors state that there are no financial, personal, or professional conflicts of interest associated with this research.

Ethical Approvals

This research did not involve the use of human participants or animal subjects and therefore did not require ethical clearance

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