

**ORIGINAL RESEARCH**

# To study the factors affecting utilization of antenatal-care services among postpartum patients admitted at tertiary centre

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**ABSTRACT**

**Introduction:** WHO has recommended a minimum of 4 ANC visits, of which the first should be within 12 weeks of gestation in order to insure good quality antenatal care in the community, to identify and help threat to mother and the fetus during gestation, to identify gestation related conditions and to promote women's health. **Aim:** The aim of this study is to examine the utilization of ANC services among pregnant women and assess the factors influencing the utilization of antenatal care services. **Materials and Methods:** We conducted an institution-based cross-sectional study among 317 pregnant women at a tertiary care hospital from 01/06/2023 to 31/07/2023. Patients were selected using a systematic random sampling technique. The women were interviewed using a predesigned and pretested semi-structured proforma, and we established the correlation between comprehensive ANC and various determinants affecting it using the Chi-square test. **Results:** The study comprised 317 antenatal women, the majority of whom fell within the age group of 20-29 years. A significant portion originated from rural areas within a 5 km radius of the hospital, utilizing personal transportation for hospital visits. The majority had attained education up to Grade 10 and had completed their ANC registration during the 1st trimester, attending more than 4 ANC visits. Notably, none of the patients were admitted to the labor room without prior antenatal visits. **Conclusion:** Our study revealed that full utilization of antenatal care services was not attained. To enhance utilization, there is a necessity for effective community mobilization. Furthermore, there is a crucial need to educate individuals about the significance of ANC visits and to raise awareness about programs designed for pregnant women.

**Key word:** antenatal, gestation, antenatal, tertiary, proforma, Chi-square.

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**INTRODUCTION**

The World Health Organization (WHO) mandates that all pregnant women utilize antenatal care services (ANC) throughout their pregnancy. For uncomplicated pregnancies, it is recommended that women have a minimum of four comprehensive ANC visits before delivery<sup>(1)</sup>.

While all pregnancies and deliveries carry potential risks, certain conditions make the mother and fetus particularly vulnerable to high maternal and perinatal morbidity and mortality. Therefore, it is imperative to examine the associated risk factors.<sup>(2)</sup> Many pregnancy complications can be prevented with good quality antenatal, natal, and postnatal care, along with the avoidance of certain harmful birth practices.<sup>(3)</sup>

India accounts for 20% of all maternal deaths worldwide, and for each maternal death, at least 15 more women suffer severe morbidities such as incontinence, dyspareunia, Sheehan syndrome, uterine prolapse, and infertility due to unhygienic delivery

practices.<sup>(4)</sup> Complications related to pregnancy may be twice as high in rural areas compared to urban areas due to factors such as early childbirth, high parity, short birth intervals, large family sizes, poverty, malnutrition, limited access to health personnel or facilities, low social status of women, low literacy rates, lack of awareness, poor communication and transportation infrastructure, and adherence to social customs that discourage antenatal care utilization. In urban areas, risk factors for high-risk pregnancies include late marriage, elderly primigravida, previous cesarean section, pregnancy-induced hypertension, diabetes mellitus, and obesity.

India has experienced a progressive reduction in Maternal Mortality Ratio (MMR) over the years. The MMR declined from 113 in 2016-2018 to 103 in 2017-2019, as reported by the Registrar General of India. With this consistent decline, India is on track to achieve the National Health Policy-2017 target of 100 per lakh live births by 2020 and is likely to meet the

Sustainable Development Goals target of 70 per lakh live births by 2030.<sup>(5)</sup>

To enhance maternal health, it is crucial to identify and address barriers that hinder access to quality maternal health services at all levels of the healthcare system. Against this backdrop, the present study aims to evaluate the utilization of ANC services and the various determinants influencing their utilization among full-term pregnant women and recently delivered women.

**MATERIALS AND METHODS**

This cross-sectional study was conducted at the Obstetrics & Gynecological department of GMERS tertiary care hospital in Vadodara, Gujarat, India. The study took place from June 1, 2023 to July 31, 2023. Upon admission, subjects' detailed histories were recorded, including age, gravidity, parity, duration of marriage, gestational age, last menstrual period (LMP), estimated due date (EDD), chief complaint for admission, any pregnancy-related complications (such as pregnancy-induced hypertension, antepartum hemorrhage, preterm labor, premature rupture of membranes), and any medical conditions complicating the present pregnancy (such as diabetes mellitus, hypertension, renal disease, tuberculosis). Additionally, past pregnancy history, immunization status, mode of delivery, postpartum complications, drug history, and history of blood transfusion were documented.

**RESULTS**

General physical examinations, routine antenatal investigations, abdominal examinations, and vaginal examinations were conducted. The course of labor, mode of delivery, labor outcomes, intrapartum and postpartum complications, as well as their management, were recorded.

**Inclusion Criteria:** Patients who have provided consent, including postpartum patients admitted in the Postnatal Care (PNC) ward and Obstetrics Intensive Care Unit (obs-ICU).

**Exclusion Criteria:** Postpartum patients who have not provided consent are excluded from the study.

**Study Procedure**

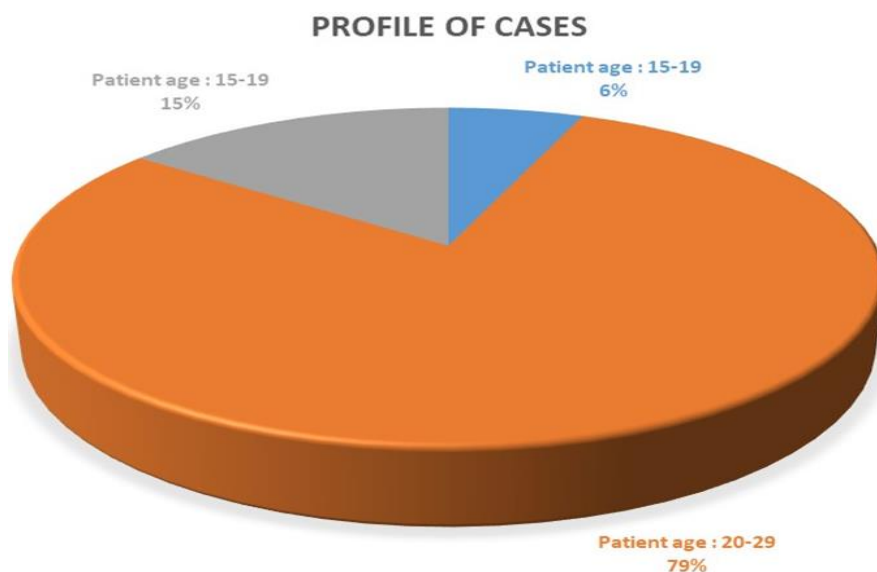
Before commencing the study, patients will be briefed about the study and its objectives. Ensuring patient anonymity, written informed consent will be obtained prior to data collection.

Data collection will be conducted using an oral questionnaire method with a pre-designed and pre-tested semi-structured proforma, validated by an expert. For assessing ANC utilization, information recorded will include pregnancy registration, number of antenatal visits, tetanus vaccination, consumption of iron and folic acid (IFA) tablets, and socio-economic status. Additionally, sociodemographic details, timing of ANC registration, number of visits throughout the pregnancy, and motivating factors for ANC visits will be determined. Mamta card or ANC card of pregnant women will be requested for recording the required information.

**Study: 1 profile of cases**

Patients age	Patient nos.
15-19	19
20-29	251
>29	47

**Table 1: Demographic profile of cases**



**Pie chart 1: Demographic profile of cases**

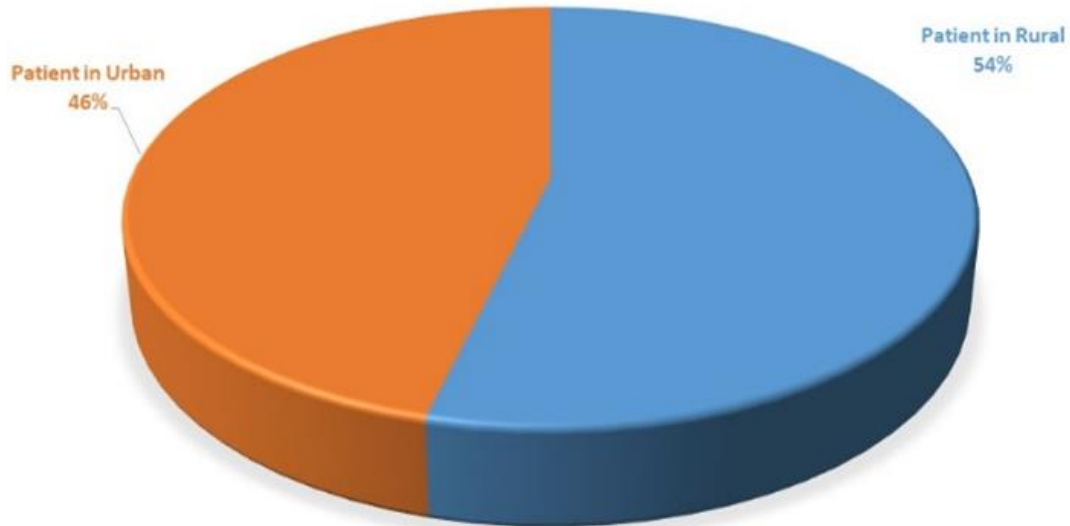
Table: 1 & Pie chart: 1 representing age wise distribution of antenatal patient in our study shows max. pt. in 20-29 years of age group and less pt. in below 19 year age group

**Study: 2 According to address**

Patients address	Patients nos.
Rural	171
Urban	146

**Table: 2 According to address**

**ACCORDING TO ADDRESS**



**Pie chart: 2 According to address**

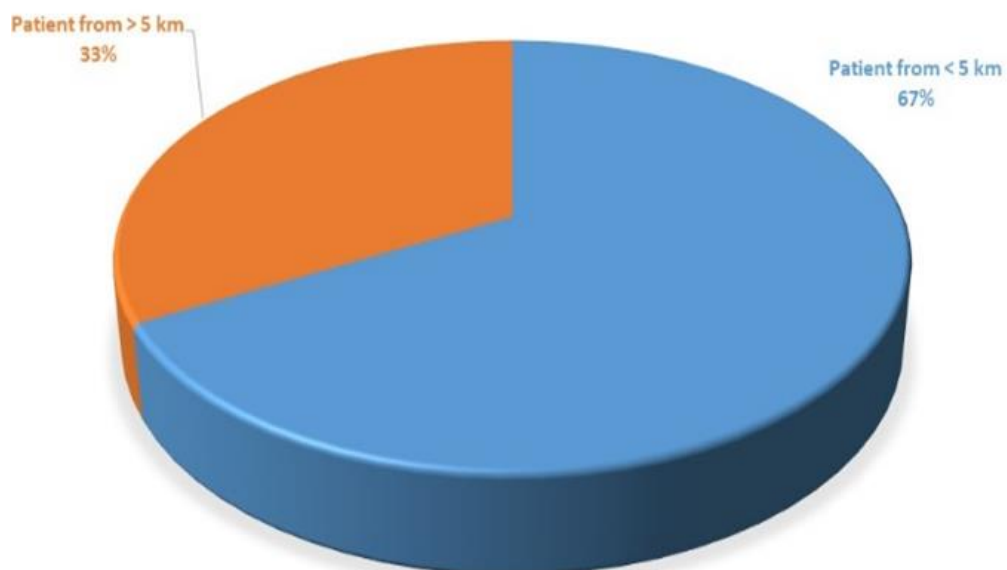
Table 2 & pie chart 2 showing max. women are coming from rural area besides urban area.

**Study: 3 distance between patients home and ANC facilities**

Distance from nearest ANC care Facilities	Patients nos.
< 5km	213
>5km	104

**Table: 3 Distance between patient's home and ANC facilities**

**DISTANCE BETWEEN PATIENT HOME AND ANC FACILITIES**



**Pie chart: 3 Distance between patient's home and ANC facilities**

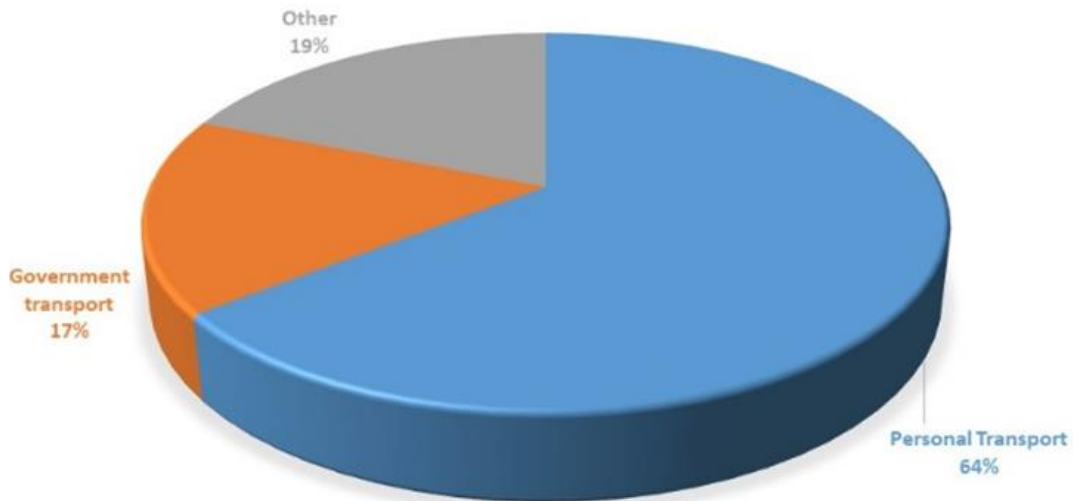
Table & pie chart 3 showing most of the patients have access of ANC facilities within 5 kilometers from health care center

**Study: 4 availability for conveyance to reach health facilities**

Availability for conveyance	Patients nos.
Personal Transport	204
Government transport	53
Other	60

**Table: 4 Availability for conveyance to reach health facilities**

**AVAILABILITY FOR CONVEYANCE TO REACH HEALTH FACILITIES**



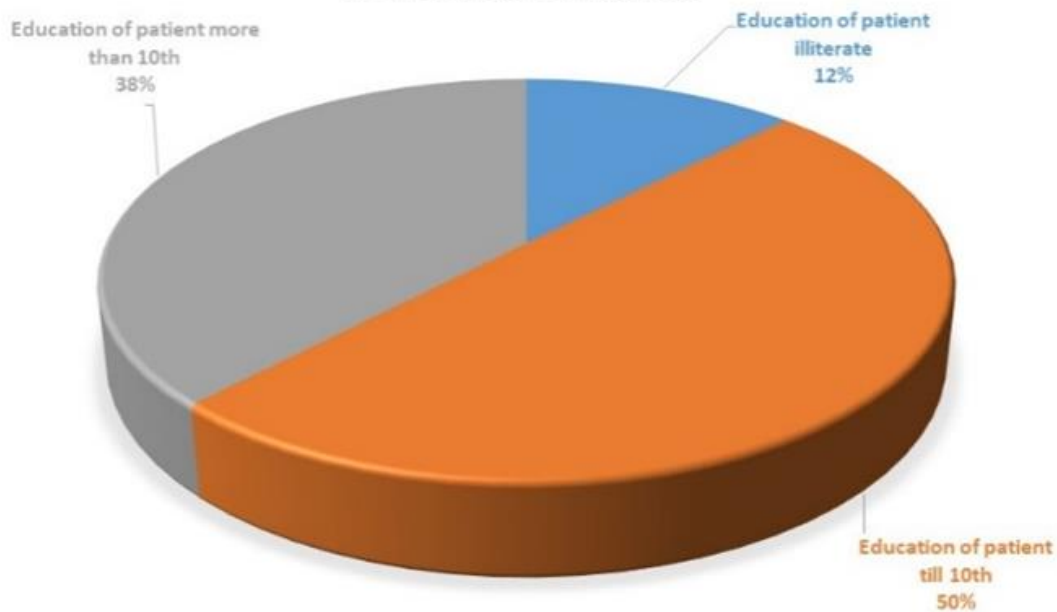
**Pie chart: 4 Availability for conveyance to reach health facilities**

Table & pie chart 4 showing that max patients use personal transport to reach health facilities and less patient use government transport

**Table: 5a Education of patient**

Education of patient's husband	Patient nos.
Illiterate	55
Till 10th	214
More than 10th standard	48

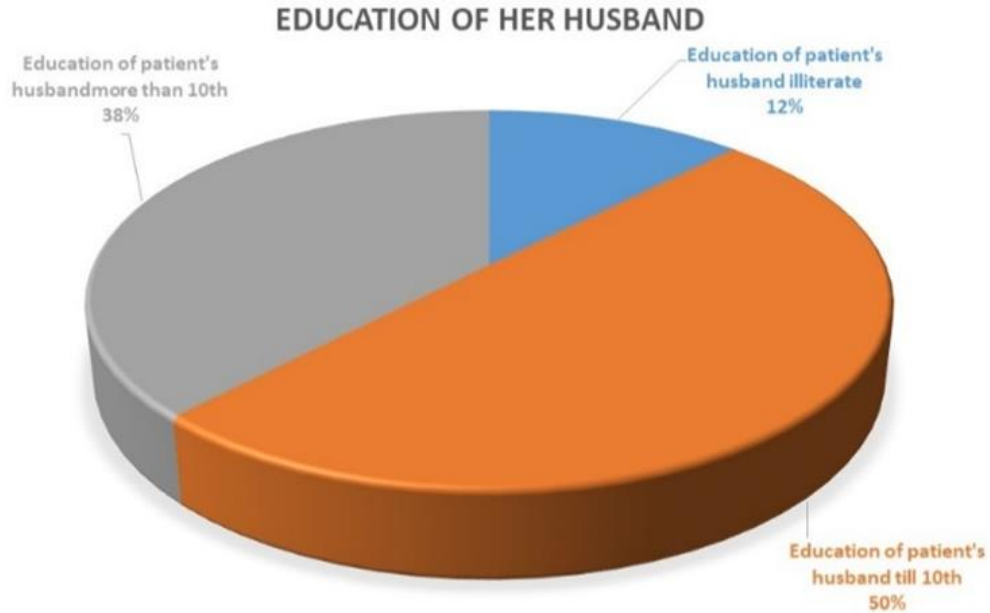
**EDUCATION OF PATIENT**



**Pie chart: 5a Education of patient**

**Study: 5b Education of patient and her husband**

Education of patient	Patient nos.
Illiterate	55
Till 10th	214
More than 10th standard	48



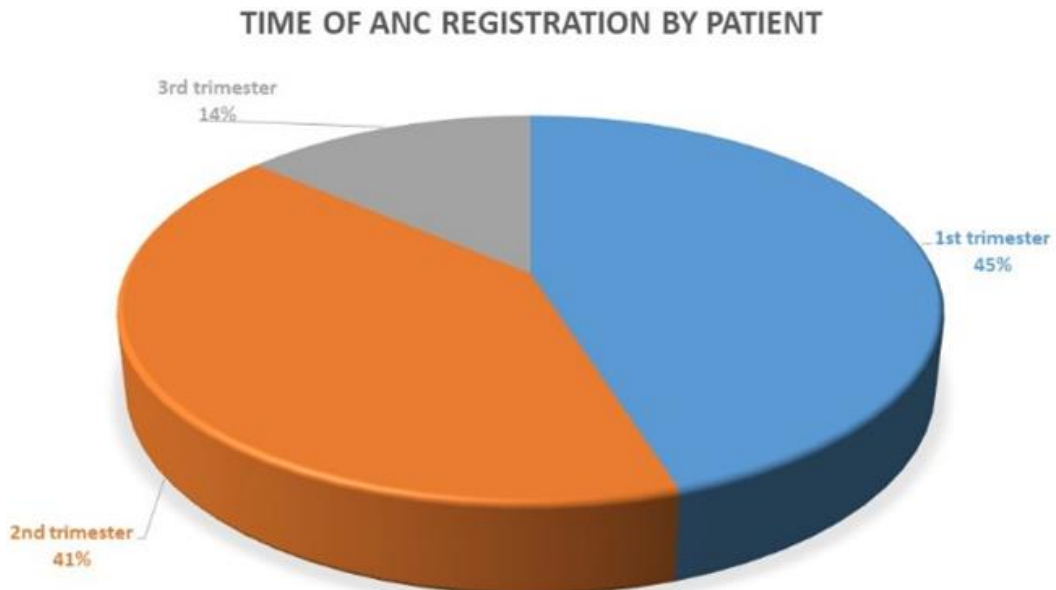
**Pie chart: 5b Education of patient's husband**

Table and pie chart 5 showing most of the pt and her husband's education status till 10th std. and 12% pt and her husband are illiterate.

**Study: 6 Time of ANC registration by patients**

Time of ANC Registration	Patients nos.
1st trimester	138
2nd trimester	126
3rd trimester	42

**Table: 6 Time of ANC registration by patients**



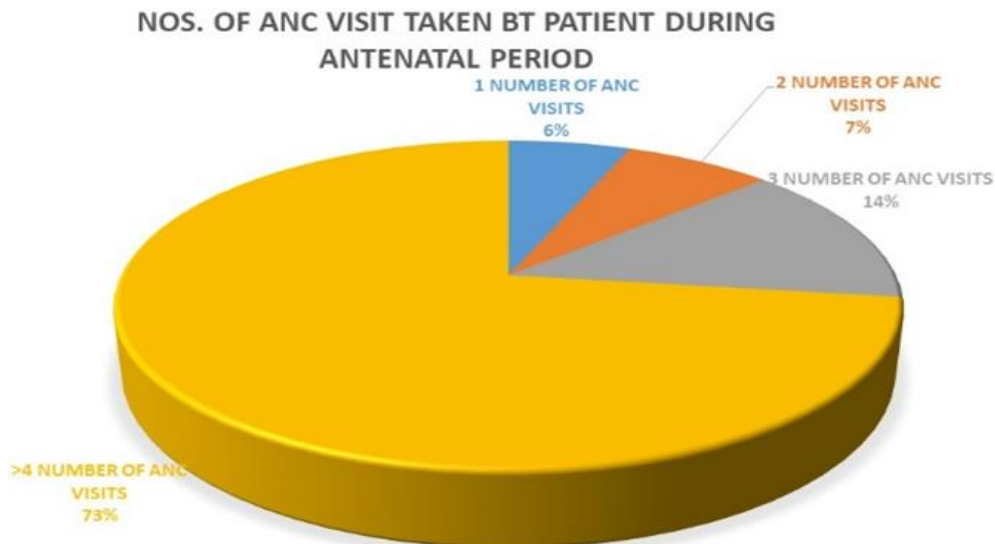
**Pie chart: 6 Time of ANC registration by patients**

Table and pie chart 6: 45% patients has taken 1ST ANC visit in 1st trimester and 14% ANC visit in 3rd trimester.

**Study: 7 Nos. of ANC visit taken by patient during antenatal period**

Number of ANC visits	Patient nos.
1	19
2	23
3	44
>4	231

**Table: 7 Nos. of ANC visit taken by patient during antenatal period**



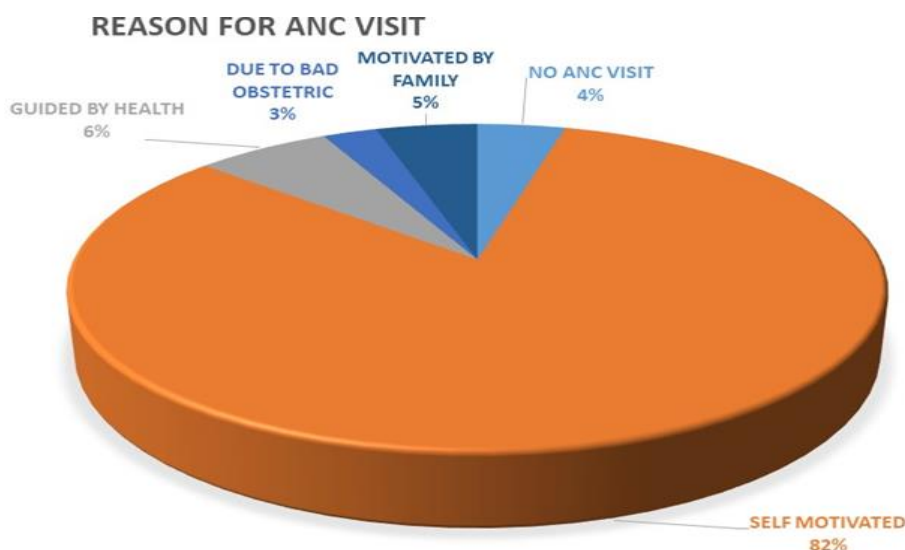
**Pie chart: 7 Nos. of ANC visit taken by patient during antenatal period**

Table & pie chart 7 showing 73% patient has taken more than 4 antenatal visit during ANC period and 7% patient has taken only one visit during antenatal period.

**Study: 8 Reason for ANC visit**

Reasons for ANC visits	Patient nos.
No ANC visit	13
Self-motivated	261
Guided by health Personnel	20
Due to bad obstetric History	8
Motivated by family	15

**Table: 8 Reason for ANC visit**



**Pie chart: 8 Reason for ANC visit**

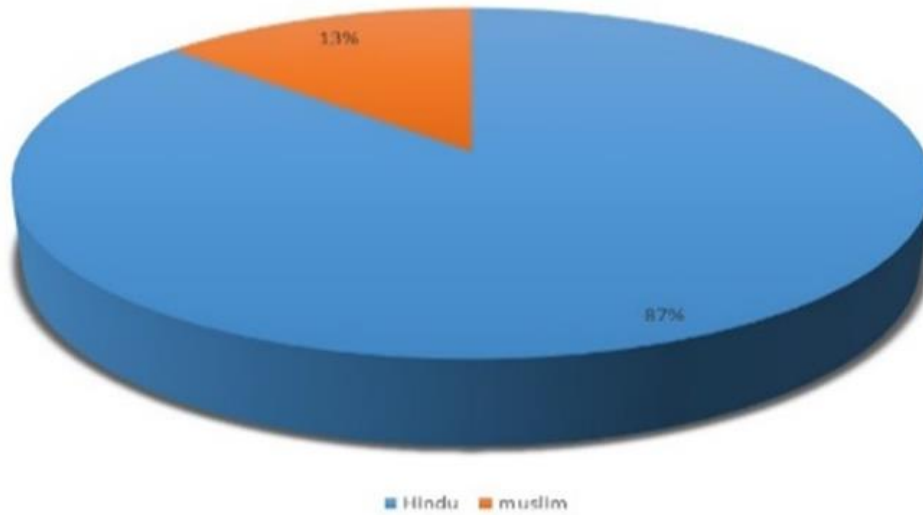
Table and pie chart 8 showing max. pts are self-motivated followed by 6% patient guided by health personnel and 3% experienced bad obstetrics history.

**Study: 9 Distribution according to community**

Religion	Patients nos.
Hindu	275
Muslim	42

**Table: 9 Distribution according to community**

**DISTRIBUTION ACCORDING TO COMUNUNITY**



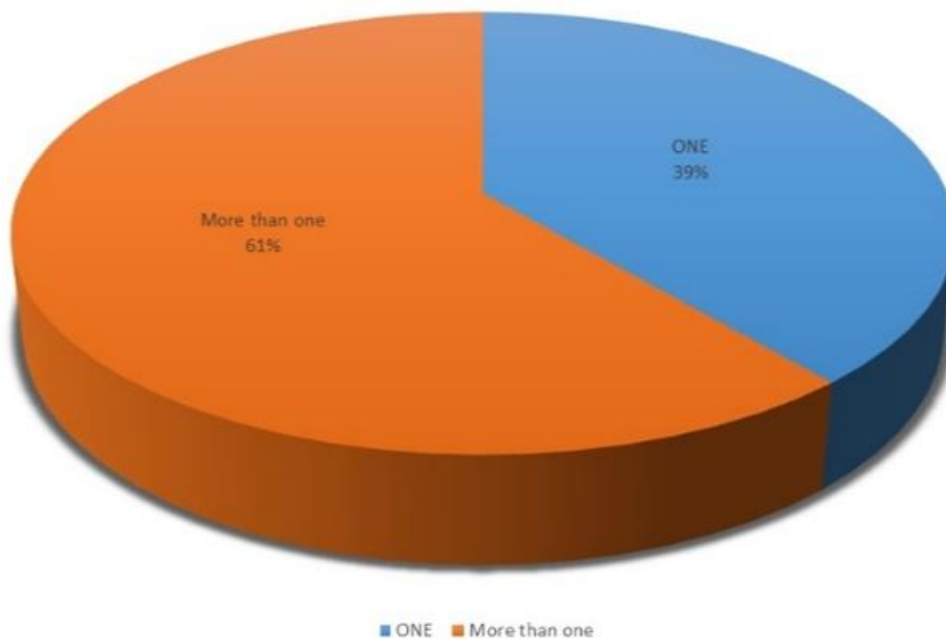
**Pie chart: 9 Distribution according to community**

**Study: 10 Distribution of patient according to parity**

Parity	Patients nos.
one	123
More than one	194

**Table: 10 Distribution of patient according to parity**

**DISTRIBUTION OF PT ACCORDING TO PARITYT**



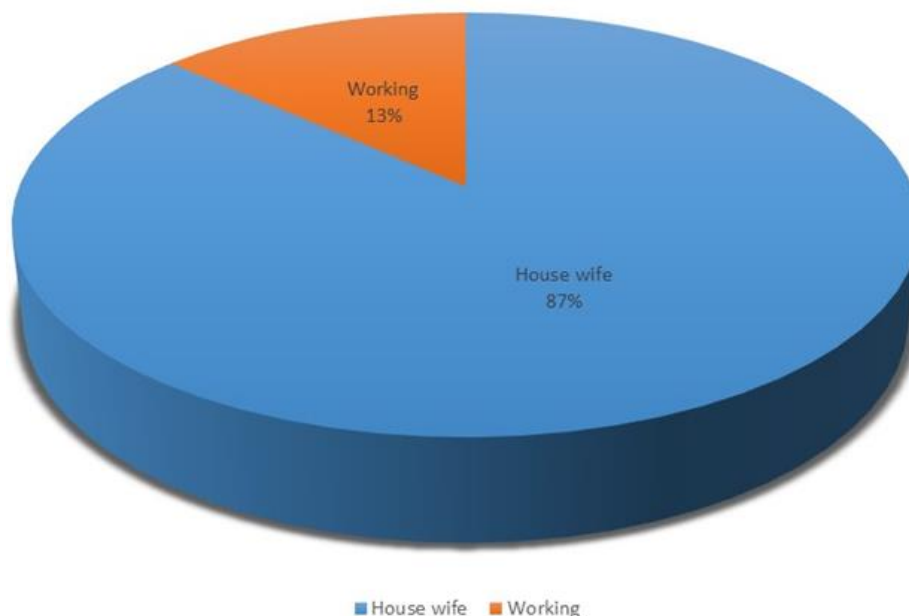
**Pie chart: 10 Distribution of patient according to parity**

**Study: 11 Distribution according to working status of patients**

Occupation	Patients nos.
House wife	275
Working	42

**Table: 11 Distribution according to working status of patients**

**DISTRUBUTION ACCORDING TO WORKING STATUS OF PATIENT**



**Pie chart: 11 Distribution according to working status of patients**

Table and pie chart 11 showing 87% women are house wife and 13% are working women

**DISCUSSION**

Antenatal care is of paramount importance, acting as a protective shield for both the pregnant mother and her unborn child. The initial phases of pregnancy exert a significant impact on adult health and the perinatal period of the newborn. It serves as a potent tool in reducing both infant and maternal mortality rates. Additionally, the number of ANC visits plays a crucial role in delivering other components of ANC. Regular ANC visits are beneficial, particularly for women nearing delivery, emphasizing the need for vigilance and adequate follow-up of pregnant women. To ensure maximum coverage of pregnant women, efforts should be directed towards strengthening primary healthcare facilities and ensuring their easy accessibility. High maternal and perinatal mortality rates not only signify the inadequacy of healthcare services for mothers and infants but also indicate a low standard of living and socio-economic status, particularly prevalent in rural communities.<sup>(6,7,8)</sup>

The present study aimed to explore the utilization of ANC services and identify its determinants among pregnant women. Data analysis revealed that the majority of participants belonged to the 20-29 years age group. Approximately half of them had education up to the 10th standard, while 38% had education beyond the 10th standard, and 12% were illiterate. A

similar situation was observed for their husbands as well. Education played a significant role in encouraging pregnant mothers to seek ANC. Several other studies have also highlighted the strong positive impact of maternal education on the utilization of health services. Knowledge and education can enhance women's awareness of their rights and health. The study revealed that all participants were registered and possessed a Mamta card. Early registration provides an excellent opportunity to deliver a comprehensive package of antenatal services in the early stages of pregnancy. The current study found that 73% of participants had undergone a minimum of four antenatal visits, which was lower than the findings of Chethana K et al., where 91.5% had completed at least four antenatal visits.<sup>(9)</sup> Swetha NB et al. reported that 98.6% of participants had undergone a minimum of four antenatal visits, which was higher than the current study's rate of 73%. While the proportion of women with four or more ANC visits in our study is slightly higher than the global average of 61.8.

Antenatal care also exhibited significant differences between rural and urban groups, with 54% of rural and 46% of urban patients receiving adequate ANC. Studies indicate that the early reporting of pregnancy and adequate antenatal care in rural areas is



attributable to ANC. This suggests the need for increased attention to health awareness, education, and promotion activities in rural areas. According to Rustagi et al. <sup>(10)</sup> the higher ANC coverage observed in urban areas may be attributed to the accessibility of ANC services at primary care facilities, underscoring the importance of policy efforts to strengthen primary healthcare. In our study, 45% of participants initiated their ANC in the first trimester, while 14% began in the third trimester. Early registration of pregnancy was observed in 45% of participants. Tellis SB et al. reported an early registration rate of 78.3%, which was higher than the finding of the present study. <sup>(11)</sup> Early registration has a significant impact on the outcome of pregnancy in terms of the health of both the mother and her baby. It provides an excellent opportunity to deliver a comprehensive package of antenatal services in the initial phase of pregnancy. In our study, early registration was observed in approximately 45% of participants, indicating room for improvement to reach 100%.

The primary reason for ANC visits in our study was self-motivation, accounting for about 82%. This can be attributed to various health awareness programs, the promotion of girls' education, mass media communication, an increase in the number of health facilities, improved personal transportation facilities, and government efforts to enhance prompt referral and easy transportation from home to nearby health facilities, including tertiary health facilities if necessary.

Additionally, in our study, 87% of participants belonged to the Hindu community, while the remaining were from the Muslim community. This highlights the importance of providing education to dispel false beliefs and reaching out to all eligible antenatal women from different communities to encourage regular ANC visits. In our study, 61% of participants were multiparous women, influenced by past pregnancy experiences, guidance from health personnel, family motivation, or personal choice. Additionally, the majority of participants were housewives.

Similar results were reported in a study conducted in Gujarat in 2017 by Jogia et al., where 81.54% of ANC patients in the 20-30 age group were housewives, predominantly Hindu and residing in rural areas. These demographic characteristics were also noted by Roy et al. in their study conducted in Lucknow.

## CONCLUSION

ANC is crucial and beneficial, especially when initiated early. Early initiation offers benefits that prevent early morbidity of both the neonate and the mother, as appropriate treatment and medication can be administered. Factors such as age, marital status, education, residence in urban areas, and socioeconomic status, including employment and media exposure, all influence the effective utilization of antenatal care. Women with higher age, residing in

urban areas, possessing higher education, belonging to higher socioeconomic classes, and having high parity are more likely to access full ANC services.

The recent WHO recommendations of eight ANC visits underscore the importance of providing a higher number of ANC visits and intensive care to pregnant women. However, a minimum of four visits is recommended to cover a maximum number of ANC cases. Regular ANC visits during pregnancy reduce the incidence of major pregnancy-related problems, even among women without preexisting diseases. Unfortunately, half of the women in the study did not receive the minimum number of recommended ANC visits. Effective implementation of programs like Janani Shishu Suraksha Karyakram (JSSK) and other health initiatives has contributed to an increase in the incidence of institutional deliveries.

To enhance awareness at both the population and individual levels, broadcasting important messages related to antenatal care through relevant health and educational institutes and mass media platforms has been initiated. We recommend that the newly launched Ayushman Bharat scheme should prioritize advertisement through mass media in peripheral areas, which cover OPD-based antenatal care. Despite the availability of free ANC services for all women, timely initiation of the first ANC visit remains inadequate and insufficient in the study area.

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Firstly, We would thank my almighty GOD for giving his blessings which were always encouraging me during my tough time

This research has been one of the most influential events in my medical education and profession, and We realize that this effort has contributed towards my refinement and over all study.

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WE ARE SOLELY RESPONSIBLE FOR ANY ERROR COMMITTED IN THIS RESEARCH.

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