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Knowledge and Preferences Regarding Antenatal Education among Pregnant Women

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ABSTRACT

Background: Antenatal education is important component of maternal care, equipping pregnant women with knowledge and skills necessary for healthy pregnancy, safe childbirth, and effective postpartum care. Despite its recognized benefits, structured antenatal education remains inconsistently implemented in tertiary-care settings across India.

Methods: This study aimed to assess maternal knowledge and educational preferences to inform culturally responsive interventions. A descriptive cross-sectional design was employed among 400 pregnant women attending the antenatal outpatient department. Participants were recruited through purposive sampling, and data were collected using a validated, self-structured questionnaire comprising demographic variables, 21 knowledge items, and preference-related questions. Descriptive and inferential statistics, including Chi-square tests, were applied for analysis.

Result: Findings revealed that most participants demonstrated average knowledge (63.25%), while 26.75% had good knowledge and 10% exhibited poor knowledge. Knowledge was highest regarding general pregnancy information and signs of labour, but lowest for pregnancy symptoms, fetal development, exercise, and diet. Preferences highlighted a strong inclination for antenatal education delivered in Hindi/local language (98.5%), through one-to-one counselling (31%), and by physicians (55%). Significant associations ($p < 0.05$) were observed between knowledge scores and age, education, residence, employment status, gestational age, gravidity, and pregnancy loss history.

Conclusion: The substantial gaps in key domains of antenatal knowledge and emphasizes the need for structured, linguistically appropriate, and culturally aligned antenatal education programs. Integrating tailored instructional strategies into routine ANC visits, with partner involvement, can enhance maternal preparedness, address knowledge deficits, and contribute to improved maternal and neonatal outcomes.

Key-words: Antenatal education, Maternal knowledge, Preferences, Pregnant women

INTRODUCTION

Antenatal education is a central component of maternal health promotion, offering expectant mothers the knowledge and confidence necessary to navigate pregnancy, childbirth, and the postpartum period. Studies have consistently demonstrated that structured antenatal education improves birth preparedness, reduces maternal anxiety, enhances self-efficacy, and contributes to improved maternal and neonatal outcomes. [1,2]

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Despite these well-documented benefits, access to standardized antenatal education remains inconsistent across India, particularly in tertiary care hospitals where clinical demands often overshadow patient-centred educational needs. Furthermore, structured educational interventions have been shown to improve maternal knowledge, promote healthy behaviours, and increase utilization of antenatal care services. [3-6]

In Uttar Pradesh, where maternal health indicators continue to show substantial disparities, understanding pregnant women's awareness and expectations regarding antenatal education is especially important. Although tertiary hospitals in high-volume urban settings serve women from varied socio-economic and educational backgrounds, antenatal education is often limited, irregular, or inadequately standardized. Women

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receiving comprehensive antenatal education are more likely to recognize pregnancy danger signs, adopt healthy lifestyle practices, attend regular antenatal check-ups, and make informed decisions regarding labour, delivery, breastfeeding, and newborn care. [3,5,6]

By aligning educational interventions with women's lived experiences and cultural contexts, patient-centred antenatal programmes can strengthen respectful maternity care and improve maternal health literacy. Studies have further demonstrated that interactive group sessions, individualized counselling, and digital educational platforms significantly enhance maternal knowledge, confidence, and pregnancy preparedness. [4,7] In addition, maternal education, socio-economic status, place of residence, and access to health services are important determinants influencing antenatal care utilization and educational outcomes among pregnant women in India. [8]

Although national initiatives such as the Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) Strategy aim to improve maternal health, antenatal education remains underutilized and inconsistently delivered in many healthcare settings. Limited awareness, socio-cultural barriers, and inadequate counselling continue to restrict effective dissemination of essential pregnancy-related information, particularly among women attending busy tertiary hospitals. [3,8]

Therefore, the present study was undertaken to assess pregnant women's baseline knowledge, perceptions regarding the importance of antenatal education, and their preferred modes of receiving such information among women attending a tertiary care hospital in Uttar Pradesh. The findings may guide the development of culturally appropriate and patient-centred antenatal education programmes that strengthen maternal health literacy, improve informed decision-making, and ultimately contribute to safer pregnancy and childbirth outcomes. [1,4]

MATERIALS AND METHODS

Research Design- A non-experimental research approach for descriptive cross-sectional design was selected to assess the knowledge levels and educational preferences of pregnant women for antenatal education at a single point time for this study.

Methodology- The study was conducted in the Antenatal Care (ANC) Outpatient, at high-volume tertiary care centre the target population included pregnant women attending the ANC OPD, KGMU. This population provided diverse representation in terms of age, parity, education, and socio-cultural characteristics. A non-probability purposive sampling technique was used.

Sample Size Calculation- Using the formula: Where: Z = 1.96 (at 95% confidence interval)

P = 0.5 (assumed proportion with knowledge of antenatal education)

d = 0.05 (precision) n = 384.16

Adding 10% for potential non-responses: n = 384.16 + 10\% = 422.58 (sample size: 400}

This sample size aligns with recommendations for cross-sectional studies in maternal health. [9]

Sampling Criteria

Inclusion Criteria- Pregnant women with gestational age ≥ 12 weeks, able to understand and communicate in English or Hindi.

Exclusion Criteria- Pregnant women unwilling to participate.

Instrument/ Tool Development- The development of the research instrument followed standard steps recommended in nursing research. The Extensive literature review on antenatal education, danger signs, fetal development, and health behaviours content validation by a panel of subject experts. Content validity was ensured through review by nine experts in obstetrics and gynaecology, nursing education, and maternal health. Experts assessed items for relevance, clarity, and accuracy. Their suggestions were incorporated into the final tool. A pilot study was conducted before the final data collection among 42 pregnant women at Queen Mary Hospital. Reliability was assessed using the split-half method, yielding a reliability coefficient of 0.99, indicating excellent internal consistency.

Description of Tools

Section A: Demographic Profile: A self-structured questionnaire covering 8 demographic variables: Age, education, occupation, family income, gestational age, type of residence, gravidity, and previous pregnancy loss.

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Section B: Knowledge Assessment: A set of 21 knowledge-based items related to: Common pregnancy symptoms, fetal development, maternal diet, danger signs, labour and delivery, activity and rest, breastfeeding practices, postpartum care.

Section C: Preferences for Antenatal Education- Items for assessing: Preferred methods (group sessions, digital modules, one-on-one counselling), Preferred strategies (demonstrations, videos, printed materials), Preferred sources (nurses, doctors, midwives), preferred timing of antenatal education.

Procedure for Data Collection: After ethical clearance, formal permission was taken from the department head. The sample was taken by purposive sampling technique with inclusion and exclusion criteria. After that benefit of this study was explained to the participant and informed consent were taken. Data were collected during first week of May 2025, by paper pen method.

Statistical Analysis- Descriptive statistics (frequency, percentage, mean, SD) were used to summarise demographic data, knowledge scores, and preference patterns. Inferential statistics (Chi-square tests) were employed to examine associations between demographic variables and knowledge levels or preferences.

Ethical Clearance- The ethical permission was taken from Institutional Ethics Committee, Registration no.: ECR/262/Inst/UP/2013/RR-19 No. 36/Ethics/2025 dated 15/04/2025. Ref. code: 34th –PGTSC-IIC-NUR/P1.

RESULTS

A total of 400 pregnant women participated in the study. Most participants (52.25%) were aged 25–30 years, 37.5% were graduates or above, and 84.25% were housewives. Most husbands (78.5%) were employed in the private sector. More than half (53%) were in 26–37 weeks of gestation, 70.75% resided in urban areas, 43% were primigravida, and 68.75% had no history of pregnancy loss. Overall, the study population represented young, urban women attending tertiary-care ANC services, with relatively lower participation of rural and low-literacy women.

Knowledge assessment showed highest scores in general pregnancy care, labor signs, and safe practices, whereas knowledge regarding danger signs, fetal development, diet, exercise, and pregnancy symptoms remained comparatively low. The mean knowledge score was 12.16 ± 3.40. Overall, 63.25% of participants had average knowledge, 26.75% had good knowledge, and 10% had poor knowledge, highlighting the need for structured antenatal education focusing on fetal development, nutrition, exercise, and early recognition of pregnancy complications (Table 1).

Tabe 1: Component-wise Knowledge Overview

Component	Awareness Level (%)	Interpretation
General Pregnancy Info	76.25	Strong awareness
True Signs of Labor	74.25	Very good understanding
Danger Signs	61.25	Fair awareness; needs reinforcement
Breastfeeding	60.87	Moderate understanding
Postpartum Care	59.37	Moderate understanding
Diet Regimens	54.25	Needs further emphasis
Exercise Regimens	47.41	Below average; practical skills may be lacking
Fetal Development Stage	42.25	Requires strengthening
Pregnancy Symptoms	38.00	Lowest awareness; targeted education needed

Chi-square tests revealed statistically significant associations ($p < .05$) between knowledge levels and all selected demographic variables: These findings align with national and global trends where education, urban residence, and multiparity consistently predict higher maternal health knowledge. Such associations highlight the necessity for targeted educational interventions in vulnerable subgroups such as: rural women, low-literacy women, first-time mothers (Table 2).

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Table 2: Association between Knowledge and Demographic Variables

Demographic variables	Finding
Age	Best knowledge found in 25–30 years group.
Education	Graduates and those with secondary education showed stronger knowledge levels.
Employment (self and spouse)	Women and spouses with formal jobs had better awareness.
Gestational Age	Highest knowledge among women in 26–37 weeks.
Residence	Urban women had greater knowledge than rural counterparts.
Gravidity	Those in second pregnancies scored better.
Pregnancy Loss History	Slightly better knowledge among women without a history of loss.

This data interpret extremely high preference for Hindi-language instruction is consistent with communication norms in Indian maternal care. Preference for doctors as the primary source of education reflects a well-documented cultural trust hierarchy in India where physicians are viewed as the most authoritative figures. High acceptance of partner involvement, which recommend including husbands/partners in ANC education. Lack of time as a major barrier indicates the need for integrated, brief, and flexible educational strategies during routine ANC visits (Table 3).

Table 3: Preference Mode for Antenatal Education

Questions	Frequency	Percentage (%)
Preferred language		
Hindi	394	98.5
English	6	1.5
Preferred format		
Written material	51	12.75
Group Education	46	11.5
One to one Interaction	124	31
Lecture	19	4.75
Role play	55	13.75
Demonstration	5	1.25
Preferred Source or channel		
Physician	220	55
Health educator	53	13.25
Nurse	52	13
Family and friends	43	10.75
Mass media/Internet	32	8
Preferred timing		
Before pregnancy	121	30.25
First trimester	64	16

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DISCUSSION

The present study examined the knowledge and preferences regarding antenatal education among pregnant women attending a tertiary-care hospital in Lucknow, Uttar Pradesh. Overall, the findings reveal that most women possessed *average* knowledge about antenatal care, with only 26.75% achieving a "good" score and 10% demonstrating poor knowledge. Similar knowledge patterns have been widely reported in India and other low- and middle-income countries, where antenatal education remains inconsistently delivered or insufficiently structured [6]

Knowledge was highest in domains concerning general pregnancy information and true signs of labour, aligning with earlier studies suggesting that women tend to learn more about labour preparation than about preventive or long-term maternal health topics. [4,5] However, substantial gaps were observed in areas such as pregnancy symptoms, fetal development, exercise regimens, and postpartum care. These findings reflect previous evidence showing that antenatal education programs often underemphasize lifestyle, nutrition, and early-pregnancy warning signs, despite their proven significance for maternal and neonatal outcomes. [1,5]

The clear preference for receiving antenatal education in Hindi and through one-to-one counselling—primarily from physicians—highlights cultural and systemic influences on healthcare communication in India. Trust in physicians as primary educators is consistent with prior research indicating that pregnant women tend to perceive doctors as more authoritative and reliable sources of information compared to nurses or midwives. [7]At the same time, global literature increasingly supports nurse- and midwife-led antenatal education as equally effective in improving maternal outcomes. [1] These insights suggest a need to strengthen the visibility and role of nursing professionals in structured antenatal teaching.

The study also found significant associations between knowledge level and sociodemographic variables including age, education, residence, gravidity, gestational age, and employment status. Educated, urban, and multiparous women exhibited higher knowledge scores, consistent with large-scale analyses showing education and urban residence as strong determinants of antenatal awareness and service uptake in India. [8] These associations highlight persistent health inequities, particularly for first-time mothers, rural women, and those with limited formal education, who may benefit most from accessible, tailored antenatal education initiatives.

The global evidence supports the potential impact of structured antenatal education on outcomes such as childbirth self-efficacy, fear reduction, and increased likelihood of vaginal delivery. A recent systematic review demonstrated that antenatal education significantly improves maternal childbirth confidence and reduces fear. [5] However, the effect on physical maternal and neonatal outcomes remains mixed, with several meta-analyses noting minimal to no improvement in parameters such as Apgar scores or low birth weight. [10] These mixed outcomes reinforce the importance of evaluating antenatal education not only by clinical indicators but also by psychosocial measures and behavioural changes.

The present findings have several implications for practice. First, antenatal education should be integrated as a standardized component of routine antenatal care, focusing not only on labour but on holistic maternal health, including nutrition, physical activity, postpartum care, and newborn care. Second, sessions should be linguistically and culturally tailored, delivered in Hindi, and should involve both physicians and trained nurses or midwives to expand reach [11-15]. Third, flexible delivery methods—including brief counselling during ANC visits, group sessions, and digital or video-based education—could help overcome time constraints, the most frequently reported barrier. Finally, partner involvement should be promoted, given the strong support expressed by participants and evidence showing its positive influence on maternal preparedness and psychosocial wellbeing. [8]

Although the study benefitted from a large sample size and reliable measurement tools, certain limitations must be acknowledged. The use of purposive sampling limits generalizability, and the cross-sectional design prevents assessment of causal relationships or long-term behavioural outcomes. Additionally, the study relied on self-reported knowledge, which may not fully represent actual understanding or practices. [7]

STRENGTHS

The study draws on a large sample (n = 400) from a tertiary-care tertiary hospital serving diverse urban and

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peri-urban populations, enhancing representativeness for similar settings. Use of a validated questionnaire, content-validated by experts and pilot-tested, with high reliability (split-half coefficient = 0.99) ensures data quality and internal consistency.

LIMITATIONS

Cross-sectional design captures only knowledge at a single point in time; it does not assess whether antenatal education (if provided) leads to changes in behaviour or outcomes (birth outcomes, maternal practices, neonatal health).

CONCLUSIONS

This study underscores the need for structured, comprehensive, and culturally appropriate antenatal education programs. Strengthening maternal knowledge—particularly in the domains of fetal development, nutrition, exercise, and danger signs—has the potential to enhance birth preparedness, reduce preventable complications, and improve maternal and neonatal health outcomes. Integrating such programs into routine antenatal care, supported by both medical and nursing professionals, would be an essential step toward improving maternal healthcare quality in India.

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