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## A narrative review on the effectiveness of interventions promoting antenatal care proficiency in terms of knowledge, attitude, and practice maternal wellness made better

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### Abstract

**Background:** Every year, 1/3 million women globally, with 20% in India, die from pregnancy-related issues. Knowledge, attitudes, and practices (KAP) surrounding ANC are key indicators of public healthcare. Antenatal care education is vital, empowering mothers, fostering informed decisions, and promoting proactive healthcare, ultimately lowering maternal mortality rates.

**Aim:** This literature review seeks to assess the effectiveness of diverse antenatal care interventions in elevating knowledge, fostering positive mindsets, and promoting improved practices related to ANC.

**Methods:** This narrative review thoroughly explored and examined peer-reviewed literature. Journal articles were sourced from three databases—PubMed, Medline, Google Scholar, and ResearchGate—utilizing search terms such as knowledge, attitude, practice, antenatal mothers, antenatal care, antenatal care interventions, and education.

**Results:** The investigation uncovered multiple Indian studies on promoting antenatal health through educational interventions, affirming the crucial role of antenatal education. This education empowers mothers, encourages informed decision-making, and advocates proactive healthcare, ultimately contributing to the reduction of maternal mortality rates.

**Conclusion:** Limited interventional studies on ANC promotion exist amid numerous descriptive studies. Antenatal education is vital for empowering mothers. The conclusion emphasizes regular training sessions to provide updated knowledge and skills, advocating for periodic reinforcements for sustained retention by antenatal mothers.

**Keywords:** Knowledge, attitude, practice, primigravida women, antenatal care, and antenatal health promotion

### Introduction

Pregnancy represents a transformative phase in a woman's life, characterized by excitement and hope, irrespective of whether it is planned or unexpected<sup>[1]</sup>. The cornerstone of ensuring the well-being of expectant mothers and their unborn babies is antenatal care (ANC), a comprehensive healthcare service offered by skilled professionals. This care initiates before conception, spans the entire pregnancy, and extends into the postpartum period<sup>[2]</sup>. Globally, the toll of gestational-related illnesses claims approximately one-third of a million women each year, with a staggering 99% of these deaths concentrated in developing nations. In India alone, contributing to 20% of global deaths, around 44,000 women annually succumb to preventable antenatal-related conditions<sup>[3]</sup>.

Despite a decline in maternal deaths, falling from 212 to 130 per 100,000 live births between 2007 and 2014-16 in India, this progress falls short of the Sustainable Development Goal (SDG) target of 70 deaths per 100,000 live births<sup>[4]</sup>. Global guidelines stress the importance of regular ANC visits to mitigate maternal and perinatal mortality risks. The World Health Organization (WHO) recommends initiating ANC and attending a minimum of 4 visits (Ideally 8) during pregnancy. However, from 2010 to 2016, only 62% of expectant mothers worldwide received the suggested quantity of visits<sup>[5]</sup>. These sessions offer crucial health and dietary guidance, screenings, and necessary management, mitigating the risk of low birth weight and reducing rates of perinatal and infant mortality associated with inadequate or substandard antenatal care<sup>[6]</sup>.

In India, challenges persist in ensuring equitable access to quality ANC, particularly in underdeveloped regions, as revealed by a nationwide survey indicating that only 21% of women in their reproductive age receive complete ANC. Factors such as lower maternal education, lack of spouse participation, higher birth ranking, and adolescent pregnancy contribute to suboptimal utilization of complete prenatal care [7]. Maternal malnutrition, marked by prevalent iron deficiency leading to anemia, affects 52% of women aged 15-49 in India. Limited consumption of iron and folic acid supplements highlights disparities influenced by education, wealth, prenatal appointments, community health worker engagement, and household poverty [8].

Promoting a healthy lifestyle during pregnancy, encompassing adequate physical exercise, is crucial [9]. Insufficient physical activity is linked to adverse health effects and depression, as evidenced by a South Indian study correlating minimal physical activity during pregnancy with increased prevalence of prenatal and postnatal depressive symptoms. Education is essential in managing common discomforts experienced during pregnancy, empowering women to distinguish normal physiological conditions from potentially pathological ones, and reducing unnecessary hospital admissions [10].

Despite progress in healthcare services for pregnant women and newborns in India, barriers to accessing and utilizing these services persist, particularly in remote areas. Factors such as older age, illiteracy, manual labor, marriage to an unemployed individual, and poor socioeconomic status

hinder the receipt of complete ANC. The Indian government, through initiatives like Janani Suraksha Yojana (JSY), Janani Shishu Suraksha Karyakram (JSSK), Pradhan Mantri Matru Vandana Yojana (PMMVY), and Surakshit Matritva Aashwasan (SUMAN), demonstrates commitment to improving healthcare access and reducing preventable maternal and neonatal deaths, with healthcare professionals playing a vital role in this transformative journey by providing quality healthcare services and promoting overall well-being [11, 12, 13].

This literature review seeks to assess the effectiveness of diverse antenatal care interventions in elevating knowledge, fostering positive mindsets, and promoting improved practices related to ANC.

### Searching and screening strategy

#### The search strategy aimed to obtain published material and was structured in three steps

1. Initially, a restricted exploration of PubMed Medline, Google Scholar, and Research Gate, International Journal of Nursing Education and Research, was conducted to identify relevant keywords in titles, abstracts, and subject descriptors.
2. The terms identified, along with their synonyms recognized by the respective databases, were subsequently utilized in an extensive literature search.
3. Furthermore, the reference lists and bibliographies of articles collected in the second stage were meticulously scrutinized.

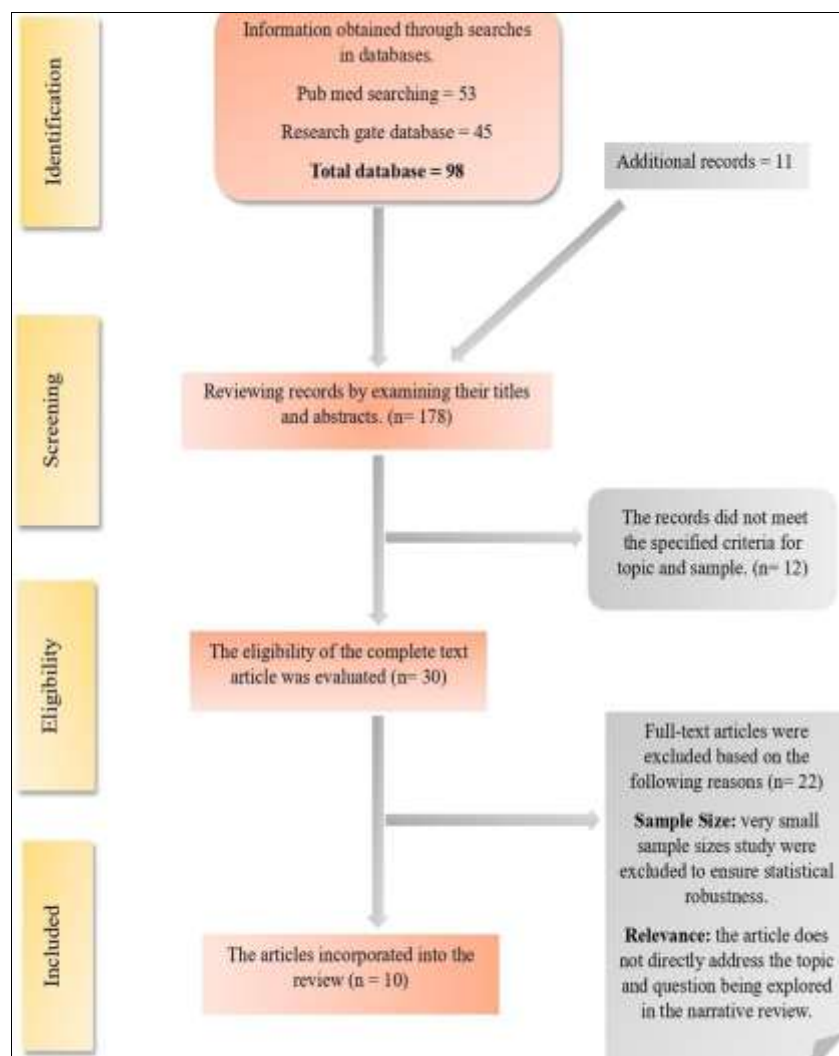


Fig 1: Flow diagram of screening and selection of reviews

**Table 1:** Search terms and literature search details.

1. Intervention/ study type terms	2. Care terms	3. Population terms	4. List of databases and e-journals searched
Evaluate Initiate Effectiveness Proficiency Package Program Intervention Strategy Project	ANC Centre Healthcare Healthcare system Facility Advice Health promotion	Antenatal Primigravida Trimester Obstetrics Pregnancy Prenatal Expecting mothers	Pub Med. Research Gate. Indian Journal of Public Health. Google Scholar. International Journal of Nursing Education and Research. International Journal of reproduction, contraception, obstetrics and gynecology.
*The search was limited to the publication year 2019 – 23			

**Table 2:** Research on the efficacy of various antenatal care interventions in enhancing awareness, cultivating optimistic attitudes, and encouraging better practices associated with antenatal care.

Author	Country	Study Design/ Method	Sample	Result	Discussion
Kanimozhi TK (2021) <sup>[14]</sup>	India	Quasi- experimental study	40 primigravida mothers	The knowledge score exhibited a mean improvement of 14.2, and for practice, the score was 4.9, both significant at $p < 0.05$ .	Results indicated the educational intervention significantly enhanced knowledge and practices related to antenatal care among primigravida mothers.
Patil A, Biradar S (2020) <sup>[15]</sup>	India.	Pre- experimental study	30 primi mothers	The post-test knowledge scores (mean=23.23) surpassed the pre-test scores (mean=10.4) among respondents. The resulting 't' value of 12.15 was highly significant.	Study findings suggest a necessity for an educational program to raise awareness among primigravida mothers regarding antenatal care.
Dayna AJA, Chaudhary V (2020) <sup>[16]</sup>	India.	Pre- experimental study	50 primigravida mothers	The post-test mean score (11.33) surpassed the mean pre-test knowledge score (5.71). The calculated "t" value (15.23) exceeded the table value (2.00) at a 0.05 level of significance.	Study findings show that the Structured Teaching Programme effectively increases knowledge about antenatal care among primigravida mothers.
Mukamana M L (2019) <sup>[17]</sup>	India	Pre- experimental study	50 primi mothers	The data indicated a significant improvement in overall knowledge, with a score of 78.45 at a significance level of $p < 0.05$ .	The findings suggest that Video Assisted Teaching was effective in increasing knowledge.
Ramoliya A, Ponmani, K JJD (2019) <sup>[18]</sup>	India	pre- experimental study	60 primi gravida mothers	The results showed a highly significant paired 't' test value of 28.14 at a p-value of less than 0.001.	The study suggests that the structured teaching program effectively increases knowledge about the danger signs of pregnancy.
Nidhi N (2018) <sup>[19]</sup>	India	pre- experimental study	62 primigravida mothers	The knowledge score yielded a t-value of 30.930 at the 0.05 level, while the attitude score had a t-value of 11.040 at the 0.05 level.	The results affirm that educational interventions can bring about positive behavioral changes in primigravida women regarding antenatal care.
Kandwal Y, <i>et al.</i> (2020)	India	Quasi- experimental Research approach	80 antenatal mothers.	The mean difference between pretest and post-test self-care practices was 2.65, with a calculated value of 11.363.	The intervention for antenatal health promotion proved beneficial in improving self-care practices and health-promoting behaviors among pregnant women.
R Anita (2019) <sup>[20]</sup>	India.	quasi- experimental study	60 primi gravida mothers	The results indicated a substantial rise in the mean post-test score post- intervention, with a t- value of 41.132 (P=0.05).	The structured teaching program notably elevated knowledge in specific aspects of antenatal care among primigravida mothers.
Kandwal Y, <i>et al.</i> (2020)	India	Quasi- experimental Research approach	80 antenatal mothers.	The post-test knowledge mean was significantly more than the pre-test knowledge as tcal value=9.748 was higher than ttab value=1.664.	The Antenatal Health Promotion Intervention proved effective in improving the awareness of antenatal health promotion among pregnant women.
Singh P, Dr. K. Thavamani (2021) <sup>[21]</sup>	India	A quasi- experimental study.	Gravida mothers (60)	The results indicated a substantial rise in the mean post-test score post- intervention, with a t- value of 41.132 (P=0.05).	Systematic educational programs substantially enhance the understanding of specific elements of antenatal care in first- time pregnant mothers.

## Conclusion

Despite numerous descriptive studies, there's a shortage of intervention-focused research on antenatal care (ANC), emphasizing knowledge, attitude, and practice. Acknowledging the pivotal role of antenatal education in empowering mothers, the study advocates for regular training sessions to provide updated knowledge and skills, with periodic reinforcements for sustained retention. In summary, the investigation strongly supports the effectiveness of antenatal care health promotion through education in raising awareness, fostering a positive mindset, and promoting favorable behavioral practices. The conclusive inference highlights the critical need for systematic and recurrent training initiatives. These initiatives should deliver contemporary knowledge and refine skills relevant to antenatal care, ensuring expectant mothers receive timely and reinforced education to strengthen their understanding and sustain positive practices. Such efforts can significantly improve mothers' health, enhance awareness of correct antenatal care practices, and contribute to reducing morbidity and mortality rates for both mothers and newborns in society.

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## Declaration of Competing Interest

The authors declare no conflict of interest.

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