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ENHANCING MATERNAL AND NEWBORN HEALTH THROUGH EFFECTIVE ANTENATAL CARE PRACTICES: A NARRATIVE REVIEW

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Abstract

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Background: Effective antenatal care (ANC) is a cornerstone of maternal and newborn health, providing critical interventions that reduce pregnancy-related complications and improve perinatal outcomes. Despite its importance, gaps in ANC utilization, quality, and accessibility persist, particularly in low- and middle-income countries, contributing to adverse maternal and neonatal outcomes.

Objective: This review examines strategies for strengthening ANC services, focusing on evidence-based interventions such as early initiation of care, structured screening, nutrition supplementation, infection prevention, health education, and integrated service delivery, and synthesizes empirical evidence on the determinants, components, and outcomes of effective ANC.

Methods: A narrative literature review was conducted, synthesizing peer-reviewed empirical studies, systematic reviews, and programme evaluations published mainly between 2021 and 2025 that addressed antenatal care concepts, components, utilization, barriers, and strengthening strategies across low-, middle-, and high-income settings.

Findings: Factors influencing ANC effectiveness include healthcare provider capacity, facility readiness, community engagement, and socio-cultural determinants. Strengthened ANC practices improve maternal nutrition, adherence to recommended visits, detection and management of pregnancy risks, and institutional delivery rates, ultimately enhancing maternal and newborn outcomes. Nurses and midwives play a pivotal role in implementing effective ANC through patient-centered care, counseling, inter-professional collaboration, and continuous professional development.

Conclusion/Recommendations: Recommendations include promoting early and regular ANC attendance, integrating comprehensive interventions into routine visits, enhancing community and family involvement, improving health system infrastructure, and supporting research on innovative ANC models. Prioritizing effective antenatal care is essential to reducing maternal and neonatal morbidity and mortality and advancing overall public health.

Keywords: Antenatal Care; Maternal Health; Newborn Health; Pregnancy Outcomes; Nursing; Quality of Care.

Introduction

Maternal and newborn health remains a central pillar of global public health, yet preventable maternal and neonatal morbidity and mortality continue to pose significant challenges, particularly in low- and middle-income countries (McCauley et al., 2022). According to Omotosho et al. (2022), antenatal care (ANC) is widely recognized as one of the most effective strategies for improving pregnancy outcomes, promoting safe delivery, and enhancing newborn survival. However, the effectiveness of antenatal care depends not merely on attendance, but on the quality, comprehensiveness, and timeliness of services provided. Increasing evidence suggests that while global coverage of at least one ANC visit has improved, substantial gaps remain in the provision of essential interventions necessary to safeguard maternal and neonatal health (McCauley et al., 2022a; Khatri et al., 2022).

The antenatal period offers a critical window for risk identification, preventive interventions, health promotion, and preparation for birth and newborn care (Uranta et al., 2024). McCauley et al. (2022a) identified key “signal functions” that define effective antenatal care, including blood pressure monitoring, screening for anemia and infections, tetanus immunization, iron and folic acid supplementation, counseling on danger signs, and birth preparedness planning. Khatri et al. (2022) emphasized that the quality of ANC is influenced by structural inputs (availability of trained personnel and equipment), care processes (communication, respectful treatment, adequate consultation time), and measurable outputs such as complication detection and referral.

In spite of the international recommendations for at least eight antenatal contacts, many women do not receive adequate or comprehensive care (Chilot, 2023). In India, Nihal and Shekhar (2024) reported that a considerable proportion of women failed to receive adequate quality ANC even when they attended the recommended number of visits. Kim et al. (2025) found that in Lao PDR, high initial ANC coverage did not translate into completion of recommended contacts due to geographic and sociocultural barriers, while Ali et al. (2025a) demonstrated that insecurity and health system disruptions in Sudan significantly reduced ANC utilization and satisfaction. Access alone is therefore insufficient; effective antenatal care requires both continuity and content.

Against this backdrop, enhancing maternal and newborn health through effective antenatal care

practices requires a shift from measuring coverage alone to ensuring quality, equity, and responsiveness within health systems. This review synthesizes current evidence on the concept, components, determinants, innovations, and outcomes of antenatal care to emphasize the urgent need to strengthen ANC as a comprehensive, evidence-based, and woman-centered intervention.

Aim of the Review

This review aims to evaluate effective antenatal care practices, their key components, and strategies to overcome utilization barriers in order to enhance maternal and newborn health outcomes and reduce morbidity and mortality.

Methodology

Review Design

This paper adopts a narrative (traditional) literature review design, appropriate for synthesizing heterogeneous empirical, methodological, and programmatic evidence around a broad public-health theme rather than for pooling quantitative effect sizes. The narrative approach was chosen because the objectives required integrating evidence spanning concepts, quantitative predictors, qualitative barriers, and programme innovations across diverse health-system contexts.

Search Strategy and Information Sources

A structured search of the literature was undertaken to identify empirical studies, systematic reviews, and programme evaluations relevant to antenatal care (ANC) and maternal and newborn health. Electronic databases and repositories commonly used in maternal and child health research, including PubMed/MEDLINE, CINAHL, Scopus, Google Scholar, and the World Health Organization (WHO) reproductive health library, were searched using combinations of the following key terms and Boolean operators: “antenatal care” OR “prenatal care” AND “maternal health” OR “newborn health” OR “perinatal outcomes” AND “quality of care” OR “utilization” OR “barriers” OR “strategies” OR “nursing”.

Inclusion and Exclusion Criteria

Studies were screened against explicit inclusion and exclusion criteria, summarized in Table 1, to ensure that only relevant, credible, and current evidence informed the synthesis.

Table 1. Inclusion and Exclusion Criteria for Study Selection

Inclusion Criteria	Exclusion Criteria
Studies published mainly between 2021 and 2025, ensuring currency of evidence (a small number of earlier foundational sources were retained where directly relevant, e.g., McCauley et al., 2022a/b; Khatri et al., 2022; Nguyen et al., 2021).	Studies published before 2021 that did not represent foundational or seminal work on ANC concepts or signal functions.
Peer-reviewed journal articles, systematic or umbrella reviews, or credible institutional/programme evaluations (e.g., WHO, national health surveys).	Opinion pieces, editorials, commentaries, or blog/media content without empirical grounding.
Directly addressed the concept, components, determinants, utilization, quality, barriers, innovations, or outcomes of antenatal care (ANC).	Studies focused exclusively on intrapartum (labor and delivery) or postpartum care with no antenatal component.
Reported empirical findings relevant to maternal and/or newborn health outcomes linked to ANC.	Studies with no measurable maternal, fetal, or newborn health outcome or determinant reported.
Available in full text and published in the English language.	Full text not accessible, or published in a language other than English with no reliable translation.
Conducted in low-, middle-, or high-income country settings, allowing cross-context comparison.	Duplicate publications or conference abstracts reporting the same dataset as an already-included full study.

Study Selection and Data Extraction

Titles and abstracts identified through the search were screened for relevance to the review objectives, followed by full-text assessment of potentially eligible studies. Data extracted from each included study comprised the author(s) and year, study setting/country, study design, population, key findings relevant to ANC components, determinants, barriers, or strengthening strategies, and reported maternal or neonatal outcomes.

Data Synthesis and Analysis

Extracted evidence was organized thematically in line with the specific objectives of the review: the concept and significance of ANC, essential components of effective ANC, the role of early ANC initiation, barriers to utilization, and strategies for strengthening services. A narrative thematic synthesis approach was used, in which findings across studies were compared, contrasted, and integrated to identify recurring patterns, points of convergence, and gaps in the evidence, consistent with established approaches to

synthesizing evidence in maternal and newborn health reviews.

Limitations of the Review

As a narrative review, this paper did not apply formal quality-appraisal scoring or meta-analytic pooling of effect estimates, and the search was not exhaustive across all possible databases and grey literature. Findings should therefore be interpreted as a synthesis of the best currently available evidence rather than a systematic or definitive quantitative estimate of effect.

Conceptual Framework

Figure 1 presents the conceptual framework guiding this review. Determinants and barriers to antenatal care (ANC) utilization shape whether women engage with essential ANC components and strategies; these are delivered through nurse-led, patient-centered care, which in turn produces maternal and newborn outcomes that together determine progress toward reduced maternal and neonatal mortality.

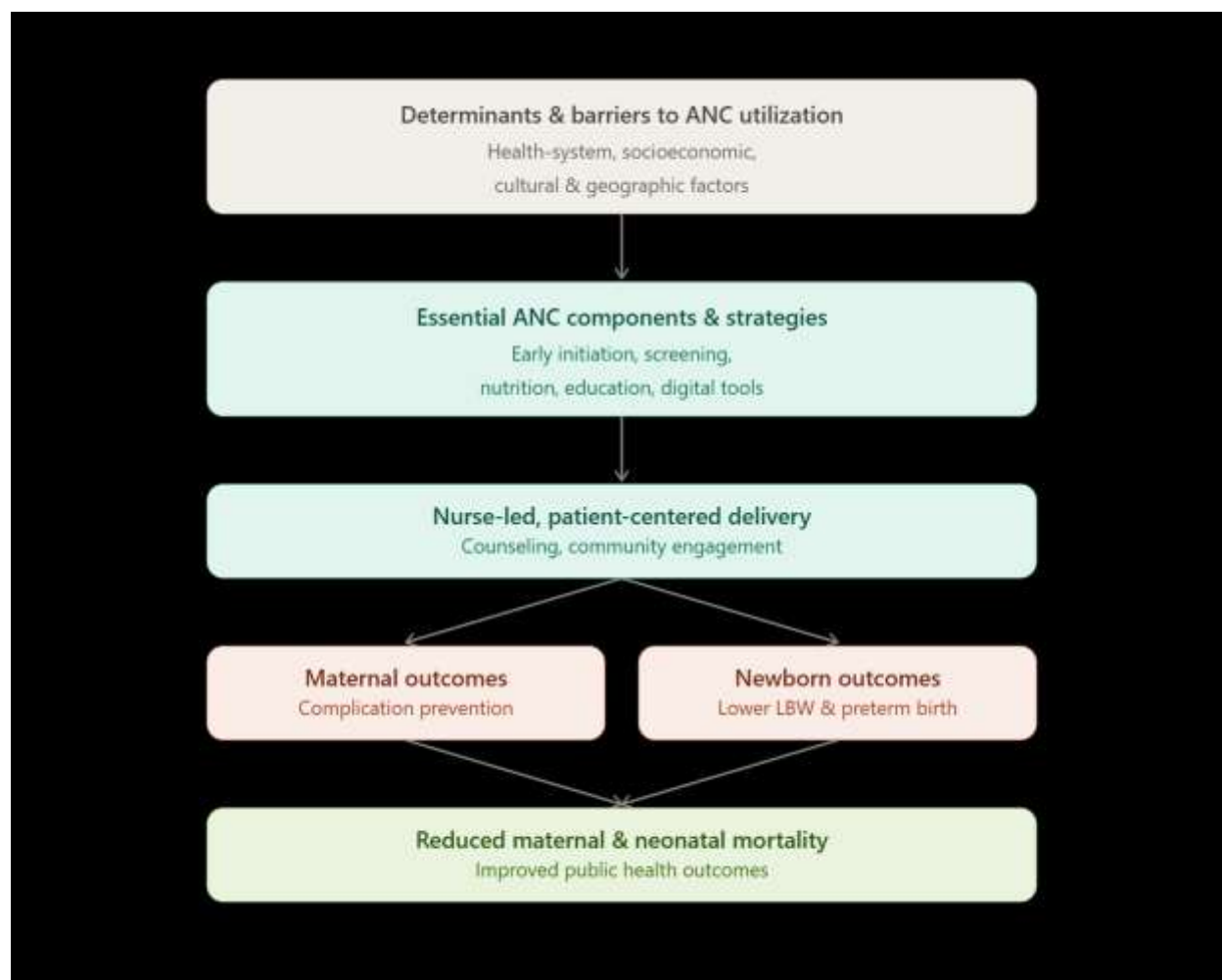


Figure 1. Conceptual framework linking determinants of ANC utilization, essential ANC components, nurse-led delivery, and maternal and newborn outcomes.

Literature Review and Findings

Concept of Antenatal Care

Antenatal care (ANC) refers to the routine health supervision, assessment, and support provided to pregnant women from conception until the onset of labor. It encompasses preventive, promotive, diagnostic, and therapeutic services aimed at ensuring optimal maternal and fetal outcomes (UNICEF, 2024). Effective antenatal care goes beyond the mere absence of complications and includes comprehensive risk assessment, early detection of pregnancy-related conditions, health education, nutritional support, psychosocial care, and preparation for safe childbirth and newborn care (McCauley et al., 2022a; Khatri et al., 2022). McCauley et al. (2022a) define effective ANC through “signal functions,” including blood pressure monitoring, urine and blood testing, screening for anemia and infectious diseases, tetanus immunization, iron and folic acid supplementation,

birth preparedness counseling, and complication readiness planning. Khatri et al. (2022) further emphasize that ANC quality is shaped by structural inputs (trained personnel, equipment, drugs), care processes (communication, respectful treatment), and service outputs (risk detection and referral), positioning ANC as a comprehensive component of maternal and newborn healthcare rather than a routine clinical obligation.

Antenatal care exists within a continuum spanning pregnancy, childbirth, and the postnatal period, serving as the foundation for safe delivery and newborn survival. Inadequate or poor-quality ANC increases the risk of preeclampsia, anemia, low birth weight, preterm birth, and neonatal infections (Arsenault et al., 2024; Abanga et al., 2025). McCauley et al. (2022b) stress that effective antenatal services must be linked with postnatal care to ensure continuity, while Shiferaw et al. (2025) demonstrate that adequate ANC attendance significantly predicts institutional delivery service

utilization, reinforcing ANC's role as a gateway to safe childbirth and newborn care.

While many countries report high ANC coverage, coverage does not necessarily equate to quality: coverage refers to the number of visits attended, whereas quality concerns the content and effectiveness of services delivered. Arsenault et al. (2024) found that although ANC attendance rates were relatively high in several countries, many women did not receive complete risk screening. Nihal and Shekhar (2024) similarly reported that a significant proportion of women in India attended the recommended visits without receiving adequate quality care, and Kim et al. (2025) observed incomplete ANC in Lao PDR despite high initial contact rates, reflecting geographic and sociocultural barriers. These findings demonstrate that enhancing maternal and newborn health requires strengthening both the frequency and the quality of antenatal services.

Empirically, Shiferaw, Tiruye, and Bekele (2025) conducted an umbrella review in Ethiopia identifying predictors of institutional delivery, finding that only 24% of women accessed facility-based childbirth services; predictors included maternal education (OR = 3.54), positive attitudes toward maternal and child health services (OR = 2.20), proximity to healthcare facilities (OR = 3.48), and at least one ANC visit (OR = 3.62). Abanga, Ziblim, and Boah (2025) found that high-quality ANC significantly reduced the odds of low birth weight (AOR = 0.13) and preterm delivery (AOR = 0.15) in northern Ghana, while Omotosho et al. (2022) reported that ANC attendance and place of delivery were strongly associated with proper newborn care practices such as umbilical cord care, thermal regulation, and vaccination.

Essential Components of Effective Antenatal Care

Effective ANC comprises clinical, educational, and psychosocial interventions designed to ensure maternal and fetal well-being throughout pregnancy. McCauley et al. (2022) conducted a systematic review of 221 papers and reports, extracting 28 essential components grouped into 15 “signal functions” spanning preventive care, screening, complication management, and health promotion, including screening and management of malaria, HIV, tuberculosis, syphilis, and tetanus; monitoring and managing pre-eclampsia, gestational diabetes, anemia, and maternal mental health; and support for social health concerns such as intimate partner violence.

Clinical assessment and preventive care enable early detection and management of complications through

monitoring of maternal vital signs, fetal growth, and gestational age, alongside screening for hypertension, gestational diabetes, anemia, and infections (Shiferaw et al., 2025). Iron and folic acid supplementation, tetanus immunization, malaria prophylaxis, and nutritional counseling are also essential (Abanga et al., 2025).

Health education and birth preparedness, structured counseling on danger signs, nutrition, breastfeeding, and newborn care, significantly enhance maternal confidence and competence (Omotosho et al., 2022), while structured birth plans promote shared decision-making, autonomy, and preparedness for delivery (Shareef et al., 2023). Psychosocial support and respectful maternity care (RMC), including staff attitudes and patient-provider communication, enhance maternal satisfaction and engagement, with emotional support and inclusion of partners or family associated with improved maternal mental health and adherence (Kasaye et al., 2023; Abanga et al., 2025). Digital health innovations, mobile applications, teleconsultations, and remote monitoring, improve access, facilitate timely follow-up, and provide educational resources, particularly in underserved communities (Mohamed et al., 2025). Finally, integration of multidisciplinary, system-level components, skilled providers, essential supplies, and coordination within broader maternal and child health programmes, underpins high-quality service delivery (Shiferaw et al., 2025; Kasaye et al., 2023).

Nihal and Shekhar (2024) found that only 32% of mothers in India received adequate quality ANC in 2019–2021, reflecting persistent gaps in content provision, particularly iron and folic acid supplementation and counseling; determinants of quality included maternal education, socioeconomic status, health insurance coverage, mass media exposure, and prior engagement with health facilities. Therefore, the essential components of effective ANC comprise clinical screening and management, fetal monitoring, health promotion and education, psychosocial support, and equitable access and continuity of care.

The Role of Early, Effective Antenatal Care

Early initiation of ANC, ideally within the first trimester, is associated with improved pregnancy outcomes. Abanga et al. (2025) reported that women who accessed high-quality ANC early in pregnancy had significantly lower odds of delivering low-birth-weight (AOR = 0.13) or preterm (AOR = 0.15) babies. Omotosho et al. (2022) similarly found that ANC attendance was strongly associated with proper newborn care practices such as sterile umbilical cord

care. Early ANC also enables identification of high-risk pregnancies, such as hypertensive disorders, anemia, or gestational diabetes, allowing timely intervention that prevents complications during labor and delivery.

Innovations such as digital health platforms (Mohamed et al., 2025) and structured birth plans (Shareef et al., 2023) enhance the accessibility, engagement, and quality of early ANC. However, system-level barriers, inadequate staffing, lack of trained personnel, insufficient equipment, and logistical constraints, limit the reach and quality of early ANC (Abanga et al., 2025), while multi-component interventions combining staff training, health-system strengthening, and respectful maternity care improve maternal experience and protocol adherence (Kasaye et al., 2023).

Barriers to Effective Utilization of Antenatal Care Services

The effective utilization of ANC remains suboptimal in many regions, with barriers spanning systemic, socioeconomic, cultural, geographical, and psychological dimensions (Ali et al., 2025; Kim et al., 2025; Maina, 2025). Health-system barriers include inadequate facility readiness, shortages of essential commodities, insufficient skilled health workers, and poor adherence to care guidelines (Khatri et al., 2022; Tomilayo & Margaret, 2025). Economic barriers, low income, lack of insurance, and transportation difficulties, significantly hinder access (Ali et al., 2025), and in conflict-affected regions such as Gadarif State, Sudan, irregular facility hours and lack of night-duty staff compound these challenges (Ali et al., 2025a).

Cultural norms and interpersonal dynamics also shape utilization: entrenched gender roles, social stigma, and religious or traditional beliefs restrict women's autonomy in seeking care (Thompson, 2025), while limited spousal support and community norms around pregnancy influence engagement with ANC in Somaliland (Abdiwali et al., 2024). Geographical barriers further compound these challenges, in Lao PDR, women from remote provinces and ethnic minorities faced significantly reduced odds of receiving complete ANC services due to poor road access and distance from facilities (Kim et al., 2025). Psychological and interpersonal factors, including depression, fear of mistreatment, lack of social support, caregiving responsibilities, and disrespectful provider interactions, further reduce women's ability to attend ANC regularly (Ali et al., 2025; Maina, 2025).

These barriers are multidimensional and interdependent: systemic deficiencies reduce service availability and quality, interacting with socioeconomic constraints, cultural norms, geographic isolation, and

psychosocial factors to shape women's healthcare-seeking behavior. Addressing them requires holistic strategies combining health-system strengthening, community-based interventions, financial and educational support, and culturally sensitive approaches (Mohamed et al., 2025; Tomilayo & Margaret, 2025; Sabo et al., 2024).

Strategies for Strengthening Antenatal Care Services

Strengthening ANC requires evidence-based strategies addressing both service delivery and utilization. Nutrition-focused interventions, including iron, folic acid, calcium, and vitamin D supplementation, improve maternal nutrition, reduce anemia, and lower the risk of low birth weight and preterm birth (Yasin et al., 2025; Nguyen et al., 2021). Nguyen et al. (2021) found that nutrition-intensified ANC in Uttar Pradesh, India, increased home-visit coverage, micronutrient consumption, gestational weight gain, and early breastfeeding, while the Enhancing Nutrition and Antenatal Infection Treatment (ENAT) intervention in rural Ethiopia improved iron-folate and calcium supplementation, deworming, tetanus toxoid administration, and nutrition counseling (Mekonnen et al., 2025).

Improving service quality and early initiation, through trained providers, adequate infrastructure, proper documentation, and standardized clinical actions, strengthens outcomes (Iskandar et al., 2025; Arsenault et al., 2024). Integrating specialized care models, such as oral health (Ayamolowo et al., 2025) and infection management alongside nutrition (Mekonnen et al., 2025), broadens the scope of maternal risk management. Innovative service-delivery models such as group antenatal care (G-ANC) increase session attendance, understanding of ANC, satisfaction, and institutional delivery rates (Suleiman et al., 2025), while community engagement, maternal health literacy programmes, community health volunteers, mobile health messaging, and husband involvement, improves ANC uptake, birth preparedness, and awareness of danger signs (Wasti et al., 2025; Iskandar et al., 2025).

Socioeconomic and structural determinants, wealth status, maternal and paternal education, age, planned pregnancy, media exposure, women's autonomy, and positive husband attitude, strongly predict ANC utilization (Yoseph et al., 2025), underscoring the need for equity-focused, culturally sensitive interventions. Finally, strengthening health systems and provider capacity, through training, facility readiness, adequate staffing, and supervision, is essential to maintaining

high-quality ANC delivery (Arsenault et al., 2024; Iskandar et al., 2025).

Discussion

The evidence reviewed demonstrates that effective ANC is a multidimensional intervention that combines clinical assessment, prevention, nutrition, health education, psychosocial support, respectful care, community engagement, and health-system support. The findings also show that ANC coverage should not be interpreted as synonymous with quality. Women may attend recommended contacts without receiving all essential interventions or experiencing continuity and respectful care.

A central finding across the literature is the importance of **timeliness and content**. Early initiation allows healthcare providers to establish baseline maternal and fetal assessments and identify risks at an earlier stage. However, early initiation must be followed by appropriate and continuous care throughout pregnancy. The WHO model reflects this principle by recommending eight contacts distributed across pregnancy and emphasizing the content and quality of each contact.

The review also demonstrates that ANC outcomes are influenced by factors beyond the individual woman. Health-system readiness, provider competence, availability of medicines and equipment, transportation, household resources, cultural expectations, and interpersonal relationships all contribute to whether women receive effective care. This reinforces the need to approach ANC strengthening from a health-system and community perspective rather than focusing solely on women's attendance.

The role of nurses and midwives is particularly important. As healthcare professionals who frequently maintain regular contact with pregnant women, they are well positioned to provide health education, identify complications, support adherence to preventive interventions, promote birth preparedness, and establish trusting relationships with women and their families. Their effectiveness, however, depends on adequate staffing, training, resources, supportive supervision, and functional referral systems.

The evidence further suggests that innovation should complement rather than replace essential health-system strengthening. Digital platforms, group ANC, community-based interventions, and integrated services can improve access and engagement, but their effectiveness depends on appropriate infrastructure, trained personnel, continuity of care, and adaptation to local contexts.

Knowledge Gaps

Despite increasing recognition of ANC's importance, several gaps remain. The comparative effectiveness of different ANC models, group care, integrated services, and nutrition-focused interventions, is not fully understood across diverse populations, and evidence on the impact of ANC quality, timing of the first visit, and adherence to recommended schedules on outcomes remains limited and inconsistent. There is insufficient longitudinal research assessing the cumulative effects of ANC strategies across the entire pregnancy and postpartum period, and contextual factors, cultural beliefs, health-system readiness, provider competencies, and community engagement, have not been adequately examined in relation to ANC effectiveness.

Standardized protocols, training programmes, and evidence-based guidelines for integrating comprehensive ANC component, including mental health, oral health, and nutrition counseling, are often lacking, especially in primary care and rural contexts. Emerging technologies such as telehealth, mobile health messaging, and digital monitoring platforms have not been fully explored for their potential to enhance ANC delivery, accessibility, and maternal engagement. Finally, maternal and community health literacy concerning the purpose, benefits, and recommended practices of ANC remains suboptimal, and there is a pressing need for culturally sensitive strategies, health education campaigns, and system-level interventions to address these gaps.

Implications for Nursing Practice, Education, and Research

Nurses, particularly those in maternity, obstetric, and community health settings, are often the first point of contact for pregnant women, and equipping them with knowledge of early ANC initiation, recommended visit schedules, essential ANC components, and risk-factor monitoring reinforces their central responsibility for comprehensive care, timely detection of complications, and reduction of preventable morbidity and mortality.

The evidence supports holistic, patient-centered nursing care encompassing physical assessment alongside education and counseling on nutrition, danger signs, birth preparedness, and vaccination, strengthening maternal health literacy, adherence to ANC schedules, and active maternal participation in care. Culturally sensitive, context-specific approaches are equally important: nurses must recognize the influence of cultural beliefs, social norms, economic constraints, and family dynamics on health-seeking behavior to improve trust, adherence, and equitable

access, particularly for underserved or marginalized communities.

For nursing education and professional development, the evidence supports integrating evidence-based ANC practices into curricula and continuing education, building competencies in health promotion, risk assessment, counseling, community engagement, and interprofessional collaboration, and informing standardized protocols and institutional quality-improvement guidelines. Nurses are also encouraged to engage in research, monitoring, and evaluation of ANC practices, including group ANC, integrated care models, and mobile health interventions to inform policy development, resource allocation, and continuous improvement of ANC services.

Conclusion

Effective antenatal care is a fundamental component of maternal and newborn health, with significant implications for reducing maternal and neonatal morbidity and mortality. This review highlights the importance of early initiation of ANC, adherence to recommended visit schedules, and comprehensive provision of essential services, including nutrition counseling, infection prevention, risk assessment, health education, and psychosocial support, alongside the complex interplay of biological, social, cultural, and health-system factors that influence ANC utilization and outcomes.

Healthcare professionals, particularly nurses, play a critical role in delivering high-quality, patient-centered, and culturally sensitive antenatal care. Through early identification of risks, provision of education, counseling, and community engagement, nurses can enhance maternal health literacy, promote adherence to ANC practices, and improve maternal and newborn outcomes. Strengthening antenatal care services is therefore vital not only for improving the health and well-being of mothers and infants but also for advancing public health objectives and strengthening health systems more broadly.

Recommendations

1. Promote routine and early initiation of antenatal care, with structured screening for maternal and fetal risk factors using standardized tools to ensure timely identification and management of complications.
2. Provide healthcare professionals, particularly nurses and midwives with continuous training on evidence-based antenatal care practices, including nutrition counseling, infection prevention, risk assessment, and patient-centered communication.
3. Integrate comprehensive antenatal care interventions, nutrition supplementation, health education, psychosocial support, and birth-preparedness counseling, into routine ANC visits.
4. Prioritize community engagement and family involvement to promote ANC attendance, adherence to recommended care, and supportive home environments, while addressing sociocultural barriers such as misconceptions and stigma.
5. Strengthen health systems through adequate staffing, provision of essential equipment and medications, digital health solutions for monitoring and follow-up, and policies ensuring equitable access to quality antenatal services, particularly in underserved and rural areas.
6. Support further research to evaluate the effectiveness of innovative ANC models, including group antenatal care, integrated care approaches, and technology-assisted interventions, and to identify context-specific barriers and facilitators across diverse populations.

References

- Abanga, E. A., Ziblim, A. M., & Boah, M. (2025). Antenatal care quality and pregnancy outcomes in the northern region of Ghana: a mixed-methods analysis. *BMC Pregnancy and Childbirth*, 25(1), 810.
- Abdiwali, S. A., Adesina, O. A., Fekadu, G. A., & Geta, T. G. (2024). Barriers and facilitators to antenatal care services utilisation in Somaliland: a qualitative study. *BMJ open*, 14(11), e085073.
- Ali, E. M., M. Ahmed, A. B., Ahmed, M. B. M., Omer, A. T., Ahmedtaha, E. I. M., Khalil, K. A., ... & Ahmed, S. M. M. (2025). Utilization, satisfaction, and barriers to antenatal care among pregnant women in Gadarif State during the Sudan war: a cross-sectional study. *BMC Pregnancy and Childbirth*, 25(1), 428.
- Ali, S. T., Rizvi, S. A., Talat, M., Abuzar, S., Azhar, M., & Rehman, M. (2025). Barriers to timely and adequate antenatal care: a systematic review of socioeconomic, cultural, psychosocial, and health-system factors across high and low resource settings. *BMC Pregnancy and Childbirth*.

- Arsenault, C., Mfeka-Nkabinde, N. G., Chaudhry, M., Jarhyan, P., Taddele, T., Mugenya, I., & Kruk, M. E. (2024). Antenatal care quality and detection of risk among pregnant women: An observational study in Ethiopia, India, Kenya, and South Africa. *PLoS medicine*, 21(8), e1004446.
- Ayamolowo, L. B., Ibitoye, O. S., Esan, A. O., Akinsolu, F. T., Eleje, G. U., Salako, A. O., ... & Foláyan, M. O. (2025). Healthcare workers' perspectives on integrated oral and antenatal health care at public health facilities in southwestern nigeria: a qualitative study. *BMC Health Services Research*, 25(1), 1091.
- Chilot, D., Aragaw, F. M., Belay, D. G., Asratie, M. H., Merid, M. W., Kibret, A. A., Teshager, N. W., & Alem, A. Z. (2023). Effectiveness of eight or more antenatal contacts on health facility delivery and early postnatal care in low- and middle-income countries: A propensity score matching. *Frontiers in Medicine*, 10, 1107008. <https://doi.org/10.3389/fmed.2023.1107008>
- Iskandar, S. I., Aryanto, S., Prawitasari, S., & Wiratama, B. S. (2025). Strengthening the first antenatal visit to improve maternal health: results from a cross-sectional study in Bantul, Indonesia. *BMC Pregnancy and Childbirth*, 25(1), 911.
- Kasaye, H., Sheehy, A., Scarf, V., & Baird, K. (2023). The roles of multi-component interventions in reducing mistreatment of women and enhancing respectful maternity care: a systematic review. *BMC Pregnancy and Childbirth*, 23(1), 305.
- Khatri, R. B., Mengistu, T. S., & Assefa, Y. (2022). Input, process, and output factors contributing to quality of antenatal care services: a scoping review of evidence. *BMC pregnancy and childbirth*, 22(1), 977.
- Kim, H., Han, H., Phommachan, K., Yang, Y. S., & Kim, S. H. (2025). Incomplete antenatal care despite high coverage: geographic and sociocultural barriers in Lao PDR. *Frontiers in Public Health*, 13, 1625379.
- Maina, R. M. (2025) Barriers to Use of Antenatal Services Among Pregnant Women. A Temporal Decision-Making Perspective.
- McCauley, H., Lowe, K., Furtado, N., Mangiaterra, V., & van den Broek, N. (2022). What are the essential components of antenatal care? A systematic review of the literature and development of signal functions to guide monitoring and evaluation. *BJOG: An International Journal of Obstetrics & Gynaecology*, 129(6), 855-867.
- McCauley, H., Lowe, K., Furtado, N., Mangiaterra, V., & van den Broek, N. (2022). Essential components of postnatal care—a systematic literature review and development of signal functions to guide monitoring and evaluation. *BMC Pregnancy and Childbirth*, 22(1), 448.
- McCauley, H., Lowe, K., Furtado, N., Mangiaterra, V., & van den Broek, N. (2022). What are the essential components of antenatal care? A systematic review of the literature and development of signal functions to guide monitoring and evaluation. *BJOG: An International Journal of Obstetrics & Gynaecology*, 129(6), 855-867. <https://doi.org/10.1111/1471-0528.17029>
- Mekonnen, Y., Wolde, E., Hagos, T., Yared, K., Bekele, A., Mehari, Z., ... & Girma, S. (2025). Improved antenatal care services in rural Ethiopia's public health centers through the Enhancing Nutrition and Antenatal Infection Treatment (ENAT) intervention. *BMC Health Services Research*, 25(1), 662.
- Mohamed, H., Ismail, A., Sutan, R., Rahman, R. A., & Juval, K. (2025). A scoping review of digital technologies in antenatal care: recent progress and applications of digital technologies. *BMC pregnancy and childbirth*, 25(1), 153.
- Mohamed, S. A. O., Mohamed, G. S., Ahmed, F., Taha, A. B., Abdelmahmoud, E. M. A., Mahamad, S. M. S., & Karamalla, S. (2025). Barriers to Antenatal Care Attendance in Developing Countries: A Systematic Review. *Cureus*, 17(10).
- Nguyen, P. H., Kachwaha, S., Tran, L. M., Avula, R., Young, M. F., Ghosh, S., ... & Menon, P. (2021). Strengthening nutrition interventions in antenatal care services affects dietary intake, micronutrient intake, gestational weight gain, and breastfeeding in Uttar Pradesh, India: results of a cluster-randomized program evaluation. *The Journal of Nutrition*, 151(8), 2282-2295.
- Nihal, S., & Shekhar, C. (2024). An assessment of adequate quality antenatal care and its determinants in India. *BMC pregnancy and childbirth*, 24(1), 698.
- Omotosho, A., Sodeinde, K., Abolurin, O., Adekoya, A., & Abiodun, O. (2022). How effective is antenatal care in preparing mothers for newborn care? An exploratory survey of lactating women in a rural Nigerian district. *Heliyon*, 8(11), e11650. <https://doi.org/10.1016/j.heliyon.2022.e11650>

- Sabo, A., Alzoubi, M. M., Saidu, A. Y., Usman, U. S., Saulawa, I. M., Al-Mugheed, K., ... & Alabdullah, A. A. S. (2024). Determinants of Utilization of Antenatal Care Services Among Women of Childbearing Age in Jigawa State, Nigeria. *International Journal of Public Health*, 69, 1607385.
- Serbanescu, F., Kruk, M. E., Dominico, S., & Nimako, K. (2022). Context matters: Strategies to improve maternal and newborn health services in sub-Saharan Africa. *Global Health: Science and Practice*, 10(2).
- Shareef, N., Scholten, N., Nieuwenhuijze, M., Stramrood, C., de Vries, M., & Van Dillen, J. (2023). The role of birth plans for shared decision-making around birth choices of pregnant women in maternity care: A scoping review. *Women and Birth*, 36(4), 327-333.
- Shiferaw, K., Tiruye, G., & Bekele, H. (2025). Predictors of institutional delivery service utilization in Ethiopia: an umbrella review. *BMC Pregnancy and Childbirth*, 25(1), 332.
- Suleiman, Y. M., Yohanna, W., Aremu, S. O., Halidu, G. I., & Adamu, A. I. (2025). Utilization, satisfaction, and perceived maternal health benefits of group antenatal care in Karu LGA, North Central, Nigeria. *BMC Pregnancy and Childbirth*.
- Thompson, O. (2025). 'Beyond our pregnancies and bodies': benefits and barriers to antenatal care clinic utilisation among pregnant women in Abeokuta, southwest Nigeria. *African Identities*, 23(3), 878-895.
- Tomilayo, A. O., & Margaret, A. (2025). Facilitators and Barriers to the Implementation of the WHO Eight-Contact Antenatal Care Model in Osun State, Nigeria: A Qualitative Study. *medRxiv*, 2025-09.
- UNICEF. (2024, November). *Antenatal care*. UNICEF Data: Monitoring the Situation of Children and Women. <https://data.unicef.org/topic/maternal-health/antenatal-care/>
- Uranta, A., Ohaeri, M., Ojo, O., Babarimisa, O., & Abulude, F. (2024). The role of ante-natal care in preventing preterm birth and low birth weight babies. *[Journal name not provided]*, 19, 18–41. <https://doi.org/10.5281/zenodo.13939687>
- Wasti, S. P., van Teijlingen, E., Adhikari, N., & Morgan, J. (2025). A scoping review of interventions to improve maternal and neonatal care in Nepal. *Discover Public Health*, 22(1), 855.
- Yasin, R., Azhar, M., Allahuddin, Z., Das, J. K., & Bhutta, Z. A. (2025). Antenatal care strategies to improve perinatal and newborn outcomes. *Neonatology*, 122(Suppl. 1), 13-31.
- Yoseph, A., Mutwiri, G., & Guillen-Grima, F. (2025). Predictors of antenatal care service utilization among women of reproductive age in Ethiopia: a systematic review and meta-analysis. *Journal of Clinical Medicine*, 14(7), 2517.