International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 - 8683*
Volume 5, Number 4, November 2026, *Page. 4054 - 4072*
Email : editorijhess@gmail.com

Evaluation Of The Implementation Of Integrated Antenatal Care (ANC) At The Glugur Darat Community Health Center

Monica Nofelita Samosir[1)], Risatantry Gultom[2)]
[1,2)] Imelda University Medan

*Corresponding Author
Email: monicanofelitasamosir@gmail.com

Abstract

Integrated Antenatal Care (ANC) is an essential healthcare service for monitoring maternal and fetal health, detecting pregnancy complications at an early stage, and improving maternal health outcomes. However, its implementation continues to face various challenges, highlighting the need to evaluate resource availability, compliance with service standards, and coordination among healthcare professionals. This study aims to evaluate the implementation of integrated ANC at Glugur Darat Community Health Center (UPT Puskesmas Glugur Darat) in 2026, focusing on human resources, facilities and infrastructure, service standards, healthcare workers' roles and responsibilities, and the barriers and challenges encountered. This study employed a qualitative method with a case study approach. Informants were selected using purposive sampling and consisted of healthcare professionals involved in integrated ANC services. Data were collected through in-depth interviews, observations, and document reviews, followed by thematic analysis. The availability of healthcare personnel, facilities, infrastructure, medical equipment, and medications was generally adequate. Integrated ANC services have been implemented in accordance with the 12T service standards through task distribution and interprofessional collaboration. However, several barriers were identified, including delays in the supply of consumables and laboratory reagents, low awareness among pregnant women regarding the completion of six recommended ANC visits, high healthcare worker workloads, and geographical and accessibility constraints. Additional challenges include addressing patients' psychological conditions, bureaucratic procedures for drug procurement through the Regional Public Service Agency (BLUD) system, improving maternal compliance, and discrepancies between administrative data and actual target achievement. Integrated ANC services have been implemented through interprofessional collaboration; however, their implementation has not yet been optimal. Improvements in logistics management, population data synchronization, interprofessional coordination, and continuous maternal education are necessary to enhance the quality of integrated ANC services.

Keywords: Evaluation; Integrated Antenatal Care; Healthcare Services; Healthcare Workers; Community Health Center.

INTRODUCTION

Antenatal Care (ANC) is a crucial component of maternal health services, aiming to monitor the condition of the mother and fetus, identify pregnancy risk factors, detect complications early, and ensure the mother receives necessary interventions and referrals. ANC services are not solely focused on physical examinations during pregnancy but also encompass laboratory tests, disease prevention, supplementation, counseling, health education, and interprofessional service coordination. Therefore, high-quality ANC is a crucial tool in improving maternal and infant safety. Although antenatal care coverage has increased in various countries, the increase in the number of visits has not always been accompanied by the fulfillment of all recommended service components. This situation demonstrates that the success of ANC services must be assessed through the affordability, comprehensiveness, continuity, and quality of care received by pregnant women, not solely based on the frequency of visits.

Maternal health issues remain a key agenda for achieving the Sustainable Development Goals (SDGs), particularly the target of reducing maternal mortality. Global analysis of maternal mortality indicates that by 2023, there will be approximately 240,000 maternal deaths worldwide, with the global maternal mortality rate estimated at 190.5 per 100,000 live births (SDG 2023 Maternal Mortality Collaborators, 2026). One important

strategy for preventing avoidable deaths is ensuring women receive timely and quality prenatal care. However, the challenge of maternal care lies beyond limited access. The quality of examinations, the accuracy of complication detection, the availability of health workers, and the effectiveness of the referral system also determine the benefits of the services received by pregnant women. Therefore, strengthening ANC needs to be positioned as part of efforts to improve the quality of the health system, particularly primary health care, which is the community's first point of contact with health facilities.

Global developments in ANC policies also demonstrate a shift in focus from services that emphasize only the number of visits to more comprehensive services that focus on women's needs. The World Health Organization recommends at least eight ANC visits during pregnancy to increase the chance of detecting health problems and improving the pregnancy experience. An analysis of 131 low- and middle-income countries shows that the average number of ANC visits will increase to six by 2023, while the proportion of women receiving all five basic components of care analyzed will reach 69.3%. A more important finding is that 26.2% of women who have accessed ANC have not received all the basic components of screening and prevention analyzed (Gage et al., 2026). These results indicate a gap between access coverage and comprehensiveness of services. In other words, the presence of pregnant women in health facilities does not automatically guarantee that all examination and intervention needs are met.

The gap in ANC quality is also evident in a study by Demissie et al. (2024), which, through a systematic review and meta-analysis of 76 studies with 940,164 participants, found that the combined estimate of low-quality ANC services reached 64.28%. The study identified the number of visits, maternal education level, family economic condition, and residence as factors associated with ANC service quality. Although the study demonstrates the importance of service user characteristics, ANC quality issues cannot be explained solely by individual factors. The availability of health workers, infrastructure, medicines, examination materials, division of responsibilities, and the health facility management system also influence the facility's ability to provide services according to standards. Therefore, ANC evaluations need to consider the relationship between the needs of pregnant women and the capacity of health service organizations.

Conceptually, research on ANC quality can be analyzed using the structure, process, and outcome evaluation framework, which is used in the health literature to understand the relationship between facility readiness and service quality. Khatri et al. (2022) applied the Donabedian framework in a review of the factors influencing ANC quality. The structure or input aspect includes human resources, facilities, equipment, medical supplies, service guidelines, and health facility characteristics. The process aspect relates to the implementation of examinations, adherence to guidelines, appropriate clinical procedures, communication, counseling, and coordination between staff. Meanwhile, the outcome aspect describes service outcomes and the expected benefits for the mother and fetus. This framework demonstrates that service quality is the result of the interaction of various system components, so that the availability of facilities alone is insufficient if the service process is not running consistently.

The use of the input, process, and outcome framework is also supported by research by Khatri et al. (2022), who found that limitations in health workers, infrastructure, medical commodities, and service approaches can impact ANC quality. Process factors, such as non-compliance with clinical guidelines, delays in service delivery, and ineffective communication, contribute to suboptimal service delivery. Meanwhile, Odhus et al. (2024), through a systematic review of primary health care quality improvement in low- and middle-income countries, identified that the success of quality improvement is influenced by organizational characteristics, team capacity, health system support, the external

environment, and program implementation. Both studies reinforce the view that ANC service evaluation needs to examine organizational factors and implementation processes simultaneously. In the context of community health centers, this approach is relevant for identifying whether service standards are supported by adequate resources and working mechanisms.

In Indonesia, antenatal care has been directed through an antenatal care policy that regulates the frequency of examinations and service components in accordance with national regulations. ANC services are provided at least six times during pregnancy, with visits distributed across the first, second, and third trimesters. Implementing integrated ANC also requires the involvement of health workers according to their competence and authority, including midwives, doctors, laboratory personnel, and other relevant health workers. In its implementation, examination and service standards need to be accompanied by recording, counseling, early detection of risk factors, and follow-up or referrals if problems are found. This policy positions community health centers (Puskesmas) as first-level health care facilities with a crucial responsibility in ensuring continuity of maternal care. However, the implementation of the policy at each facility may face different resource conditions, regional characteristics, and organizational capacities.

Several studies in Indonesia have shown that the implementation of integrated ANC still faces a gap between guidelines and service practices. Yuliyanti et al. (2024), through a mixed-methods study at four community health centers in Semarang, found that health workers' compliance with integrated ANC guidelines was still suboptimal. Several components of physical examinations, dental examinations, and laboratory tests were not fully implemented. Obstacles identified were related to resource imbalances, the division of roles and responsibilities of doctors and midwives, and service policies. These findings suggest that the existence of guidelines does not automatically guarantee the implementation of all ANC components. In contrast to this approach, Iskandar et al. (2025) used a cross-sectional design at 17 community health centers in Bantul Regency and found that 66% of pregnant women received good-quality integrated ANC. The study also demonstrated a relationship between ANC quality and visit frequency, insurance coverage, and education level. Both results suggest that ANC quality can vary based on location, user characteristics, and health facility capacity.

Other research in Indonesia also shows that ANC issues are not solely related to adherence to clinical standards. Muslimin et al. (2025), through a qualitative study involving various stakeholders in West Sulawesi, found that the implementation of integrated ANC remains suboptimal due to inadequate monitoring and evaluation, unequal distribution of health workers, limited infrastructure, and inadequate provision of health education for pregnant women due to staff workload. Meanwhile, Syafriyanti and Achadi (2024) in their analysis of antenatal care policy implementation at community health centers (Puskesmas) found that several service components have been implemented according to standards, but integration with mental health programs, recording, and reporting of K6 coverage still require strengthening. These differences in findings indicate that some facilities may have relatively adequate resource readiness, but still face problems with coordination, completeness of processes, recording, and continuity of service.

At the international level, Veenstra-Kwakkel et al. (2024) found, through a qualitative evaluation of the implementation of group antenatal care in primary care facilities in Suriname, that midwives' motivation, support from colleagues, management support, and proximity to service locations were supporting factors. Conversely, time and space constraints, lack of communication between stakeholders, and organizational issues were barriers to implementation. Mohseni et al. (2023), through a systematic review of qualitative research in low- and middle-income countries, categorized barriers to antenatal care into

health personnel, service delivery, accessibility, and infrastructure. Meanwhile, Zenitasari et al. (2026) found that ANC quality in Indonesia was related to health worker competence, facility availability, referral system effectiveness, maternal education, and family support. Although these studies demonstrated interrelated factors, there were differences in focus and context. Some studies assessed adherence to guidelines, others measured service quality based on user perceptions or characteristics, while others explored factors that supported and hindered program implementation.

Based on this research pattern, there are two things worth noting. First, quantitative research with a cross-sectional design is widely used to measure ANC quality and identify the relationship between maternal characteristics, visit frequency, and service quality. A mixed-methods approach is used to combine measurement of compliance with standards with explanations of causal factors. Meanwhile, qualitative research is used to gain a deeper understanding of health workers' experiences, implementation processes, and organizational barriers. Second, previous research results do not always show uniform conditions. Some studies found adequate resource readiness, while others identified staffing imbalances, limited facilities, and incomplete examinations. These differences do not mean that research findings are mutually exclusive, but rather indicate that ANC quality is influenced by the health facility context and how service quality is measured. Therefore, evaluations that explore the service process and experiences of health workers at specific facility levels are still needed.

This issue is relevant to the situation at the Glugur Darat Community Health Center (Puskesmas) in Medan City. Based on preliminary data from the research thesis, the target number of pregnant women in 2026 was recorded at 1,992, with a target of 166 pregnant women per month and a target percentage of ANC visits of 8.3% per month. However, from May to July 2026, only 82 pregnant women made ANC visits. This data indicates a problem in achieving service targets that requires further examination. This gap in achievement cannot be directly concluded to be caused solely by low awareness of pregnant women, as service achievement can also be influenced by the target data collection process, geographic access, resource availability, and the facility's ability to reach and maintain pregnant women's engagement. Thus, an evaluation is needed that can explain the condition of services from the perspective of the organizers and their support systems.

The unique context of the Glugur Darat Community Health Center (UPT) lies in the need to assess the relationship between resource availability, implementation of integrated ANC standards, the division of health worker roles, and operational obstacles encountered in daily services. Evaluations should not only assess the availability of health workers and facilities, but also identify how these resources are utilized in the service process. Delays in the supply of consumables and laboratory reagents, for example, can potentially hinder the completion of examinations even though personnel and equipment are available. Similarly, a high workload can impact counseling time and interprofessional coordination. Issues with pregnant women's adherence to six visits, geographic constraints, and discrepancies between administrative domicile data and target achievement also need to be understood as part of the challenges of implementing integrated ANC. Therefore, evaluations at the community health center level need to consider the relationship between service factors, user behavior, and organizational governance.

Based on a review of previous research, the research gap lies in the need for a contextual study that specifically evaluates the implementation of integrated ANC at the Glugur Darat Community Health Center (UPT Puskesmas), Medan City, from the perspective of health workers directly involved in the service. Previous research has discussed compliance with guidelines, ANC quality, service utilization factors, and implementation barriers in various regions. However, these findings have not specifically

explained how resource availability, implementation of service standards, cross-professional role allocation, and operational barriers are interrelated in the context of this facility. The novelty of this research lies in the in-depth exploration of these five aspects through a qualitative case study approach, so as to provide a comprehensive picture of the conformity between service standards and the reality of implementation in the field. This study aims to evaluate the implementation of integrated Antenatal Care at the Glugur Darat Community Health Center (UPT Puskesmas) in 2026, including the availability of human resources, facilities and infrastructure, implementation according to service standards, the roles and responsibilities of health workers, and the obstacles and challenges faced in the implementation of integrated ANC services.

RESEARCH METHODS

This study used a qualitative method with a case study approach to evaluate the implementation of integrated Antenatal Care (ANC) at the Glugur Darat Community Health Center (UPT Puskesmas), Medan City, in 2026. The case study approach was chosen because the study focused on a specific case in a real-life health service context, namely the implementation of integrated ANC at a primary health care facility. This design allows researchers to gain an in-depth understanding of the service implementation process, resource readiness, the division of health worker roles, and factors influencing program implementation. Case studies are relevant in health service research because they can integrate various sources of information to understand phenomena contextually and comprehensively (Harrison et al., 2021; Byrne, 2022; Broderick et al., 2024). The evaluation focus in this study covers five main aspects: the availability of human resources, facilities and infrastructure, compliance with integrated ANC service standards, the roles and responsibilities of health workers, and obstacles and challenges in service delivery.

The study was conducted at the Glugur Darat Community Health Center (Puskesmas) located at Jalan Pendidikan No. 8, Glugur Darat I Village, East Medan District, Medan City, North Sumatra. The location was selected purposively, considering the function of the community health center as a first-level health service facility that provides integrated ANC services and the need to evaluate the implementation of these services. The study took place from May to August 2026. The research subjects were health workers directly involved in the implementation of integrated ANC. Informants were selected using a purposive sampling technique, namely determining informants based on considerations of involvement, experience, and ability to provide information relevant to the research objectives. This technique allows researchers to obtain information from individuals who have direct knowledge of the phenomenon being studied (Ahmad & Wilkins, 2025). The research informants numbered six people, consisting of the ANC coordinator, implementing midwife, general practitioner, dentist, pharmacist, and laboratory staff. Inclusion criteria included health workers involved in ANC services, having worked and had experience at the Glugur Darat Community Health Center (UPT), being willing to be interviewed with informed consent, and being able to provide information relevant to the research focus. Health workers who were not involved in ANC services, were on leave or not present during data collection, were unwilling to participate, or were unable to provide relevant information were not included as informants.

Data collection utilized three techniques: interviews, observation, and documentation. Interviews were conducted with informants to obtain information regarding their experiences, understanding, division of responsibilities, implementation of service standards, and obstacles and challenges in the implementation of integrated ANC services. Interview guidelines were developed based on the objectives and focus of the research to

ensure the information obtained remained relevant to the evaluation aspects. Interviews were supported by a recording device to document informants' responses and subsequently transcribed into text. Direct observations were made of the ANC service process at the community health center, including service flow, involvement of health workers, and the condition of available facilities and infrastructure. During the observations, researchers used observation guidelines and field notes to record relevant situations and activities. Documentation was used as supporting data through the collection of evidence in the form of images, photographs, video recordings, and documents related to the implementation of integrated ANC services. The use of several data collection techniques enabled researchers to compare information from interviews with actual conditions and documentary evidence. Combining various data collection methods in a case study can strengthen understanding of the research context and help identify congruences and discrepancies in information between sources (Schlunegger et al., 2024; Kawar et al., 2024; Trundle, 2024).

The data sources in this study consisted of primary and secondary data. Primary data were obtained directly from six informants through interviews and observations of the implementation of integrated ANC. This data included information on the availability of health workers, competency and division of tasks, the availability of medical facilities and equipment, the implementation of service standards, interprofessional coordination, and operational challenges encountered during service delivery. Secondary data were obtained through available documentation and supporting documents relevant to the research objectives, including visual evidence and notes related to the service process. Secondary data were used to complement and confirm information obtained from informants and observations. Utilizing diverse data sources in qualitative research helps researchers understand phenomena from multiple perspectives and enhances the accuracy of interpretation of findings (Harrison et al., 2021; Schlunegger et al., 2024).

The primary research instrument was the researcher herself, who played a role in selecting informants, collecting information, conducting observations, recording findings, interpreting data, and compiling research results. Supporting instruments included interview guides, observation guides, recording devices, and field notes. The collected data were analyzed using a thematic analysis approach to identify patterns of meaning and group information into themes related to the research objectives. The analysis process was carried out in stages through repeated readings of interview transcripts, observation notes, and documents; coding relevant information; grouping codes with similar meanings into categories; developing categories into themes; and presenting results in the form of narrative descriptions and drawing conclusions. The themes formed were directed towards the five research evaluation focuses, so that the analysis results could explain the condition of resources, the implementation of service standards, the role of health workers, obstacles, and challenges in implementing integrated ANC. Thematic analysis allows researchers to systematically identify meaningful patterns from qualitative data sets, while still considering the context and interrelationships between information (Byrne, 2022; Braun & Clarke, 2022; Naeem et al., 2024; Wutich et al., 2024).

Data validity was maintained through four criteria: credibility, transferability, dependability, and confirmability. Credibility was achieved through triangulation and member checking, which involved comparing interview information with observations and documentation and reconfirming the information with informants. Transferability was strengthened by providing clear descriptions of the location, informant characteristics, and the context of integrated ANC implementation so that readers could assess the relevance of the findings to other contexts. Dependability was maintained by systematically documenting the research process, from data collection to analysis. Confirmability was achieved by retaining interview recordings, transcripts, and field notes as evidence that underpins the

research interpretations and conclusions. The application of these criteria aligns with the principle of trustworthiness in qualitative research, which emphasizes process transparency, data traceability, and the alignment of findings with empirical evidence (Lloyd et al., 2024; The pillars of trustworthiness in qualitative research, 2024). The research also adhered to ethical principles such as respect for informants, fairness, informed consent, anonymity, confidentiality, and the principle of providing benefits and avoiding harm to participants.

RESULTS AND DISCUSSION

Research on the evaluation of the implementation of integrated Antenatal Care (ANC) at the Glugur Darat Community Health Center (UPT) in Medan City in 2026 resulted in five main themes and 17 subthemes based on thematic analysis of interview, observation, and documentation data. The five themes include the availability of human resources, facilities and infrastructure; the implementation of ANC services according to standards; the roles and responsibilities of health workers; obstacles to service implementation; and challenges faced by health workers. The results showed that the implementation of integrated ANC was supported by the involvement of health workers across professions, examination facilities, division of tasks, and service coordination mechanisms. However, several operational obstacles and factors related to service utilization by pregnant women were still identified.

Characteristics of Research Locations and Informants

The Glugur Darat Community Health Center (Puskesmas) is located at Jalan Pendidikan No. 8, Glugur Darat I Village, East Medan District, Medan City, North Sumatra. The center covers an area of approximately 3.5 km² and provides maternal and child health services, including integrated antenatal care (ANC). Antenatal care includes pregnancy checkups, maternal and fetal monitoring, laboratory tests, dental and oral health checks, mental health screenings, medication and supplement administration, and referral services for conditions requiring further treatment.

The research informants consisted of six healthcare workers directly involved in integrated ANC services. The informants came from different professions and service units, so the information obtained encompassed perspectives from midwifery, medical, laboratory, dental, and pharmacy services. The informant characteristics are presented in Table 1.

Table 1. Characteristics of Research Informants

formant Code	Age	Position	Length of work	Service Unit
An. K. 01	43 years old	Laboratory analyst	15 years	Laboratory
Drg. A. 02	43 years old	Associate dentist	7 years	Dental and oral examination
Bd. S. 03	35 years	Midwife	1 year	Registration
Apt. N. 04	36 years old	Pharmacist	7 years	Pharmacy
Dr. R. 05	57 years old	General practitioners	8 years	KIA Cluster 2
Bd. N. 06	57 years old	Associate midwife	26 years old	KIA Cluster 2

Source: Primary research data, 2026.

Based on Table 1, the informants were aged between 35 and 57 years with work experience ranging from one to 26 years. Two informants worked as midwives, while the other four were general practitioners, dentists, pharmacists, and laboratory analysts, respectively. Differences in profession and work experience provided varying information regarding the implementation of integrated ANC, particularly in aspects of service readiness, inter-unit coordination, implementation of examination standards, and operational issues.

Identification of Research Themes and Subthemes

The thematic analysis yielded five main themes encompassing 17 subthemes. These themes describe the implementation of integrated ANC in terms of resources, service processes, health worker coordination, barriers, and challenges requiring follow-up.

Table 2. Summary of Themes and Subthemes from the Thematic Analysis Results

Main Theme	Subtheme	Summary of Findings
Availability of human resources, facilities and infrastructure	Availability of cross-professional staff; complete service facilities	Health workers from various professions are available and examination facilities are generally considered adequate.
Implementation of ANC services according to standards	Compliance with 12T standards; service flow; recording and reporting; screening and referral; performance evaluation	The service follows the inspection flow, uses the KIA and RME books, and is evaluated through mini-workshops.
Roles and responsibilities of health workers	Division of tasks between professions; collaboration and coordination across professions	Each profession carries out tasks according to competence and coordinates through internal references.
Barriers to the implementation of integrated ANC	BHP delays; low awareness of visits; workload; geographical and accessibility constraints	Barriers stem from the availability of examination materials, regularity of visits, service burden, and patient access.
Challenges of implementing integrated ANC	Patient psychological challenges; drug procurement bureaucracy; increased compliance; administrative data gaps	Challenges relate to smooth examinations, continuity of medication, behavioral changes, and target accuracy.

Source: Results of primary research data analysis, 2026.

The summary in Table 2 shows that the implementation of integrated ANC is influenced by the relationship between resource readiness and the service process. The availability of personnel and facilities supports the implementation of examinations, while logistical constraints, regularity of visits, and appropriateness of target data are factors that influence the smoothness of the program.

Availability of Human Resources, Facilities and Infrastructure

Interviews revealed that the Glugur Darat Community Health Center (Puskesmas) has a diverse workforce of healthcare professionals needed to provide integrated ANC services. These include midwives, general practitioners, dentists, laboratory technicians, pharmacists, and other healthcare professionals who support the service. The ANC coordinator stated that the involvement of multiprofessional staff allows for comprehensive care for pregnant women, including examinations and treatments tailored to each patient's individual needs.

The availability of healthcare workers is supported by a division of service functions. Midwives perform routine prenatal checkups, doctors conduct follow-up examinations and risk assessments, laboratory staff perform supporting tests, dentists conduct dental and oral health screenings, and pharmacists ensure the availability and dispensing of medications and supplements. Thus, integrated ANC services do not rely solely on a single profession but involve several interrelated service units.

In terms of facilities and infrastructure, informants stated that examination rooms and medical equipment were generally available. Examination facilities included blood pressure monitors, weight scales, uterine fundal height measurement equipment, fetal heart rate measurement equipment, and laboratory equipment. Laboratory staff reported that hemoglobin, blood sugar, urine protein, HIV, and syphilis testing facilities were available. Dentists also stated that equipment for dental and oral health examinations for pregnant women supported the service delivery.

These findings indicate that, according to informants, the availability of facilities generally meets operational needs. However, the adequacy of facilities at the service unit

level does not always guarantee the availability of all examination materials at all times. This is evident in reports of delays in the supply of certain consumables and reagents.

Implementation of ANC Services According to Standards

The research results show that the Glugur Darat Community Health Center (Puskesmas) has implemented ANC services, which informants refer to as the 12T standard. Informants explained that the service has been expanded from the 10T standard with the addition of ultrasound (USG) and mental health screening. The ultrasound examinations are performed by general practitioners assigned to these services.

ANC services include measuring weight, height, blood pressure, mid-upper arm circumference, and uterine fundal height, examining the fetus, providing tetanus immunization, administering iron supplements, conducting laboratory tests, and counseling on maternal and fetal health. Informants also stated that pregnant women are encouraged to have at least six visits during pregnancy, while ultrasound examinations are performed in the first and third trimesters, in accordance with established procedures at the community health center.

The service process begins with patient registration, an initial examination at the Maternal and Child Health (MCH) unit, a physical and obstetric examination, necessary supporting examinations, medication or supplementation, and counseling. Pregnant women with specific indications are directed to other service units, such as laboratories, dental clinics, or general practitioners. If high-risk patients or complications that cannot be managed at the community health center level are identified, health workers conduct consultations and prepare referrals to advanced healthcare facilities.

In terms of recording and reporting, the community health center implements a documentation system using the Maternal and Child Health (MCH) book and Electronic Medical Records (EMDR). Laboratory informants explained that recording is done manually first, then the information is entered into the electronic system. This mechanism is used to document examinations and support the continuity of service information.

Service implementation is also monitored through monthly mini-workshops. These forums are used to evaluate service achievements, discuss operational challenges, clarify staff responsibilities, and communicate changes to service procedures. According to informants, these activities serve as an internal coordination mechanism for the implementation of integrated ANC.

Roles and Responsibilities of Health Workers

Interview results revealed a division of duties tailored to the competencies of each profession. Midwives play a role in routine prenatal checkups, recording test results, providing counseling, monitoring maternal and fetal conditions, and early identification of risk factors. General practitioners perform follow-up examinations, ultrasounds, assess high-risk cases, and determine referral needs.

Dentists are responsible for dental and oral health examinations and education on oral hygiene during pregnancy. Laboratory staff perform diagnostic tests, including hemoglobin testing and infectious disease screening. If test results require follow-up, laboratory staff will notify the physician or other authorized health care professional.

Meanwhile, pharmacists are responsible for ensuring the availability of medications, vitamins, and iron supplements needed for ANC services. The ANC coordinator is responsible for organizing services, coordinating between units, and monitoring program implementation.

Interprofessional coordination is carried out through direct communication and internal referral mechanisms.

Informants stated that examinations for pregnant women can involve several units sequentially, based on the initial examination results. Laboratory results are forwarded to

authorized health workers to determine follow-up, while dental examinations or further medical treatment are handled through coordination with relevant units. These findings indicate that role allocation and cross-professional communication have become part of the integrated ANC service process.

Obstacles in the Implementation of Integrated ANC

The research results identified four main obstacles in the implementation of integrated ANC, namely delays in the supply of consumables, low awareness of some pregnant women to undergo routine check-ups, the workload of health workers, and geographical and accessibility constraints.

The first obstacle relates to the availability of consumables and laboratory reagents. Laboratory staff reported that reagent supplies from the Health Office were sometimes delayed or out of stock. One such item that has experienced shortages is Hepatitis B testing reagents. This situation has the potential to delay the implementation of supporting tests required for integrated ANC services.

The second obstacle is the regularity of prenatal visits. Midwife informants reported that some pregnant women only have their first checkup later in their pregnancy or do not complete the recommended six visits. This situation makes it difficult to continuously monitor pregnancy progress and can reduce the opportunity for health workers to detect risk factors early.

The third obstacle relates to staff workload. Although healthcare professionals from various professions are available, informants stated that the density of services and staff involvement in outside activities can impact service availability at certain times. Some patients who arrive while staff are engaged in other activities need to be directed to return at a different time.

The fourth barrier concerns distance from the patient's residence and family circumstances. General practitioners and ANC coordinators explained that some pregnant women live quite far from the community health center and are unable to always receive regular check-ups. Furthermore, domestic responsibilities, including the need to care for children at home, are among the reasons for patient delays or absences. Some pregnant women still choose to seek treatment at the Glugur Darat Community Health Center despite their distance because they feel comfortable with the services provided.

Challenges in Implementing Integrated ANC

In addition to operational barriers, the study identified four challenges that require ongoing attention. The first challenge is ensuring complete examinations when patients experience anxiety or fear of medical procedures. Laboratory staff explained that some pregnant women experience fear when undergoing venous blood draws. This can make it difficult to complete supporting examinations if the patient is not yet ready for the procedure.

The second challenge relates to the drug procurement process through the Regional Public Service Agency (BLUD) mechanism. Pharmacy informants reported difficulties in procuring folic acid, which is funded through the National Health Insurance (JKN). The procurement procedure was deemed more complex, raising concerns about potential delays in drug supplies. This information highlights the administrative challenges in maintaining a sustainable pharmaceutical supply.

The third challenge is increasing pregnant women's awareness and compliance with recommended health check-ups and behaviors. Informants from midwives, general practitioners, and dentists reported that education provided has not always resulted in behavioral changes. These issues include regular ANC visits, health maintenance during pregnancy, and dental and oral hygiene.

The fourth challenge is the discrepancy between administrative target data and the actual domicile of pregnant women. The ANC coordinator explained that some pregnant

women are registered as residents of the community health center's work area based on their ID cards or family cards, but actually live outside that area. Conversely, some pregnant women from outside the work area choose to use the services of the Glugur Darat Community Health Center. This discrepancy affects the alignment between administrative targets and the number of patients actually receiving care at the health facility.

Overall, the research results show that the challenges of implementing integrated ANC are not only related to the readiness of health workers and facilities, but also involve logistical management, patient behavior, social conditions, and data management of program targets.

Resource Readiness as the Foundation of Integrated ANC Services

The availability of cross-professional health workers and examination facilities at the Glugur Darat Community Health Center (UPT) demonstrates that resource readiness is a key supporting factor in the implementation of integrated ANC. However, findings regarding delays in laboratory reagents demonstrate that the physical presence of facilities must be distinguished from operational readiness. A facility can have adequate personnel and equipment, but services can still be disrupted if test materials, medications, or supporting equipment are not consistently available.

These findings are similar to those of Sheffel et al. (2023), which showed that health facility readiness is related to the facility's ability to provide antenatal care components. Alemu et al.'s (2025a) study also emphasized the importance of health facility readiness in providing ANC services, including the availability of health personnel, equipment, and supporting services. Both studies reinforce the interpretation that evaluating service readiness is not simply about assessing the availability of personnel and equipment, but also about the facility's ability to consistently maintain services.

Arsenault et al. (2024) explain that ANC quality is related to the service's ability to detect pregnancy risk factors. Therefore, facility readiness must be linked to the completeness of the examinations actually received by pregnant women. In the context of the Glugur Darat Community Health Center, the availability of laboratory equipment is a supporting factor, while delays in reagents indicate a potential gap between available capacity and the services that can be provided at a given time.

The practical implication of these findings is the need for resource management based on service continuity. Community health center managers can use information on ANC examination needs to estimate the use of consumables, determine minimum supplies, and identify the risk of distribution delays. This approach is more relevant than simply assessing the number of facilities or the availability of healthcare workers at a given time.

Service Standard Compliance and the Importance of Process Evaluation

The implementation of integrated ANC at the Glugur Darat Community Health Center demonstrates efforts to adapt to the service standards used by healthcare workers. The implementation of ultrasound examinations, mental health screenings, laboratory tests, and referral mechanisms demonstrates the expansion of service coverage from routine prenatal checkups to more comprehensive services.

However, compliance with standards must be understood as a process that must be demonstrated through the completeness of service actions, not simply based on statements that procedures have been implemented. Research by Yuliyanti et al. (2024) on health workers' compliance with integrated ANC guidelines at community health centers in Indonesia showed that implementation can face gaps. This demonstrates that the existence of written standards and staff understanding do not always result in uniform service completion.

A key difference between this study and the study at Glugur Darat Community Health Center lies in the evaluation approach. Yuliyanti et al. (2024) used a mixed approach to

assess adherence to guidelines, whereas this study explored the experiences and explanations of healthcare workers through a qualitative approach. Therefore, this study provides information on how staff understand and implement services, but does not provide quantitative measures of compliance with each component of the examination.

Research by Arsenault et al. (2024) also demonstrates the importance of quality screening in detecting pregnancy risks. These findings support the need for evaluations that link the screening process to the clinical function of ANC, namely identifying maternal and fetal health problems as early as possible. Services deemed to have met standards still need to be evaluated based on the completeness of screening, documentation of results, appropriate follow-up, and successful referrals.

The implementation of the MCH and EMR handbooks at the Glugur Darat Community Health Center provides an opportunity to strengthen this evaluation. Structured documentation can help health workers track completed examinations, identify incomplete services, and plan follow-up for subsequent visits. Research by Das et al. (2025) on digital interventions in ANC recording in primary health care facilities in Nepal demonstrates the relevance of strengthening recording systems to support the management of antenatal care information.

However, the simultaneous use of manual and electronic systems also requires evaluation for efficiency. If duplicate records are not properly managed, officers may face additional administrative burdens. Therefore, strengthening EMR should be directed at data consistency, ease of access to information, and reducing unnecessary redundancy.

Interprofessional Collaboration to Ensure Continuity of Services

Clear division of tasks and interprofessional coordination are among the strengths of the integrated ANC implementation at the Glugur Darat Community Health Center. The involvement of midwives, doctors, dentists, laboratory analysts, and pharmacists allows services to cover the diverse health needs of pregnant women. However, the success of integrated services is determined not only by the presence of each profession, but also by the ability of staff to integrate information and clinical actions.

Schulz and Wirtz (2023) emphasized the importance of interprofessional collaboration in obstetrics and midwifery services. This study demonstrated the relevance of interprofessional working relationships and coordination in the delivery of maternal care. Findings at the Glugur Darat Community Health Center align with this perspective, as maternal care is provided through the involvement of several units with different responsibilities.

The existence of an internal referral mechanism is a crucial aspect of this collaboration. Laboratory test results requiring clinical interpretation are forwarded to physicians, while dental health issues are handled by dentists. This mechanism demonstrates that the division of professional authority has become an integral part of the service. However, this division of tasks must be accompanied by a communication system that ensures uninterrupted test results when patients move from one unit to another.

Al Agili and Khalaf's (2023) research on the role of prenatal and dental health workers demonstrates the importance of integrating oral health promotion during pregnancy. These findings are relevant to the involvement of dentists in integrated ANC at the Glugur Darat Community Health Center. Dental examinations should not be viewed as a separate, supplementary service, but as part of efforts to maintain overall maternal health.

The implication is that interprofessional coordination needs to be strengthened through clear internal referral channels, traceable documentation of examination results, and joint evaluation of cases requiring follow-up. The monthly mini-workshops that have been held can be used to discuss not only program achievements but also issues of coordination, completeness of services, and continuity of patient care.

Logistical Barriers and Workload as Service System Issues

Delays in reagent supplies and the complexity of drug procurement indicate that barriers to integrated ANC are not entirely within the control of healthcare workers. These issues relate to procurement, distribution, inventory management, and administrative coordination. Therefore, the solution requires not only improving the skills of staff but also improving service governance.

Wulandari et al. (2024) identified various challenges in integrating programs to eliminate mother-to-child transmission of HIV, syphilis, and Hepatitis B into antenatal care services in Indonesia. This research is relevant to the findings regarding delays in Hepatitis B reagents, as laboratory testing is a crucial component of integrated maternal health and infectious disease prevention programs.

Fanda et al. (2024) also discussed the achievements and challenges of essential drug availability in Indonesian community health centers. This research reinforces the understanding that drug availability is not only related to clinical needs but is also influenced by the supply system and healthcare management. In this study, the challenges of procuring folic acid through the Public Service Agency (BLUD) mechanism demonstrate the importance of coordination between the pharmacy unit, budget managers, and those responsible for procurement.

The workload of healthcare workers is another obstacle that requires attention. The involvement of staff in both in-house services and outdoor activities can lead to limited staff availability at certain times. This situation indicates that the overall adequacy of staff does not necessarily reflect the adequacy of staff at each service hour.

Herwansyah et al. (2023) showed that the provision of maternal healthcare services in Indonesian community health centers can be affected by various organizational and operational barriers. While the context of this study relates to midwives' experiences during the COVID-19 pandemic, the findings regarding the importance of service system support remain relevant to understanding the need for adequate work arrangements and coordination among healthcare workers.

Based on this, staffing needs evaluations should consider task distribution, service times, off-site activities, and patient needs. Adjusting schedules and strengthening coordination between staff can be an alternative solution to prevent patients from having to postpone examinations when needed staff are engaged in other activities.

ANC Visit Compliance and Service Access Factors

The low regularity of visits among some pregnant women is a barrier that has direct implications for the continuity of pregnancy monitoring. Late or incomplete ANC visits can reduce the opportunity for health workers to perform appropriate assessments at the appropriate stage of pregnancy and provide timely interventions.

Tsegaye et al. (2021) found that the continuity of ANC visits was influenced by various barriers related to the patient's condition and the service environment. This study echoes the findings at the Glugur Darat Community Health Center, particularly regarding distance from home and difficulty maintaining regular checkups. However, this study adds context regarding patients' domestic responsibilities and choice of health facility based on convenience.

Titaley et al. (2025), through an analysis of underutilization of ANC services in eastern Indonesia, also demonstrated the importance of understanding the factors influencing maternal service utilization. This study broadens the interpretation that ANC use is determined not only by the availability of health facilities, but also by individual and environmental conditions that influence pregnant women's decisions.

Findings at the Glugur Darat Community Health Center demonstrate that education alone is not sufficient to increase regular visits. Some pregnant women face practical

barriers, such as travel distance and childcare responsibilities. Therefore, approaches to increasing ANC coverage need to consider patient needs and limitations.

Strategies that can be considered include strengthening counseling regarding visit schedules, providing check-up reminders, monitoring pregnant women who haven't returned on schedule, and coordinating with regional health workers or cadres to reach pregnant women who experience access barriers. These approaches need to be tailored to the community health center's capabilities and the characteristics of the local community.

Psychological Challenges of Patient-Centered Care and Maternal-Centered Care

The anxiety some pregnant women experience with blood draws suggests that the completeness of ANC care is also influenced by the patient's experience during the care. Fear of medical procedures can lead to patients requiring additional time, more detailed explanations, or a different communication approach before the examination.

These findings emphasize the importance of services that are not solely focused on completing procedures but also consider patient comfort, understanding, and psychological readiness. Alecrim et al. (2022) examined the experiences of pregnant women undergoing oral glucose tolerance testing and demonstrated the importance of considering patient experiences during antenatal care. Although the types of tests used were different, this study is relevant in positioning the experiences of pregnant women as an aspect of service quality.

In the context of this research, an empathetic communication approach can help healthcare professionals explain the purpose of the examination, the stages of the procedure, and the benefits of the results for maternal and fetal health. They should also provide an opportunity for patients to express any concerns before the procedure is performed.

A patient-centered approach to care has the potential to increase acceptance of examinations and strengthen trust between pregnant women and healthcare providers. However, this study did not directly measure the effect of this communication approach on examination success, so these benefits require further testing.

Target Data Mismatch and Its Implications for Program Evaluation

One finding with important managerial implications is the discrepancy between targeting data based on administrative identity and the actual domicile of pregnant women. This situation results in the number of pregnant women registered as targets in work areas not always matching the number of pregnant women using community health center services.

This issue needs to be distinguished from patient non-compliance. Pregnant women who are not registered for check-ups at the Glugur Darat Community Health Center may not necessarily be denied ANC services, as some may use other health facilities based on their location or service preferences. Conversely, patients from outside the community's work area may use community health center services even if they are not included in the administrative targets.

These differences indicate that service coverage indicators need to be interpreted with the accuracy of target data in mind. Using administrative data that does not reflect actual domiciles can lead to discrepancies between targets and actual outcomes, risking program performance evaluations not fully reflecting actual service utilization.

Radovich et al.'s (2022) study on measuring ANC quality in the context of high service utilization demonstrates the importance of distinguishing indicators of service utilization and the quality of care received. This perspective is relevant because the number of visits does not always reflect the completeness of clinical care or the accuracy of target recording.

Therefore, the results of this study point to the need to strengthen the validation of pregnant women's data, update domicile information, and coordinate service recording between regions. Program managers also need to differentiate between pregnant women who

have not received ANC and those who received services at other health facilities. This step can help improve the accuracy of interpretation of coverage indicators.

Research Implications for Improving Service Quality

Conceptually, this study demonstrates that the implementation of integrated ANC is the result of an interaction between resource readiness, service processes, professional coordination, and user characteristics. While the availability of healthcare workers and facilities is a crucial prerequisite, successful implementation is also influenced by logistical continuity, workload management, communication skills, and the accuracy of information systems.

Gamberini et al. (2022) emphasized that improving ANC in resource-constrained settings requires strengthening the overall service system. This perspective aligns with the findings of this study, as several identified challenges cannot be addressed solely at the individual health worker level.

The first practical implication is the need for a logistics monitoring system capable of identifying the need for consumables and medications before they become out of stock. The second implication is strengthening the evaluation of compliance with service standards by checking the completeness of medical records and service outcomes. The third implication relates to scheduling healthcare workers so that outside activities do not interfere with patient access to necessary examinations.

The next implication is improving the quality of counseling and communication with pregnant women, particularly to support regular visits and reduce anxiety about medical procedures. Furthermore, updating target data based on actual domicile and service utilization is crucial so that program indicators can be used more accurately in decision-making.

Overall, this study provides a basis for community health centers to develop integrated ANC service evaluations that are not only oriented towards the number of visits, but also on operational readiness, completeness of examinations, continuity of services, and accuracy of program information.

Research Limitations and Further Research Directions

This study has several limitations that need to be considered when interpreting the results. First, the study was conducted at a single community health center, so the findings primarily reflect the service context at the Glugur Darat Community Health Center (UPT) and cannot be statistically generalized to all primary health care facilities.

Second, the research informants were limited to six health workers involved in integrated ANC services. The perspectives of pregnant women as service recipients were not directly obtained, so explanations regarding the regularity of visits, examination experiences, and access barriers were primarily based on the perspectives of health workers.

Third, qualitative data relies on the informants' experiences, memories, and openness. This study also does not provide quantitative measurements regarding the level of compliance with each examination component, the frequency of reagent shortages, patient waiting times, or the extent of the impact of domicile data discrepancies on coverage indicators.

Fourth, limited time for data collection and the busy schedules of healthcare workers can affect the depth of information obtained. Not all service processes can be directly observed in every service setting, so some information is obtained through interviews and documentation.

Further research is recommended to involve pregnant women, health workers, program managers, and relevant stakeholders to gain a more comprehensive perspective. A mixed methods approach could be used to combine in-depth interviews with medical record audits, K1, K4, and K6 coverage analysis, and measurement of the completeness of ANC

components. Multi-site research is also needed to compare resource readiness, logistics management, and recording systems at community health centers with different regional characteristics.

Additionally, intervention research could be directed at evaluating the effectiveness of ANC visit reminders, patient needs-based counseling, laboratory stock monitoring systems, and target data synchronization. This way, future research could not only identify implementation barriers but also generate evidence on the most effective improvement strategies for improving the quality of integrated ANC.

CONCLUSION

Based on the research results, it can be concluded that the availability of human resources, facilities, and infrastructure in the implementation of integrated Antenatal Care (ANC) at the Glugur Darat Community Health Center (UPT) is generally adequate and supports the provision of services. ANC implementation has been attempted in accordance with service standards applied by the community health center, including pregnancy examinations, supporting examinations, counseling, recording, and referrals. The roles and responsibilities of health workers have been divided based on the competencies of each profession, and supported by coordination and collaboration between midwives, doctors, dentists, laboratory personnel, and pharmacists.

However, the implementation of integrated ANC is not yet fully optimal due to obstacles such as delays in the supply of consumables and reagents, low regularity of visits by some pregnant women, the workload of health workers, and geographic and accessibility constraints. Other challenges include the psychological state of patients during examinations, drug procurement procedures through the Public Service Agency (BLUD) system, efforts to improve compliance among pregnant women, and discrepancies between administrative data and actual domicile conditions. Therefore, improving the quality of integrated ANC requires strengthening logistics management, cross-professional coordination, ongoing education for pregnant women, workload management, and synchronization of service target data.

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, Article 810. https://doi.org/10.1186/s12884-025-07915-3

Ahmad, M., & Wilkins, S. (2025). Purposive sampling in qualitative research: A framework for the entire journey. Quality & Quantity, 59, 1461–1479. https://doi.org/10.1007/s11135-024-02022-5

Al Agili, DE, & Khalaf, ZI (2023). The role of oral and prenatal healthcare providers in the promotion of oral health for pregnant women. BMC Pregnancy and Childbirth, 23, Article 313. https://doi.org/10.1186/s12884-023-05654-x

Alecrim, M. de J., Mattar, R., & Torloni, M.R. (2022). Pregnant women's experience of undergoing an oral glucose tolerance test: A cross-sectional study. Diabetes Research and Clinical Practice, 189, 109941. https://doi.org/10.1016/j.diabres.2022.109941

Alemu, AA, et al. (2025a). Assessment of healthcare facilities' readiness to provide antenatal care in Ethiopia: Facility based study using service provision assessment data. Archives of Public Health, 83, Article 14. https://doi.org/10.1186/s13690-024-01464-5

Arsenault, C., et al. (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. https://doi.org/10.1371/journal.pmed.1004446

Braun, V., & Clarke, V. (2022). Toward good practice in thematic analysis: Avoiding common problems and being(com)ing a knowing researcher. International Journal of Transgender Health, 24(1), 1–6. https://doi.org/10.1080/26895269.2022.2129597

Broderick, K., Vaidyanathan, A., Ponticiello, M., et al. (2024). Generalizing from qualitative data: A case example using critical realist thematic analysis and mechanism mapping to evaluate a community health worker-led screening program in India. Implementation Science, 19, Article 81. https://doi.org/10.1186/s13012-024-01407-2

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. Quality & Quantity, 56, 1391–1412. https://doi.org/10.1007/s11135-021-01182-y

Das, S., et al. (2025). Impact of digital antenatal care intervention on paper-based antenatal care recordkeeping: A before-and-after study in primary healthcare facilities in Nepal. BMJ Open, 15(3), e086255. https://doi.org/10.1136/bmjopen-2024-086255

Demissie, D.B., Molla, G., Tiyare, F.T., Badacho, A.S., & Tadele, A. (2024). Magnitude, disparity, and predictors of poor-quality antenatal care services: A systematic review and meta-analysis. SAGE Open Medicine, 12.https://doi.org/10.1177/20503121241248275

Fanda, R.B., et al. (2024). The availability of essential medicines in primary health centers in Indonesia: Achievements and challenges across the archipelago. The Lancet Regional Health – Southeast Asia, 22.

Gage, A., Conrad, M., Knight, M., Banke-Thomas, A., Bintz, C., Bienhoff, K., Dandona, R., Dirac, M.A., Glucksman, T., Hay, S.I., Mokdad, A.H., Ngatia, B., Offosse, M.-J., Stollfus, B., Worku, A., Murray, C.J.L., Barış, E., & Kassebaum, N.J. (2026). Measuring antenatal care timing and content across 131 low-income and middle-income countries, 1995–2023: A systematic analysis of trends. The Lancet Global Health, 14(5), e702–e713.https://doi.org/10.1016/S2214-109X(26)00010-0

Gamberini, C., Angeli, F., & Ambrosino, E. (2022). Exploring solutions to improve antenatal care in resource-limited settings: An expert consultation. BMC Pregnancy and Childbirth, 22, Article 449. https://doi.org/10.1186/s12884-022-04778-w

GBD 2023 Maternal Mortality Collaborators. (2026). Global, regional, and national levels and trends in maternal mortality, progress towards the Sustainable Development Goals, and mortality from COVID-19 infection in pregnant women, 1990–2023: A systematic analysis for the Global Burden of Disease Study 2023. The Lancet.https://doi.org/10.1016/S3050-5038(26)00047-6

Harrison, H., Birks, M., Franklin, R., & Mills, J. (2021). Case study research: Foundations and methodological orientations. Forum Qualitative Sozialforschung / Forum: Qualitative Social Research. https://doi.org/10.17169/fqs-22.1.3720

Herwansyah, H., et al. (2023). Barriers and facilitators to the provision of maternal health services at community health centers during the COVID-19 pandemic: Experiences of midwives in Indonesia. Midwifery, 123, 103713. https://doi.org/10.1016/j.midw.2023.103713

Iskandar, SI, Aryanto, S., Prawitasari, S., & Wiratama, BS (2025). Strengthening the first antenatal visit to improve maternal health: Results from a cross-sectional study in Bantul, Indonesia. BMC Pregnancy and Childbirth, 25, Article 911.https://doi.org/10.1186/s12884-025-08038-5

Kawar, L.N., Dunbar, G.B., Aquino-Maneja, E.M., Flores, S.L., Rondez Squier, V., & Failla, K.R. (2024). Quantitative, qualitative, mixed methods, and triangulation research

simplified. The Journal of Continuing Education in Nursing, 55(7), 338–344. https://doi.org/10.3928/00220124-20240328-03

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, Article 977.https://doi.org/10.1186/s12884-022-05331-5

Lloyd, N., Hyett, N., & Kenny, A. (2024). To member check or not to member check? An evaluation of member checking in an interpretive descriptive study. International Journal of Qualitative Methods, 23. https://doi.org/10.1177/16094069241301383

Mohseni, M., Mousavi Isfahani, H., Moosavi, A., Dehghanpour Mohammadian, E., Mirmohammadi, F., Ghazanfari, F., & Ahmadi, S. (2023). Health system-related barriers to prenatal care management in low- and middle-income countries: A systematic review of the qualitative literature. Primary Health Care Research & Development, 24, e15.https://doi.org/10.1017/S1463423622000706

Muslimin, I., Salaka, SA, Fajriana, H., Supriadi, RF, Mahardany, BO, Abdalqader, MA, Alabed, AAA, & Chen, H. (2025). Current status of integrated antenatal care coverage and quality at community health centers in West Sulawesi, Indonesia: A multistakeholder qualitative study. Malaysian Journal of Public Health Medicine, 25(3), 146–153.https://doi.org/10.37268/mjphm/vol.25/no.3/art.3684

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2024). Demystification and actualization of data saturation in qualitative research through thematic analysis. International Journal of Qualitative Methods. https://doi.org/10.1177/16094069241229777

Odhus, CO, Kapanga, R.R., & Oele, E. (2024). Barriers to and enablers of quality improvement in primary health care in low- and middle-income countries: A systematic review. PLOS Global Public Health, 4(1), e0002756.https://doi.org/10.1371/journal.pgph.0002756

Radovich, E., et al. (2022). Measuring the quality of antenatal care in a context of high utilization: Evidence from Telangana, India. BMC Pregnancy and Childbirth, 22, Article 876.

Schlunegger, M. C., Zumstein-Shaha, M., & Palm, R. (2024). Methodologic and data-analysis triangulation in case studies: A scoping review. Western Journal of Nursing Research, 46(8), 611–622. https://doi.org/10.1177/01939459241263011

Schulz, A. A., & Wirtz, M. A. (2023). Assessment of interprofessional obstetric and midwifery care from the midwives' perspective using the Interprofessional Collaboration Scale (ICS). Frontiers in Psychology, 14, 1143110. https://doi.org/10.3389/fpsyg.2023.1143110

Sheffel, A., et al. (2023). Association between antenatal care facility readiness and provision of care at the client level and facility level in five low- and middle-income countries. BMC Health Services Research, 23, Article 1109. https://doi.org/10.1186/s12913-023-10106-5

Syafriyanti, W., & Achadi, A. (2024). Policy implementation analysis of antenatal care services at the Negara Ratu Community Health Center and the Cempaka Community Health Center, North Lampung Regency. Journal of Indonesian Health Policy and Administration, 9(2). https://doi.org/10.7454/ihpa.v9i2.8271

The pillars of trustworthiness in qualitative research. (2024). Journal of Medicine, Surgery, and Public Health, 2, 100051. https://doi.org/10.1016/j.glmedi.2024.100051

Titaley, C.R., et al. (2025). Determinants of non-use of antenatal care services in eastern Indonesia: Analysis of the 2023 Indonesia health survey. Frontiers in Global Women's Health, 6, 1649276. https://doi.org/10.3389/fgwh.2025.1649276

Trundle, C. (2024). The ethnographic interview: An interdisciplinary guide for developing an ethnographic disposition in health research. Qualitative Health Research, 35(13), 1395–1409. https://doi.org/10.1177/10497323241241225

Tsegaye, Z.T., et al. (2021). Contributing barriers to loss to follow up from antenatal care services in villages around Addis Ababa: A qualitative study. BMC Women's Health, 21, Article 140. https://doi.org/10.1186/s12905-021-01290-9

Veenstra-Kwakkel, S., Hindori, M.P., Grunberg, A.W., Rijnders, M.E., Lynch, D., & Hindori-Mohangoo, A.D. (2024). Enablers and barriers associated with successful implementation of group antenatal care in primary care facilities in Suriname: A qualitative evaluation study. Discover Health Systems, 3, Article 17. https://doi.org/10.1007/s44250-024-00082-w

Wulandari, LPL, et al. (2024). Challenges to integrating programs for the elimination of mother-to-child transmission of HIV, syphilis, and hepatitis B into antenatal care: Experiences from Indonesia. PLOS Global Public Health, 4(3), e0002977. https://doi.org/10.1371/journal.pgph.0002977

Wutich, A., Beresford, M., & Bernard, H.R. (2024). Sample sizes for 10 types of qualitative data analysis: An integrative review, empirical guidance, and next steps. International Journal of Qualitative Methods.https://doi.org/10.1177/16094069241296206

Yuliyanti, S., Utarini, A., & Trisnantoro, L. (2024). A mixed-method analysis of provider adherence to integrated antenatal care guideline in BEmONC and Non BEmONC primary health centers: An Indonesian case. PLOS ONE, 19(8), e0309454.https://doi.org/10.1371/journal.pone.0309454

Zenitasari, S., Ganap, EP, & Hadijono, S. (2026). Quality of antenatal care and maternal mortality: A mixed-methods study in Purwakarta District, Indonesia. BMC Public Health, 26.https://doi.org/10.1186/s12889-026-28555-y