



## Pregnant Women's Experience of Post-Antenatal Care Communication via WhatsApp in Rural Areas

Ardhini Reswari<sup>1</sup>, Nuryanti<sup>2</sup>, Agoeng Noegroho<sup>3</sup>, Mite Setiansah<sup>4</sup>, Shinta Prastyanti<sup>5</sup>

<sup>1,2,3,4,5</sup>Master's Program in Communication Science, Faculty of Social and Political Sciences, Jenderal Soedirman University, Purwokerto, Indonesia

<http://dx.doi.org/10.47814/ijssrr.v9i5.3366>

### Abstract

Communication after antenatal care (ANC) remains important because many questions arise once pregnant women return home. In rural settings, WhatsApp has begun to function as a simple follow-up channel, but little is known about how women experience this communication in everyday life. This study aimed to explore pregnant women's experiences of post-ANC communication via WhatsApp in rural areas, including its forms, meanings, benefits, limitations, and unmet communication needs. This qualitative study used a descriptive-exploratory design. It was conducted in March 2026 at Kedungbanteng Community Health Center (Puskesmas Kedungbanteng) in Kedungbanteng Sub-district, Banyumas Regency, Indonesia. Five pregnant women who had experienced WhatsApp communication after ANC visits were selected purposively. Data were collected through semi-structured in-depth interviews and analyzed thematically. Post-ANC communication via WhatsApp was not experienced uniformly. One informant described responsive and reassuring communication from a midwife, while the other four informants mostly received administrative messages, particularly reminders about schedules and follow-up services. Even so, WhatsApp was still considered useful because it helped mothers recall appointments, access information more quickly, and maintain contact with health workers after clinical visits. However, the communication often did not provide sufficient clarification regarding examination results, complaints, danger signs, or practical advice relevant to daily life. This uneven quality shows that digital access alone does not guarantee meaningful follow-up support. WhatsApp has potential to support post-ANC communication in rural maternal care, but its current use remains more administrative than responsive. To better support continuity of information and women's sense of being cared for, post-ANC communication should become more dialogical, timely, and responsive to the everyday concerns of pregnant women.

**Keywords:** Antenatal Care; Maternal Communication; Pregnant Women; Rural Areas; WhatsApp

### 1. Introduction

For most pregnant women, antenatal care (ANC) services do not always provide all the information they need, as questions about health complaints, pregnancy danger signs, and follow-up examinations often arise after they have returned home (Baart et al., 2025). The quality of ANC can be seen not only

from the number of visits, but also from the experience of pregnant women in getting continuous and coordinated services during pregnancy (Cellissen et al., 2025). A qualitative study of remote antenatal care in the UK also revealed that the quality of services carried out remotely is viewed through the aspects of efficiency, ease of access, choice, sustainability, and patient focus. Therefore, it is important to understand the quality of pregnancy services from a broader perspective than just considering the existence of official services (Hinton et al., 2024).

In midwifery services, communication is an important element related to professional attitude, interoperability, and patient safety (Lippke et al., 2021). On the other hand, a systematic review of health literacy abilities in pregnant women indicates that limitations in understanding health information are related to unfavorable health behaviors during pregnancy (Nawabi et al., 2021). Other systematic reviews show that to improve maternal health knowledge, it is necessary to empower women, strengthen the skills of midwives, and ensure support from service systems that are sensitive to patients' needs (Ningrum et al., 2024).

Advances in digital technology have expanded the methods of delivering pregnancy services through *telehealth*, remote monitoring, mobile apps, and various other forms of digital communication that support face-to-face meetings (Mohamed et al., 2025). A systematic review of virtual prenatal care shows that online or blended services can reduce barriers to accessing services and remain acceptable to both pregnant women and medical personnel when adapted to the needs of users and existing resources (Ghimire et al., 2023). However, a study on reach in the *Journal of Medical Internet Research* shows that perinatal women are also very concerned about the quality of electronic information, especially in terms of credibility, ease of understanding, practical usability, and suitability for their needs (Li et al., 2025). Recent meta-synthesis even indicates that digital communication platforms have been widely and efficiently used in pregnant women's health education, but further research is still needed on the views and acceptance of pregnant women and the local context of their application (Mulyani et al., 2024).

Comparisons between countries show that the application and understanding of maternal services are carried out in different ways. In Italy, women who received ongoing obstetric care reported that they felt more confident, more aware, and experienced a more personalized care experience during pregnancy through the postpartum period (Poggianella et al., 2023). In Ghana, the use of WhatsApp by health workers during the pandemic is related to the increasing number of ANC visits and childbirth in health facilities, so the app demonstrates its ability as a communication tool for mothers, not just as a common social platform (Safo et al., 2025). On the other hand, research conducted in Indonesia revealed that the development of mHealth for the sustainability of midwifery care is still constrained in terms of midwifery competence and the need for service integration, so the use of technology does not necessarily create effective communication (Susanti et al., 2022). A survey in rural areas in low and middle-income countries shows that the use of digital technology has good potential for education, as well as for maternal support and services. However, the success of these interventions is highly dependent on the level of digital literacy, the availability of technology, and the suitability of local culture (Adusei-mensah et al., 2025).

In rural situations, qualitative research in Kenya shows that pregnant women consider antenatal education via mobile phones to be a useful addition to the information they receive during routine check-ups (Malachi et al., 2024). These findings are crucial because they suggest that interactions after visits may be understood not only as administrative reminders, but also as opportunities to complement the information gaps that still exist after the ANC (Malachi et al., 2024). However, much previous research has focused on digital technologies for mothers in terms of service systems, intervention assessments, or health education in general. Therefore, the practice of simple, daily, and post-examination interpersonal communication is still relatively under-researched (Mohamed et al., 2025). Based on this gap, the research problem in this study is the limited understanding of pregnant women's experiences of post-

antenatal care communication via WhatsApp in rural areas, especially when such communication tends to be uneven and often remains limited to administrative rather than responsive follow-up interaction.

This study is guided by the concept of continuity of care, particularly continuity of information (Baart et al., 2025), which remains underrepresented in perinatal research compared with relational and managerial dimensions. It is further supported by a patient-centered respectful maternity care perspective (Glover et al., 2024), which emphasizes that women's experiences in maternal care are shaped by respect, trust, identity, and the protection of informed choice. Using these perspectives, WhatsApp can be understood not only as a technical tool, but also as a post-examination communication medium with the potential to support continuity of information and strengthen women's sense of support in maternal care (Baart et al., 2025; Glover et al., 2024). In addition, evidence shows that perinatal women pay close attention to the credibility, usefulness, and suitability of digital health information, making the quality of post-ANC communication via WhatsApp especially relevant (Li et al., 2025).

Based on the state of the art, the novelty of this study lies in its focus on the experience of pregnant women in communicating after the ANC examination via WhatsApp in rural areas, including when the communication is still limited to the delivery of administrative information and has not developed into a more responsive follow-up interaction. Thus, the aim of this study is to explore the experiences of pregnant women in rural areas related to post-examination communication of ANC via WhatsApp, as well as to understand the types of communication, meanings, advantages, constraints, and communication needs that arise after examination in maternal health services.

## 2. *Materials and Methods*

**Purpose and Study Design:** This study aimed to explore the experience of pregnant women with post-antenatal care (ANC) communication via WhatsApp in rural areas, as well as to understand the forms of communication, meaning, benefits, limitations, and communication needs that arose after the examination. Because this study focused on understanding the experiences of informants in the real context of maternal services, the research design used was qualitative, descriptive-exploratory. This design was chosen because the phenomenon studied had not occurred uniformly in the field, so an approach that was able to capture informants' experiences in depth and context was needed.

The research was conducted in March 2026 at Kedungbanteng Community Health Center (Puskesmas Kedungbanteng), located in Kedungbanteng Sub-district, Banyumas Regency, Indonesia. This site was selected purposively because it is a primary maternal health service facility where WhatsApp had been used as one of the communication media after ANC examinations. The rural context was considered important because the interaction between pregnant women and health workers in areas like this generally takes place in a more personal manner and is closely related to daily needs.

**Informants:** The study informants were pregnant women who lived in rural areas and had received communication via WhatsApp after the ANC examination. The selection of informants was carried out by purposive sampling technique, which involved selecting informants who were considered able to provide information relevant to the focus of the research.

Informant inclusion criteria included: (1) pregnant women domiciled in Kedungbanteng Sub-district, Banyumas Regency, Indonesia; (2) had undergone an ANC examination at Puskesmas Kedungbanteng or with a local maternal health provider in the same service area; (3) had received post-examination communications via WhatsApp, either in the form of follow-up communication or administrative information; and (4) were willing to participate in a research interview. The exclusion criteria included informants who are not willing to be recorded or cannot participate optimally in the interview.

**Data Collection:** Data collection was carried out by semi-structured in-depth interviews. This method was chosen because it provided an opportunity for researchers to explore the experiences, perceptions, and meanings felt by informants regarding post-ANC communication via WhatsApp openly and in detail. The interview was conducted in March 2026 in a face-to-face format. Each interview session lasted about 30-45 minutes.

The interview guide was structured flexibly based on the focus of the research. The main questions include: (1) the experience of pregnant women after undergoing ANC examination; (2) the form of communication received via WhatsApp; (3) the content of the most memorable message or interaction; (4) the benefits of such communication for pregnant women; (5) perceived limitations or constraints; and (6) communication needs that were felt to have not been met after the examination. All interviews were recorded with the consent of the informants and were supplemented with field notes to capture the context, interaction situations, and initial reflections of the researcher during the data collection process.

**Data Analysis:** The data was analyzed using thematic analysis. All interview results were transcribed verbatim after the data collection process was completed. The researcher then read the entire transcript repeatedly to gain a thorough understanding of the content of the data. After that, initial coding was carried out on the parts of the data that were relevant to the focus of the research, such as the form of communication, the meaning of communication, benefits, limitations, and communication needs.

The codes that had a relationship were grouped into categories, then developed into main themes. The themes formed were re-examined with reference to the original transcript so that the interpretation remained consistent with the informants' experiences. The results of the analysis were then presented in the form of a thematic narrative supported by direct quotes from the informants.

**Trustworthiness:** The validity of the data was maintained through several procedures. Credibility was achieved through in-depth interviews, repeated reading of transcripts, and checking the consistency of meaning between informants' answers. Reliability was maintained by recording the research process in a structured manner, starting from informant selection, conducting interviews, to data analysis. Confirmability was obtained through discussions with supervisors or colleagues to assess the suitability between data and interpretation. Transferability was pursued by presenting the research context, participant characteristics, and communication situation in detail so that the reader could assess the relevance of the findings in a similar context.

**Ethical Considerations:** Before the interviews were conducted, each informant received an explanation about the aim of the study, the interview process, the voluntary nature of participation, confidentiality, and the right to decline or discontinue participation at any stage without any adverse consequences. Verbal informed consent was obtained from all informants prior to the interviews. To ensure confidentiality, informants' identities were anonymized and replaced with codes in the transcripts and analysis. All data were used only for academic and research purposes.

### ***3. Results and Discussion***

Based on a thematic analysis of five in-depth interviews with informants, this study revealed that post-antenatal care (ANC) communication using WhatsApp in Kedungbanteng Sub-district has not been running well. All informants have received communications via WhatsApp after the ANC examination, but the quality, content, frequency, and meaning of the communications received vary. In general, the results of this study include five main findings: (1) post-ANC experiences that are dominated by feelings of relief but still leave a need for information; (2) dominance of administrative communication through the posyandu WhatsApp group; (3) lack of quick two-way communication from midwives; (4) WhatsApp is still considered to have practical value; and (5) dissatisfaction with unanswered communication needs after the examination.

### 3.1 Post-ANC Experience

Preliminary findings indicate that after undergoing ANC examinations, informants generally return home feeling calmer, as their pregnancy conditions have been checked. However, this sense of calm does not fully alleviate their concerns. For instance, Informant 1 felt reassured after a thorough check-up at Puskesmas Kedungbanteng, but upon returning home, she still dwelled on the results especially when discovering her low Hb (hemoglobin) levels. She stated:

*“After the check-up and ultrasound at the puskesmas, I usually feel relieved because it's comprehensive. But I'm tired from the trip there, and then I keep thinking about the results. Like yesterday, my Hb was low, so I worried about needing to eat more vegetables even though I don't really like them.”* (IH1, March 2, 2026).

A similar pattern is also observed among the other informants. Informant 2 stated that after the ANC visit, she felt comfortable upon learning that her baby was healthy, but still anxious about notes such as anemia. She expressed:

*“I felt relieved and comfortable after the check-up knowing the baby is healthy, but worried because of the anemia. Once home, I kept thinking about what I should do.”* (IH2, March 2, 2026).

Informant 4 also felt happy about her baby's good development but remained concerned because her own weight was not increasing. Meanwhile, Informant 5 felt calm with the examination results but was still confused by the rest advice, as her home situation did not allow her to truly rest.

These findings indicate that the post-ANC experience extends beyond the initial sense of relief following the checkup. Instead, once she returns home, a range of new questions emerges, such as how to follow dietary recommendations, how to interpret specific complaints, how to recognize mild symptoms versus danger signs, or how to adjust daily routines during pregnancy. In other words, the post-examination phase is a vulnerable period when the need for additional information becomes clearly evident.

These findings show that a mother's need for information does not necessarily end when the clinical examination is over. Although the ANC visit has been completed, new questions often arise when the mother returns home, especially questions related to her daily life. For instance, she may begin to contemplate the implications of her test results, such as what steps to take after learning she has low hemoglobin (Hb), which specific foods to consume, or how to manage physical discomfort at home. This suggests that information should not stop at the time of the check-up, but should continue into the mother's daily life. If the information stops in the examination room, the mother may end up interpreting her condition on her own.

Viewed from the perspective of patient-centered respectful maternity care, these conditions indicate that pregnant women require attention that goes beyond mere medical test results. They do not only seek reassurance that their pregnancy is progressing well, but also wish to be understood within the context of their own lives. Concerns regarding anemia, fatigue, nutrition, rest, and daily activities demonstrate that the pregnancy experience is lived in real-world conditions rather than ideal ones. Therefore, patient-centered care should not stop at the physical examination alone. It must also support mothers in navigating their pregnancies amidst daily life. In other words, the sense of relief felt post-ANC is still accompanied by a need for further, more accessible, and supportive explanations.

### 3.2 Post-ANC Communication Patterns

The second theme clearly emerging from the data is that post-ANC communication via WhatsApp is predominantly administrative in nature. Throughout almost all interviews, Posyandu cadres appeared to be the primary senders of messages in the WhatsApp groups following ANC check-ups. However, the message content is generally limited to reminders for Posyandu schedules and upcoming appointment dates.

This pattern is distinctly reflected in the testimony of Informant 2, who noted that communication from cadres in the group focuses solely on Posyandu schedules and official notices. Similarly, Informant 1 mentioned that cadres typically only share schedule-related data. Informant 5 even opined that WhatsApp communication offers limited utility, being restricted to basic announcements.

Consequently, the Posyandu WhatsApp group functions more as a channel for collective coordination rather than a responsive interpersonal communication tool. This role remains vital as it helps expectant mothers track service schedules, provides check-up reminders, and maintains their connection to the healthcare system. However, from the perspective of information continuity, administrative functions alone are insufficient. Information continuity should not stop at schedule reminders; it must also provide mothers with an understanding of what occurs after an examination and the necessary steps to take if health concerns arise at home (Baart et al., 2025).

These findings indicate that digital technology is already present at the primary service level, yet its utilization remains limited. While the use of digital media in education and communication for pregnant women has grown, its success is heavily influenced by how the media is implemented in the field (Mulyani et al., 2024). A systematic review of virtual prenatal care also reveals that digital media can alleviate access difficulties if tailored to user needs and available resources (Ghimire et al., 2023).

In this study's context, WhatsApp has shown its utility in keeping up with service appointments but hasn't consistently met the specific needs of mothers. Therefore, the progress made so far is best described as administrative continuity, falling short of providing comprehensive and deep informational continuity.

These findings also suggest that the existence of WhatsApp communication does not automatically mean that mothers' communication needs have been fully met. While WhatsApp groups do help mothers stay connected to services, particularly for remembering integrated Posyandu schedules or upcoming check-ups, the function remains purely administrative if the content is limited to announcements and reminders. In this context, communication is taking place, but it does not always give mothers enough understanding of their condition after the examination. In other words, the contact may continue, but meaningful information does not always follow.

This is important in relation to continuity of information. Information continuity should not merely mean that a mother continuously receives messages from health services. It must also ensure she is supported in understanding what to do following an examination, especially when symptoms, confusion, or concerns arise at home. From the perspective of respectful maternity care, communication that is too administrative may position the mother only as a recipient of instructions, rather than as someone with her own questions and needs. Thus, these findings suggest that although WhatsApp is already used in maternal services, it has not yet fully developed into a communication medium that is truly responsive to mothers' needs after antenatal care.

From the perspective of continuity of information, these findings indicate that post-ANC WhatsApp communication has not consistently functioned as a medium for carrying clinically relevant

information from the consultation into the mother's daily life. Most messages helped maintain service contact, but they did not always translate examination results, advice, or warning signs into information that women could use after returning home.

### 3.3 Midwife Responsiveness

The third finding shows that experiences of personal communication with midwives were inconsistent. Out of five informants, only one reported a distinctly responsive and comforting interaction. In contrast, the remaining four described their communication as brief, one-way, or insufficient.

Informant 1 provides the clearest illustration of responsive communication. When she complained about her swollen feet, the midwife not only responded quickly but also provided a practical, easy-to-understand explanation that could be implemented immediately.

*"Last week, when I complained to the midwife about my swollen feet, she replied: 'It's normal for the second trimester; soak them in salt water and keep your feet elevated. Send a photo if it gets worse.' I asked again the next day. It feels like having a best friend; it's very comforting."* (IH1, March 2, 2026).

This statement demonstrates that fast, clear, and personalized responses transform the perception of WhatsApp from a mere application into a support channel. In this context, digital communication plays a role in the continuity of information, as it helps mothers understand minor issues without having to wait for their next visit (Baart et al., 2025).

In contrast, the other four informants experienced very limited communication with the midwives. This is evident from the experience shared by Informant 2 below:

*"The midwife did not respond properly when I asked about nausea; her reply was brief and she only suggested that I return to the puskesmas (community health center), so I felt uncomfortable asking any further."* (IH2, March 2, 2026.)

Informant 3 also stated that when she asked about persistent vomiting, her messages were only read without receiving a reply. Informant 4 felt that the midwife's answers were too concise, leading her to hesitate to ask more questions. Furthermore, Informant 5 was of the opinion that the midwife rarely used WhatsApp actively and mostly used it only to send reminders for check-up schedules.

These findings suggest that the presence of WhatsApp as a communication tool does not automatically trigger dialogic interaction. The mother's experience depends heavily on the extent to which the midwife is willing and able to utilize this medium to meet the mother's needs following an examination. This result aligns with research conducted in Indonesia, which revealed that the development of mHealth in the delivery of midwifery care does not necessarily result in efficient communication, as it is still influenced by the competence of health workers and the integration of service needs (Susanti et al., 2022). Furthermore, this finding is consistent with a study in Ghana, which demonstrated that WhatsApp can support maternal services if it is used as an active communication tool rather than merely being available as a technical platform (Safo et al., 2025).

In the context of patient-centered respectful maternity care, imbalances in these experiences must be understood as issues pertaining to interpersonal relationships rather than merely technological aspects. Women's perceptions of maternity services are heavily influenced by feelings of being valued, trust, and the opportunity to receive adequate information to make informed decisions (Glover et al., 2024). These findings also align with the IJHSRP study, which indicates that comfort, elements of intimacy, and spirituality influence women's choices in gynecological and obstetric services; thus, a sense of safety and comfort when interacting with healthcare providers is an inseparable part of the female patient experience (Yakit Ak et al., 2025).

The different experiences reported by the informants in communicating with midwives are an important part of this study. In terms of continuity of information, a prompt and clear response from the midwife can be seen as an extension of care after the mother returns home from the check-up. In this context, WhatsApp serves not merely as a messaging tool, but as a medium that helps mothers understand their symptoms without having to wait for the next scheduled visit. When midwives provide quick, practical, and easy-to-understand answers, mothers may still feel supported even after leaving the healthcare facility. On the other hand, when responses are too brief, delayed, or not answered at all, the flow of information is disrupted and mothers may have to seek understanding on their own.

From the perspective of patient-centered respectful maternity care, responsiveness is not only about how fast a message is answered, but also about whether the mother feels valued. A clear and friendly response conveys that the mother's concerns are regarded as important and worthy of attention. This is evident in the experiences of informants who felt comfortable and supported when midwives provided warm, easily understandable responses. Conversely, when answers are too brief or go unacknowledged, mothers may feel hesitant to ask further questions. In this context, the issue is not only about limited information, but also about a sense of security, acceptance, and trust in communication with healthcare providers. Therefore, midwife responsiveness becomes an important factor in determining whether WhatsApp really functions as a support medium for pregnant women or remains only a communication channel with limited meaning.

### **3.4 Importance and advantages of WhatsApp post-ANC**

The next theme reveals that although the quality of communication varies, the informants still consider WhatsApp a beneficial tool. For some informants, WhatsApp is highly helpful for remembering service schedules, providing easier access to information in advance, and allowing them to contact medical personnel without needing to visit the Puskesmas in person.

Informant 1 views WhatsApp as a tool that provides a sense of security, especially since this is her first pregnancy. She stated that communicating via WhatsApp makes it easier to get a faster response without having to wait in line at Puskesmas. On the other hand, informants 2, 3, 4, and 5 felt that the benefits of WhatsApp are more related to administrative aspects. Informant 3 briefly mentioned WhatsApp as a medium that is practical for scheduling, but less helpful for daily consultations, while informant 5 argued that communication via WhatsApp is not very useful, it's more like just an announcement.

These findings suggest that the benefits of using WhatsApp operate on several levels. At the simplest level, the platform plays a role in maintaining relationships with service systems through schedule reminders. At a more sophisticated level, WhatsApp can serve as a space for both practical and emotional support; however, these deeper benefits only emerge when communication is reciprocal, prompt, and directly relevant to the mother's concerns. In other words, the utility of this medium lies not just in its existence, but in the quality of the relationships it facilitates.

This aligns with research on perinatal women's perspectives regarding the quality of digital health information, which indicates that digital information tends to be perceived as high-quality when it is tailored to their needs, easy to understand, and practical for daily life (Li et al., 2025). These findings also relate to an article in the IJHSRP concerning the fear of pregnancy and birth, which suggests that online information-seeking during pregnancy is linked to the expectant mother's emotional state and emphasizes the importance of information validation by medical professionals to ensure that digital content does not merely trigger anxiety (Boybay Koyuncu & Turan, 2024). In other words, WhatsApp has already been utilized in maternal care experiences within rural areas. The challenge lies not in mothers' intention to use the app, but rather in how healthcare services provide truly meaningful communication through the platform.

The benefits of WhatsApp in this study can be understood at several levels. At the most basic level, WhatsApp does help mothers remember follow-up appointments, Posyandu schedules, or medical check-ups. This function remains important because it helps mothers stay connected with the healthcare system. However, at a deeper level, the benefits of WhatsApp are more strongly felt when it is used to provide explanations, clarification, and support that fit the mother's needs after the examination. Thus, the value of WhatsApp lies not only in its presence as a communication medium, but also in how it is used in the relationship between mothers and healthcare providers.

These findings suggest that digital technology cannot be considered effective simply because it is already being used. The same platform can produce different outcomes depending on the quality of interaction within it. If WhatsApp is used solely for broadcasting announcements, its benefits tend to be purely administrative. However, when utilized for more responsive and personal communication, its value evolves into information continuity and emotional support. In the context of this study, WhatsApp can be seen as a medium with the potential to strengthen maternal services, but that potential will only appear if the communication really addresses the actual needs of pregnant women.

Viewed through patient-centered respectful maternity care, the value of WhatsApp lies not only in efficiency, but also in whether it makes women feel heard, respected, and accompanied after the visit. In rural settings, this sense of continued support may reduce uncertainty and strengthen women's trust in maternal care providers.

### **3.5 Limitations of communication via WhatsApp**

Subsequent findings indicate that the primary obstacle in post-ANC communication is not the absence of media, but rather the quality of interaction occurring through that media. Some of the most apparent limitations identified in the interviews include overly brief responses, insufficient explanations, a tendency toward one-way communication, and circumstances that leave mothers feeling hesitant and reluctant to ask further questions.

In the interview results, brief responses not only failed to provide adequate explanations but also diminished the mother's confidence to continue the conversation. When the mother felt hesitant to ask further questions, the obstacle was not merely related to the content of the message, but also to the relationship and trust between the mother and the midwife. Therefore, the communication barriers in this study pertain more to relational and communicative aspects, rather than just technical issues.

These findings are crucial when viewed from the perspective of patient-centered respectful maternity care. Overly brief communication not only diminishes the clarity of information but can also undermine a mother's sense of safety when seeking assistance. Within the framework of patient-centered respectful maternity care, feeling safe to ask questions, feeling valued, and being trusted are essential components of a woman's experience with maternity services (Glover et al., 2024). This finding is further reinforced by research from IJHSRP, which indicates that women place significant importance on comfort and safety in obstetric-gynecological services; thus, the quality of interaction is inseparable from the overall service experience (Yakit Ak et al., 2025).

Furthermore, these limitations are closely related to the issue of health literacy. The informants need for explanations regarding test results, the meaning of symptoms, dietary tips, warning signs to watch for, and reminders about vitamins indicates that pregnant women require practical information that is easy to implement. A systematic review reveals that low health literacy in pregnant women is associated with poor health behaviors during pregnancy (Nawabi et al., 2021). Another systematic review emphasizes that improving maternal health literacy requires support from medical professionals and healthcare systems that are responsive to the information needs of pregnant women, particularly among those with limited resources (Ningrum et al., 2024).

In this study, when responses from healthcare providers (midwives) were inadequate, a number of mothers began seeking information from other sources, such as family, neighbors, or the internet. This shift indicates that mothers' information needs persist even when healthcare providers fail to provide answers, these needs simply migrate to alternative sources. Consequently, a lack of responsiveness in post-ANC communication may risk making mothers dependent on potentially unreliable sources, as highlighted in the IJHSRP article regarding pregnancy-related information seeking on the internet (Boybay Koyuncu & Turan, 2024).

The communication limitations identified in this study do not only show that midwives' responses are incomplete or slow. Rather, these conditions show that the burden of interpreting symptoms and deciding the next steps often falls on the mother herself. When the information is too brief, unclear, or absent, mothers may have to decide for themselves whether their symptoms are normal or need further medical attention. In the context of pregnancy, this is a significant issue, as ambiguity can trigger unnecessary anxiety. Therefore, weak post-ANC communication is not just a matter of convenience, but also shows a shift in the burden of interpretation from the healthcare provider to the patient.

From the perspective of patient-centered respectful maternity care, these limitations also affect the relationship between the mother and the healthcare provider. Mothers who receive very brief answers may feel that their questions are unimportant, trivial, or even burdensome. Consequently, the space for communication shrinks as mothers become hesitant to ask further questions. In this regard, communication problems should not be seen only as technical barriers in using WhatsApp, but also as a question of whether the platform gives mothers a sense of security when seeking help. These findings also explain why some mothers eventually turn to family, neighbors, or the internet for information. It is not necessarily because those sources are superior, but because formal channels have not always provided the explanations and reassurance they need.

### 3.6 Gaps in communication between mothers and midwives

The final findings indicate that following Antenatal Care (ANC), there remain significant unmet communication needs that are tangible and directly related to the daily lives of pregnant women. Informant 1 expressed a desire for information regarding birth preparedness, danger signs, a space for discussion with other expectant mothers, and affordable local foods to increase hemoglobin levels, while Informant 2 requires rapid responses to complaints, advice on daily dietary patterns, and explanations of potentially risky conditions such as spotting. Furthermore, Informant 3 needs more comprehensive explanations of test results and reminders to take vitamins, whereas Informant 4 requires quick solutions to encountered problems along with more detailed menu guidelines. Finally, Informant 5 expects responses to complaints as well as weekly updates regarding the progress of the pregnancy. These needs are clearly reflected in the following statement from Informant 2:

*“A quick response when there are complaints, for instance, advice regarding daily meals, as well as other pregnancy-related information such as spotting or dangerous issues if not addressed immediately”* (IH2, March 2, 2026).

In summary, the unmet communication needs identified in this study encompass four main aspects: explanations of examination results, rapid responses to complaints and danger signs, practical education related to the mothers' daily lives, and more personalized communication to ensure mothers feel comfortable asking questions. These findings underscore that the primary challenge is not only ensuring the message is delivered but also ensuring that post-ANC communication genuinely fulfills the needs of pregnant women once they leave the healthcare facility.

These findings align with research in rural Kenya, which indicates that pregnant women perceive mobile phone use as a beneficial supplement to the information received during routine ANC visits

(Malachi et al., 2024). In this context, post-visit digital communication is not seen as a substitute for face-to-face services, but rather as a complement that bridges information gaps once the mothers return home (Malachi et al., 2024). This is further supported by an IJHSRP article revealing that planned maternal education can enhance maternal understanding and satisfaction with the learning process, thereby strengthening the argument that pregnant women require structured informational support rather than just general information (Şimşek et al., 2025).

Furthermore, the IJHSRP article on breastfeeding self-efficacy among pregnant women demonstrates that knowledge and counseling remain crucial factors in preparing women during pregnancy and beyond (Aygör et al., 2022). The results of this study support the view that communication needs following ANC cannot be dismissed as trivial secondary requirements; rather, they are an integral part of the support process that influences a mother's preparedness and confidence in facing pregnancy and childbirth.

Overall, the results of this study indicate that WhatsApp serves as a double-edged sword in rural areas. On one hand, the application functions as a helpful tool for connecting mothers with service schedules; however, on the other hand, it has not yet fully transformed into a post-ANC communication medium that is personal, interactive, and focused on the mother's specific needs. Consequently, improving post-ANC communication via WhatsApp must focus not only on the frequency of media use but also on the continuity of information and the quality of the relationships established through the platform.

When examined more closely, the communication needs expressed by the informants can be grouped into several forms. First, mothers require explanations that help them understand examination results, symptoms, and bodily changes during pregnancy. Second, they need prompt responses when complaints or concerning signs arise. Third, mothers require practical advice tailored to their daily lives, such as affordable nutrition, rest patterns, or indicators that need to be monitored at home. Fourth, they also need a communicative atmosphere that makes them feel comfortable asking questions. Thus, the post-ANC communication needs identified in this study are not simple, but broad and interconnected.

Within the framework of continuity of information, these needs show that information continuity can only be considered effective if the mother not only receives information, but is also able to use it in her daily life after leaving the healthcare facility. Meanwhile, from the perspective of patient-centered respectful maternity care, these unmet needs show that information cannot be separated from the feeling of being heard, respected, and supported. Therefore, the gaps identified in this study are not only communication gaps in a narrow sense, but also gaps in how post-ANC support is provided and experienced by pregnant women in rural areas.

In general, the findings of this study indicate that post-ANC communication via WhatsApp in rural areas should not be understood only in terms of whether digital media are present or absent. What matters more is the type of support that is actually produced through that communication. In this study, WhatsApp was used and helped maintain the connection between mothers and healthcare services, especially through schedule reminders and follow-up information, but this does not automatically mean that continuity of information is working effectively. Information continuity is only truly achieved when mothers receive explanations, clarification, and guidance that remain understandable and can still be applied after they return home from their check-ups.

On the other hand, the findings also indicate that the quality of communication is strongly influenced by relational elements emphasized in patient-centered respectful maternity care, such as trust, respect, a sense of safety, and the opportunity to ask questions. In this context, WhatsApp becomes meaningful when mothers feel supported and taken seriously, rather than merely receiving one-way

messages. Therefore, the main issue identified in this study lies not in the absence of technology, but in the uneven shift from digital access to truly meaningful maternal support. In other words, the same application can be perceived as very helpful by one mother but less meaningful by another, depending on how the communication is carried out by the healthcare provider.

Taken together, these findings show that the key issue is not simply whether WhatsApp is available, but how it is used in practice. A communication pattern limited to reminders produces weak continuity of information and only partial patient-centeredness, whereas a more responsive exchange is more likely to support understanding, reassurance, and a stronger experience of respectful maternity care.

#### **4. Conclusion**

Overall, this study shows that WhatsApp has both strengths and limitations in supporting post-ANC communication in rural areas. On the positive side, WhatsApp helps maintain contact between pregnant women and health services, especially through reminders about schedules and follow-up information. However, its use has not always developed into a responsive form of communication that meets women's information needs after the ANC visit. Therefore, improving post-ANC communication through WhatsApp should not only focus on how often the media is used, but also on the continuity of information and the quality of communication established through it.

From the perspective of continuity of information, the important point is not only that communication continues after the examination, but also whether the information given is clear, understandable, and useful for mothers in their daily pregnancy experience. Although WhatsApp opens access to further contact after ANC, this does not automatically mean that information continuity is working well. Information continuity can be said to work when mothers receive explanations, clarification, and guidance that they can still use after returning home from the health visit.

The findings also show that the quality of communication is closely related to relational aspects emphasized in patient-centered respectful maternity care, such as feeling respected, feeling safe, being listened to, and having the opportunity to ask questions. In this study, the main issue is not the lack of technology, but the uneven quality of communication in making that technology meaningful for maternal support. In other words, the same application can be felt as helpful by one mother but less meaningful by another, depending on how the healthcare provider communicates through it. For this reason, strengthening post-ANC communication via WhatsApp needs not only wider digital use, but also more responsive interaction and greater attention to the real needs of pregnant women in rural areas.

#### **5. Acknowledgements**

The authors would like to express sincere gratitude to all informants who generously shared their experiences in this study. The authors also thank the healthcare professionals at Puskesmas Kedungbanteng for their support during the data collection process. This study would not have been possible without their cooperation and valuable assistance.

#### **6. Ethical Statement**

All informants were informed about the aim of the study, the interview process, the voluntary nature of participation, confidentiality, and their right to decline or withdraw from the study at any time without any adverse consequences. Verbal informed consent was obtained from all informants before the interviews were conducted. To protect confidentiality, informants' identities were anonymized and replaced with codes in the transcripts and analysis. All data were used solely for academic and research purposes.

## 7. Conflict of Interest

The authors declare that there is no conflict of interest regarding the research, authorship, or publication of this article. There are no financial, institutional, or personal relationships that have influenced the findings or results of this study.

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