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Understanding Communication Barriers in Antenatal Care within Remote Healthcare Facilities: Developing a Communication Framework using Structuration Theory

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Abstract
Effective communication in antenatal care is pivotal for improving maternal and newborn health outcomes, especially in underserved regions such as Rufunsa District, Zambia. This study identifies communication barriers between healthcare providers and pregnant women and proposes a Communication Framework informed by Gidden's Structuration Theory. A qualitative descriptive research design was employed, utilizing semi-structured interviews and focus group discussions to gather insights from healthcare providers and antenatal mothers. Key barriers identified include language diversity, high levels of illiteracy among mothers, resource constraints, and the dual roles of healthcare providers. The study underscores the importance of culturally sensitive communication, client-centered approaches, and increased resource allocation to facilitate better information dissemination. The findings highlight the need for tailored public health campaigns and structured training programs aimed at enhancing communication skills among providers. By addressing these challenges and leveraging identified facilitators, the proposed Communication Framework aims to improve the quality of antenatal care and ultimately enhance maternal and child health outcomes in rural communities. This research contributes to the existing literature by offering empirical evidence on communication practices in antenatal care and establishes a foundation for future studies in maternal healthcare communication.

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Keywords: Antenatal care, maternal health, Structuration Theory, Socio-Ecological Model, healthcare providers, antenatal communication barriers, Zambia, qualitative research, communication approaches, maternal healthcare, qualitative descriptive research

1. Introduction

The background of the study on communication in maternal healthcare, particularly in antenatal care, highlights the critical role that effective communication plays in improving maternal and newborn health outcomes. In the context of Zambia, where healthcare systems face numerous challenges, understanding the communication barriers that exist between healthcare providers and pregnant women is essential for enhancing the quality of care.

The study showed that Rufunsa District healthcare facilities employed antenatal communication methods at both facility and community levels.

The communication approaches included group education, client centered education, print media health information, theatre-driven health information and tech-driven health information. Research has identified various barriers that impede effective communication in antenatal care interventions, including structural issues within healthcare facilities and individual challenges such as varying levels of health literacy among women (Haddrill *et al*., 2019; Ganle *et al*., 2014) [13]. These barriers can significantly affect the dissemination of vital antenatal information, which is crucial for informed decision-making and positive health outcomes.

Moreover, the interaction dynamics between healthcare providers and pregnant women are influenced by social structures and individual agency, as framed by Gidden's Structuration Theory. This theoretical lens allows for a deeper understanding of how communication practices are shaped within the healthcare system. Despite existing literature highlighting the importance of effective communication in antenatal care, there remains a gap in empirical evidence regarding the specific communication approaches utilized and their effectiveness in achieving improved maternal health (Chang *et al*., 2018; Lippke *et al*., 2021) [6, 15].

To address these issues, this study aims to propose a Communication Framework that healthcare providers can utilize to effectively disseminate antenatal information to women. This framework being informed by the identified barriers seeks to enhance the communication process, thereby improving the overall quality of antenatal care provided in healthcare facilities. By focusing on both the barriers to effective communication and the development of a structured framework, this research aspires to contribute to the broader goals of enhancing maternal and child health outcomes in rural communities.

2. Specific Objectives

The specific objectives were:

- To understand communication barriers in antenatal care interventions within healthcare facilities.
- To propose a Communication Framework for healthcare providers to effectively disseminate antenatal information to women.

3. Theoretical framework of the study

This study aimed to explore the dynamics of antenatal communication between healthcare providers and women in selected healthcare facilities located in Rufunsa District, with a foundation in Structuration Theory. Originally developed by British sociologist Anthony Giddens in 1976, Structuration examines the ways in which interactions among individuals create rules and structures in turn shape behaviors. Giddens underscores the concept of the duality of structure, highlighting the interconnectedness of social action and personal agency. He suggests that individuals' actions are both facilitated and restricted by the existing rules and resources that influence how they interact. The theory articulates three fundamental structures: signification (which deals with interpretation), legitimation (which covers norms of behavior), and domination (which pertains to the resources available for achieving goals). These structures can vary based on how individuals interpret them. As a result, individuals possess the capacity to either maintain or transform existing structures through their actions while seeking ontological security, stressing the role of shared social practices that encompass both individual actions and collective structures.

Structuration Theory was employed in the study to link communication practices with the healthcare frameworks influencing them, examining how social practices, particularly communication methods, are shaped by and shape healthcare systems. The study highlights the interaction dynamics between healthcare providers and pregnant women, identifying structures that either promote or hinder effective communication. Additionally, the research incorporated the Socio-Ecological Model (2025) to illustrate the various levels affecting healthcare delivery, including individual, interpersonal, organizational, community, and policy dimensions. While Structuration Theory provides significant insights, it also has its limitations, such as a tendency to emphasize individual actions over collective agency and structural influences, challenges in clearly defining the boundaries between agency and structure, and a lack of attention to power dynamics and their impact on social structures. Critics argue that concepts like 'agency' and 'structure' can be complex to define and apply, and the theory may not fully capture the perspectives of marginalized groups or the intricacies of power, ideology, and economic structures.

4. Literature Review

Literature reviewed highlights the critical need for research on antenatal communication between healthcare providers and pregnant women, emphasizing its influence on maternal health outcomes. Despite the recognition of effective communication as essential in antenatal care (ANC), there is a lack of empirical evidence defining what constitutes effective communication in this context (Cutajar *et al*., 2020) [9]. The existing studies reveal significant gaps, including theoretical, methodological, and empirical shortcomings. For instance, previous research has not adequately utilized theoretical frameworks, such as Gidden's Structuration Theory, to explore the interplay between individual agency and systemic structure in enhancing health-seeking behaviors among antenatal mothers (El-Khatib, Odusina, Ghose; 2020) [10]. Moreover, the reviewed literature indicates that many studies have focused solely on specific types of communication (Andrzejczak, Jones, and Nye; 2020) [4] or have limited their sample sizes which hampers the generalizability of findings (Nachinab *et al*., 2019) [18]. There is also a noted absence of consensus on the definition of effective communication in maternity care, which suggests diverse interpretations among researchers and practitioners (Cutajar *et al*., 2020) [9]. Additionally, the literature critiques the lack of comprehensive methodologies that address the communication continuum in antenatal care, thereby missing opportunities to improve service uptake (Escañuela Sánchez *et al*., 2020) [11].

The research underscores the importance of structured ANC visits as advocated by the World Health Organization (WHO) to foster positive interactions and effective communication practices (WHO, 2016). It also highlights the need for tailored communication strategies that consider the diverse needs of pregnant women (Wilmore *et al*., 2015) [22], as well as the integration of technology in disseminating ANC-related information (Ugochukwu and Ejiofor, 2023) [20]. Overall, the literature review serves as a foundation for the current study, which aims to address these gaps by employing Gidden's Structuration Theory to create a communication

framework that enhances antenatal care in rural settings.

5. Methodology

a) Philosophical underpinning and research design

The study was grounded in two philosophical approaches: interpretivism and constructivism. Interpretivism provides a lens for understanding qualitative research, emphasizing the co-creation of realities within specific contexts. The study's ontology recognized the differing realities of healthcare providers and antenatal mothers, while the methodology followed an inductive process, allowing the researcher to generate and analyze the data. The researcher adopted an etic perspective, observing the communication dynamics in healthcare without being an insider, which helped to minimize biases in data generation and analysis. The study also adhered to ethical considerations, ensuring informed consent, privacy, and objectivity throughout the research process.

The study employed a qualitative descriptive research design to explore communication barriers in antenatal care interventions and to propose a Communication Framework for healthcare providers. Data was generated through semi-structured interviews and focus group discussions. The sample included 40 participants from Ministry of Health Headquarters, Lusaka Province and Rufunsa District Offices as well as healthcare providers and antenatal mothers from selected health facilities in Rufunsa and members of the Safe Motherhood Action Groups (SMAGs) in Rufunsa District, Zambia ensuring a diverse representation of experiences and perspectives. Open-ended questions facilitated in-depth discussions, allowing participants to express their views on communication practices and challenges encountered in antenatal care. Thematic analysis was used to identify key barriers and insights, which informed the development of a tailored Communication Framework aimed at enhancing the dissemination of antenatal information. Ethical approval was obtained, and measures were taken to ensure participant confidentiality and minimize psychological distress during discussions.

The research whose population sample included 2942 antenatal women from 29 healthcare facilities categorized under hospitals, rural health centres and rural health posts in Rufunsa District used semi-structured interviews and focus group discussions to generate data from women who had attended antenatal clinics, community member volunteers (SMAG members) and key informants who were staff from the Ministry of Health serving at different structural levels.

b) Participants and sampling procedure

The study utilized a purposive sampling procedure to achieve maximum variation sampling through availability sampling (Patton, 2014) [19]. Homogeneous purposive sampling was employed for selecting women and members of the Safe Motherhood Action Groups (SMAGs), while expert purposive sampling was used for antenatal care practitioners at healthcare facilities and staff from the Ministry of Health.

c) Data generation and analysis

Data Analysis: The qualitative data generated was analyzed using emergent thematic analysis with NVIVO software. Hard copies of interview scripts were catalogued according to participant groups, and data was thematically arranged in line with the study's objectives. All interviews were recorded to ensure descriptive validity, and the researcher transcribed the interviews verbatim to capture meanings and perceptions accurately. This process allowed for a detailed understanding of participants' experiences, attitudes, and practices related to maternal healthcare services.

d) Trustworthiness

The study established trustworthiness through several methods: credibility was ensured via follow-up interviews, member checking, and triangulation; dependability was maintained by keeping audit trails; transferability was supported by collecting detailed information to aid future research; and confirmability was enhanced through audit trails of notes, memos, recordings, and memo writing.

6. Research findings and discussion

a) Overview

The findings related to the objective of understanding communication barriers in antenatal care interventions within healthcare facilities reveal several key insights and challenges faced by both healthcare providers and pregnant women. The analysis identified various barriers categorized as barriers related to communication approaches, demographic factors, resource availability, healthcare provider factors, and community engagement, leading to the development of an antenatal communication framework designed to enhance communication in healthcare facilities."

b) Identified Barriers

1) Barriers related to communication approaches

Group education barriers: Language Diversity: A major barrier identified in the study was language diversity. Participants reported that mothers attending antenatal care (ANC) sessions frequently spoke different languages, resulting in misunderstandings. This linguistic variation obstructed effective communication, as some mothers relied on fellow participants for translation. One participant expressed this challenge:

"They try to communicate in a language we understand...If we do not understand what is being said, we rely on others to explain it in a language we can comprehend." [FGD, R2: Pd8]

Inadequate Coverage of Antenatal Issues in Communication Messages: Participants noted that the majority of antenatal messages communicated to women primarily focused on health, nutrition, and birth preparedness, with many women highlighting limited range of topics covered.

"…they teach us on the pregnancy, they test our blood and they test for some diseases that you can get through sleeping with each other." [IDI: Pc5]

The need to develop specific communication messages to address all the antenatal problems was highly emphasized.

"It's like some of the messages that we are using for communication are not talking to the targeted audience. For example, in the use of media…. yeah and then you are talking to the chiefs…may not be well received". [KII: Pk1]

Client-centered education barriers: The education barrier contributed to some mothers contemplating the avoidance of antenatal care due to uncertainties regarding their understanding of the information presented during health education sessions. One participant, feeling excluded due to her educational background, remarked:

"The things discussed during the sessions at antenatal clinics I do not mostly understand. I stopped school in grade 5 …. other women say these things they learnt them at secondary

school in science subjects. I never did secondary school and therefore feel ashamed to ask questions" [IDI: Pc7]

Limited capacity to address individual questions: Some participants expressed that healthcare providers appeared to lack the adequate capacity to address their inquiries effectively.

"…the young nurses sent here do not understand how us in the villages take care of a mother having a miscarriage. They fail to answer questions about this when we ask them." [FGD, R6: Pd3]

Insufficient time for personalized interactions due to high patient volume: The study revealed that respondents were not receiving adequate personalized attention from healthcare providers because of elevated patient volumes at health facilities. As a result, some mothers left without obtaining the comprehensive information they needed.

"…each time I want to talk with the nurse on my condition in pregnancy, she tells me later since there were so many other mothers to be attended to." [IDI: Pc4]

Print media health information barriers: The study identified a deficiency in translated materials for local languages. Participants noted that most available materials, whether displayed or in card format, were only in English or Chichewa, despite Rufunsa District being predominantly inhabited by the Soli ethnic group. This situation created barriers to effective communication about antenatal care (ANC), as critical information was not reaching the intended audience. The absence of adequately translated Information Education and Communication (IEC) materials hindered effective communication with pregnant women attending antenatal clinics. Furthermore, the limited availability and distribution of printed resources highlighted the challenges in disseminating ANC IEC materials to the remote facilities of Rufunsa District.

"It is sad that there are no printed materials translated in Soli. Every material is either in English or Chicewa." [FGD, R5: Pd7]

"The IEC materials are prioritized in English. When there is adequate funding then that's when they will be translated into local languages. So all the community members usually complain about them. So that hinders communication to some level." [FGD, R2: Pd1]

"We do not have adequate print materials on antenatal health care at our facility." [KII: Pk6]

Tech-Driven Health Information Barriers: A barrier exists due to inadequate technological infrastructure, which results in limited awareness among mothers about life-saving information.

"We do not have television or smart phones for internet to learn more on antenatal care like our friends in cities." [IDI: Pc9]

Inconsistent application of technology by staff*:* In addition to the barrier posed by insufficient technological resources in rural areas that limits mothers' access to information, there is also the challenge of inconsistent utilization of the available technology by staff.

"…though we were oriented in the use of sonar sound equipment to detect a foetus in a mother's womb, I could not continue using it." [Pk7]

Theatre-driven health information barriers: Findings reveal that drama or theatre is rarely utilized as an educational tool in antenatal care due to limited resources for hiring drama groups to perform in communities. Additionally, rural communities engage in numerous labor-intensive activities for their livelihoods, making it challenging for them to allocate time for participation in such programs. Consequently, healthcare providers often rely on schools to incorporate drama into events commemorating health days in the district.

"…. there is not enough resources to engage drama groups for adults…we depend on drama group from the school. At least they don't charge much and during events, they even do it free of charge". [Pk10]

"drama has not been used very much in this catchment area." [PkPv3]

2) Barriers related to demographic factors

The study found that language diversity stemming from varied backgrounds often leads to reliance on peers for translation, which can result in critical errors, particularly concerning adherence to prescribed medications. Additionally, cultural beliefs and misconceptions regarding pregnancy may obstruct the understanding of antenatal care (ANC) information and negatively impact timely ANC attendance. Furthermore, high illiteracy rates present additional barriers, hindering comprehension of health messages.

"For attendance in the first trimester we really have a challenge. The first trimester, yes, the numbers are still low. Those who come in the first trimester booking, below are 14 weeks has been a challenge. There is a strong belief in our community that the pregnancy is not supposed to be revealed when it's not showing or else it will be lost." [KII: Pk4]

3) Barriers related to resources and support

Participants highlighted that inadequate resources result in shortages of translated and accessible educational materials. Logistical constraints, such as geographical barriers that affect access to facilities (including distance and transportation issues), coupled with insufficient support for ANC interventions, further exacerbate communication barriers. Additional obstacles include financial constraints, which hinder women's ability to acquire necessary items at health facilities, and geographical challenges, such as long distances and extended waiting times, that impede access to ANC information. Moreover, a lack of spousal support—where male partners are often uninvolved or skeptical about ANC communication—further restricts women's ability to obtain crucial ANC information.

4) Barriers related to healthcare providers

The study identified barriers related to provider attitudes, noting that some healthcare providers may use harsh or aggressive language and exhibit a lack of respectful communication. Variability in their mood can negatively impact the quality of interactions, potentially discouraging mothers, especially when the provider is noticeably younger than the mothers. Additionally, there are barriers related to feedback mechanisms, specifically the absence of effective systems to verify clients' understanding of the information provided.

"They can shout, but you have to get used to it...he (health care provider) looks after us because if all of you are upset, no one will tell the other what to do." [FGD, R3: Pd2]

5) Barriers related to community engagement

The research revealed a marginalization of technology, evidenced by the underutilization of communication tools such as radios and community announcements. This underutilization stems from insufficient technological infrastructure, which leads to delays in the dissemination of information to populations.

"…we find it hard to engage the community since they are spread over a vast territory, and it is not practical to visit them all. Community radio would have been helping greatly." [Pk8]

6) SMAGs communication gaps

The study identified communication gaps within Safe Motherhood Action Groups (SMAGs), highlighting inconsistencies in how information is relayed to pregnant women. These gaps often depend on the competency of individual SMAG members, as their ability to accurately convey information to mothers varies significantly.

Table 1: Coding of Communication Barriers

	Main Themes	Sub-Themes	Socio-Ecological
1	Communication Approaches	Group Education	
		▪ Language diversity leads to misunderstandings.	Interpersonal
		▪ Limited capacity to address individual questions.	
		Client- Centred Education	
		▪ Insufficient time for personalized interactions due to high patient volume.	
		Print Media Health Information	Institutional
		▪ Lack of translated materials in local languages.	
		▪ Limited availability and distribution of printed resources.	
		Tech-Driven Health Information	
		▪ Insufficient technological resources in rural areas.	
		▪ Inconsistent application of technology by staff.	
		Theatre- Driven Health Information	Community
		▪ Infrequent use of drama or theatre for education.	
2	Demographic Factors	Diversity in Languages	Individual
		▪ Varied linguistic backgrounds necessitating reliance on peers for translation	
		Cultural beliefs and misconceptions	
		▪ Stigmas related to pregnancy affecting timely ANC attendance	
		Illiteracy	
		▪ Hindering comprehension of health messages	
3	Resources and Support	▪ Inadequate Resources- shortage of translated and accessible educational materials and limited number of trained healthcare personnel	Public Policy
		Inadequate Resources	
		▪ Shortage of translated and accessible educational materials ▪ Limited number of trained healthcare personnel	
		Logistical Constraints	
		▪ Geographic barriers affecting access to facilities (distance and transport issues) Long waiting time discouraging attendance	
4	Healthcare Provider Factors	Provider Attitude	Institutional
		▪ Some healthcare providers may use harsh or aggressive language ▪ Variability in mood can affect the quality of interaction	
		Feedback Mechanisms	
		▪ Lack of effective systems to ascertain understanding among women	
5	Community Engagement	▪ Marginalization of Technology	Community
		▪ Underutilization of communication tools (radios, community announcements)	
		SMAGs Communication Gaps	
		▪ Inconsistency in how SMAGs relay information to pregnant women	

c) How communication barriers impede actions

Barriers in antenatal care can significantly hinder actions, primarily affecting both healthcare providers and pregnant women's ability to communicate effectively and engage with healthcare services as explained below:

1) Structural Barriers

Limited Resources: Inadequate physical facilities, such as a shortage of healthcare providers and insufficient educational materials, impede the ability of healthcare providers to deliver quality service. This often results in overwhelming workloads, reducing the time available for effective communication with mothers. Research from Alemu (2018) [2] highlights that structural issues, including inadequate medical supplies and personnel, critically hinder the provision of antenatal care services.

Geographical Accessibility: Long distances to healthcare facilities can dissuade women from attending antenatal appointments, especially in rural areas. As noted by Andrew *et al*. (2014) [3], geographic barriers significantly impact access to care, leading women to forgo essential services and affecting maternal and child health outcomes.

2) Cultural Barriers

Cultural beliefs and misconceptions: Deeply rooted cultural norms often create stigmas or misunderstandings about antenatal care, discouraging women from seeking help or adhering to recommended practices. Certain cultural beliefs disfavor access to quality antenatal care, causing delays in seeking necessary medical interventions (M'soka *et al*. 2015) [17]

Gender Roles: In some cultures, decision-making authority regarding healthcare may reside with male partners or family members. This limitation can prevent women from making decisions about their antenatal care, further limiting their engagement with necessary health services (UNDP, 2013).

3) Linguistic Barriers

Language Diversity: Misunderstandings can arise when healthcare providers and pregnant women speak different languages. As highlighted by Finlayson & Downe (2013) [12], communication discrepancies can lead women to misunderstand critical health information about the importance of antenatal care, thereby complicating their navigation of the healthcare system effectively.

4) Educational Barriers

Low levels of health literacy: A lack of understanding about the importance of antenatal care and its associated services can prevent women from seeking the necessary care. Limited education may compromise women's ability to process and act upon health information, resulting in suboptimal health behaviors and decisions, as noted by Bako *et al*. (2022) [5]. Educational programs that enhance health literacy are essential for improving engagement with antenatal care services.

5) Interpersonal Barriers

Provider Attitudes: Negative attitudes from healthcare providers, such as rudeness or frustration, can create a hostile environment that discourages women from asking questions or voicing concerns. This is crucial for establishing trust, an essential component of effective communication and partnership in care (McCourt, 2006) [16].

Inadequate Feedback Mechanisms: A lack of systems to encourage feedback from women often leaves healthcare providers unaware of women's needs or misunderstandings. As Andrzejczak *et al*. (2024) [4] highlight, without mechanisms that ensure comprehension, providers may inadvertently continue using ineffective communication approaches, compounding existing barriers.

6) Technological Barriers

Limited access to technology: In settings where technology (e.g., mobile phones and internet access) is not readily available, healthcare providers are unable to leverage digital tools to enhance communication. This limitation restricts their ability to disseminate timely health information and reminders to patients, further isolating women from necessary antenatal resources (Ganle *et al*., 2014) [13].

7) Community Engagement Barriers

Insufficient involvement of community stakeholders: Minimal engagement with community leaders or organizations can hinder outreach efforts, leaving women uninformed about the necessity of regular antenatal visits and available services (Chibuye *et al*., 2018) [8]. The lack of community-driven initiatives contributes significantly to lower attendance rates at antenatal clinics.

d) Implications of ANC communication barriers

The communication barriers related to ANC collectively obstruct pregnant women's ability to understand the importance of antenatal care, seek services, and actively engage in their health decisions. They also restrict healthcare providers from effectively sharing information, adjusting their communication methods to meet individual needs, and fostering a supportive healthcare environment. Addressing these barriers comprehensively would support implementation of quality antenatal care communication, leading to better healthcare outcomes for mothers and infants.

e) Multifaceted strategies to addressing antenatal communication barriers

To overcome the identified barriers, multifaceted strategies are essential, including:

Training for Providers: Equipping healthcare practitioners with improved communication skills can enhance interactions and reduce misunderstandings (Albert *et al*., 2020) [1].

Community Education: Initiatives that educate communities about the importance of antenatal care can raise awareness and increase attendance (Wafula *et al*., 2022) [21]

Resource Allocation: Ensuring adequate resource availability to support educational materials in local languages can improve understanding and accessibility (Kandpal & Dutta, 2024) [14]

Cultural Sensitivity: Developing culturally appropriate communication strategies can help in overcoming cultural beliefs and misunderstandings regarding antenatal care (Finlayson & Downe, 2013) [12].

7. Outlining the challenge of communication in antenatal care in rufunsa district using the fishbone model

The Fishbone Model has been utilized to identify causal relationships of challenges in the quality of communication within antenatal healthcare. The main causes identified include communication approaches, demographic factors, resources, support, healthcare provider factors, and community engagement. Addressing these causes through structured feedback mechanisms and enhanced training for healthcare providers can improve communication experiences and outcomes for pregnant women.

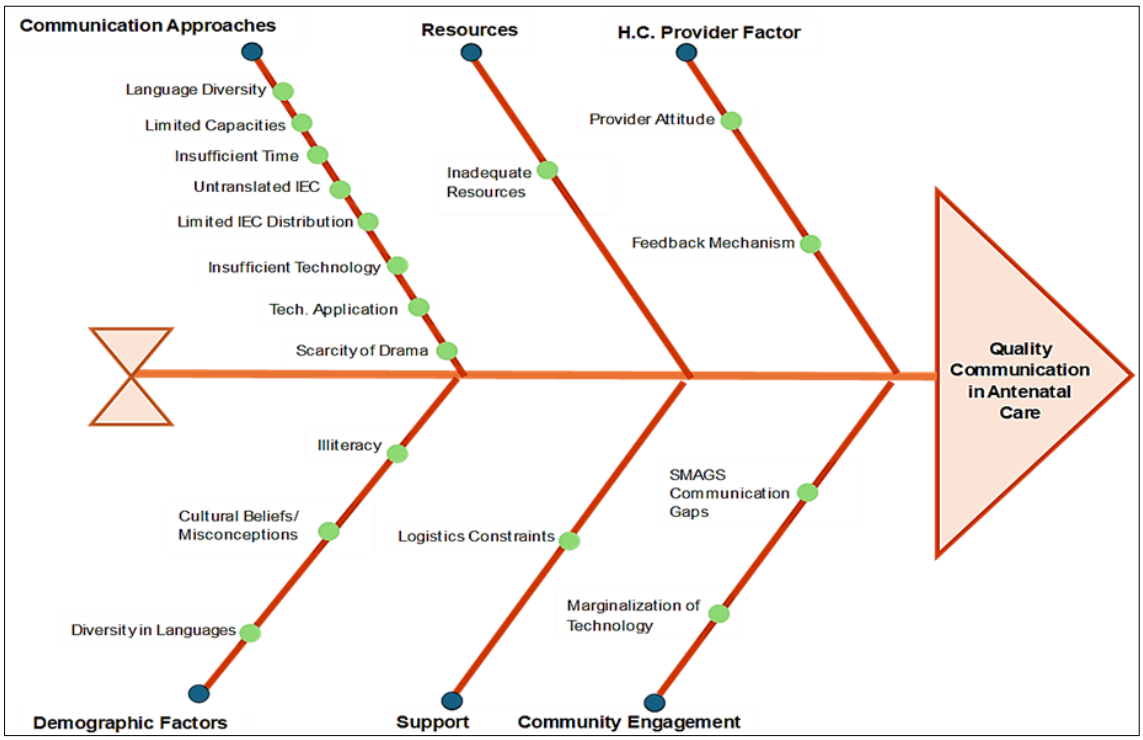

Fig 1: Illustration of Causal Relationships in Fishbone Model in Antenatal Healthcare of Rufunsa District

To effectively illustrate the blending of the agency and structure elements of Gidden's theory which was used to derive a Communication Framework for improved antenatal care communication, the Socio-Ecological Model (SEM), an intermediate model, was incorporated in the analysis of the findings. The Socio-Ecological Model (SEM) has been extensively used in the healthcare sector to illustrate relationships that affect the provision of healthcare to the community.

To derive this SEM model for this study, sub-themes at each objective level of the study were coded according to the five levels in the Socio-ecological model. The frequency level of occurrence of the different thematic codes indicates a higher frequency for Institutional at 9, with Community at 8, Individual at 4 and Interpersonal and Policy both at 3 frequencies. The implication of this frequency of these levels is discussed in the next section on Structuration Theory.

Table 2: Coding for Socio-Ecological Model for Communication in Antenatal Care

	SEM Level	Frequency	Sub-Theme	Theme
1	Policy	3	Resources and Support	Com. Barriers Info. Enhancement
			National Level Communication Structures	
			District Level Communication Structures	
2	Community	8	Theatre-Driven Health Information	Com. Approaches Com Barriers Info. Enhancement
			Communication Approaches	
			Community Engagement	
			National Level Communication Structures	
			Provincial Level Communication Structures	
			District Level Communication Structures	
			Facility Level Communication Structures	
			Community-Level Communication Structures	
3	Institutional	9	Print Media Health Information	Com. Approaches Info. Dissemination Com. Barriers Info. Enhancement
			Capacity Building of ANC Personnel	
			Communication Approaches	
			Healthcare Provider Factors	
			National Level Communication Structures	
			Provincial Level Communication Structures	
			Provincial Level Communication Structures	
			District Level Communication Structures	
			Facility Level Communication Structures	
4	Interpersonal	3	Group Education	Com. Approaches Com Barriers
			Tech-Driven Health Information	
			Communication Approaches	
5	Individual	4	Client-Centered Education	Com. Approaches Info. Dissemination Com Barriers
			Comprehension of Antenatal Health Information	
			Reflexivity	
			Demographic Factors	

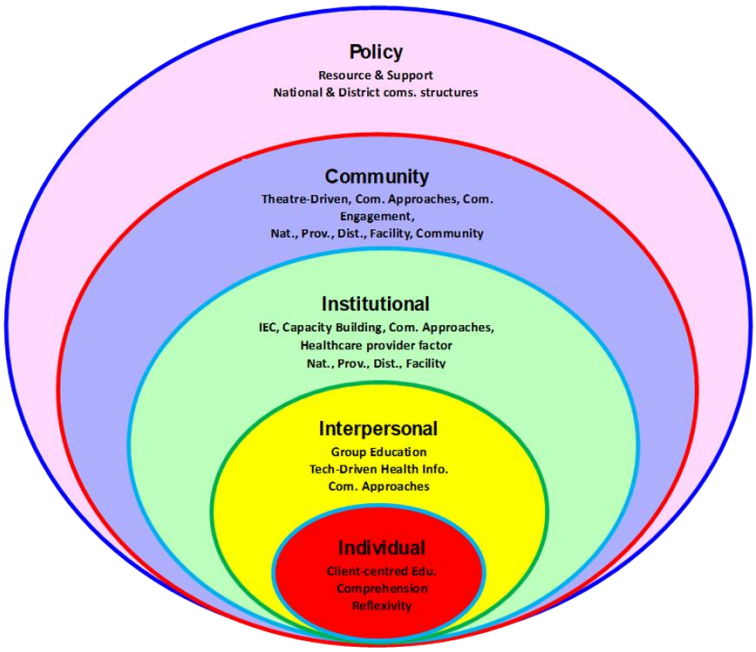

Fig 2: SEM Use for Communication in Antenatal Healthcare

8. Outlining the process: Using fishbone diagram & socio-ecological models

The derived socio-ecological model derived for communication in antenatal healthcare in Rufunsa district afforded a critical perspective that of the duality of elements required for the Structuration Theory which anchors this study. The two elements are agency and structure. Thus, the intermediate SEM model has derived clear perspectives as findings of this study on communication in antenatal health care are now imbedded in the Structuration theory. It is worth noting that scholars have acknowledged that the structuration theory, being in the domain of sociological sciences and aimed at illustrating sociological relationships of people and their environment, is in fact itself a Socio-Ecological model. It thus becomes relatively practical then to blend the derived Socio-Ecological model with the Structuration Theory.

9. Development of the communication framework

A key step to the development of the communication framework required using the identified elements that constitute the agency and structure from the derived Socio-Ecological model while highlighting the complex interplay between the elements, showing the existing interactions between health providers and pregnant women which significantly impact communication experiences during antenatal care.

Components of the antenatal communication framework:

The proposed communication framework for antenatal care should incorporate enhanced training for healthcare providers, focusing on effective communication skills, cultural competence, and technology utilization. This framework aims to improve the quality of interactions during antenatal visits, ensuring that the unique needs of each woman are met and fostering a supportive environment for informed decision-making (Bako *et al*., 2022) [5].

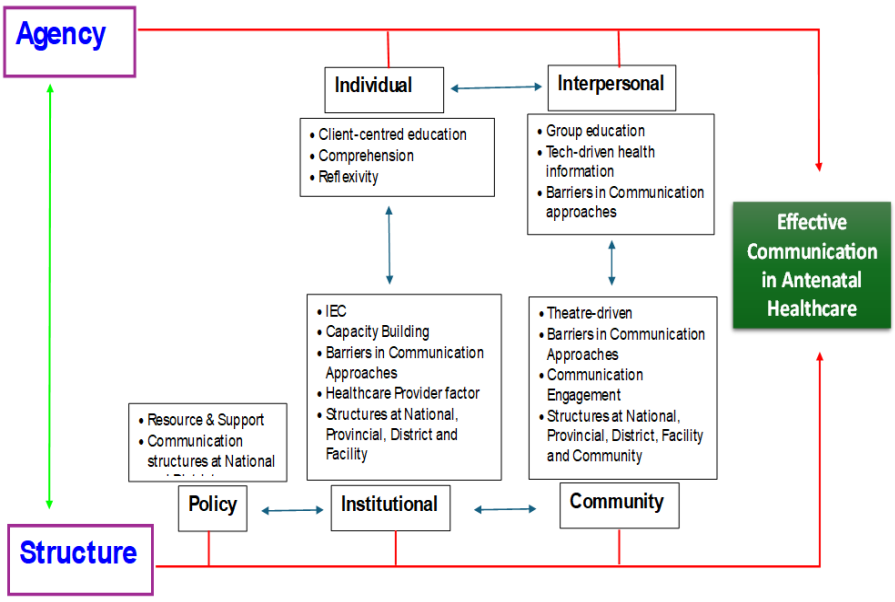

Fig 3: Communication Framework in Antenatal Healthcare

10. Conclusion

The study on antenatal care communication in Rufunsa District highlights the complex dynamics of communication practices within healthcare settings, emphasizing the significant roles of structural and agency factors. It underscores that communication is influenced by social, cultural, and economic contexts, necessitating healthcare providers to adapt their methods accordingly. The findings reveal both strengths, such as community health worker involvement, and limitations, including inadequate resources and insufficient training.

Conclusions drawn from the study synthesize Giddens' Structuration Theory with the developed Communication Framework, illustrating how effective communication in antenatal care can enhance maternal health outcomes. The study identifies critical barriers to communication, such as cultural beliefs, language diversity, and resource constraints, while also recognizing enablers that can facilitate better interactions between healthcare providers and pregnant women.

11. Recommendations

Recommendations for improving antenatal care communication include increasing the availability and accessibility of communication resources, implementing comprehensive training programs focused on effective communication skills and cultural competencies, and encouraging personalized communication approaches. Additionally, public health campaigns should be developed to address specific barriers, and regular evaluations of communication strategies should be conducted. Collaborative efforts with community stakeholders are recommended to foster a participatory approach to antenatal education.

12. Future Research

Future research should aim to replicate the study in diverse contexts to assess varying communication practices, with a focus on longitudinal studies to evaluate the long-term impact of different communication strategies on maternal health outcomes. This foundational study serves as a reference for further investigations into antenatal communication and related fields, addressing existing gaps in literature and providing insights for enhancing maternal and infant health through improved communication.

13. Acknowledgements

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14. Conflict of Interest

The authors declare that there are no conflicts of interest associated with this report.

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