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Antenatal Care Provided by Health Workers: Its Relationship to Maternal-Fetal Attachment

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Abstract

This study examined the quality of antenatal care provided by healthcare workers and the level of maternal-fetal attachment (MFA) among pregnant women in Canaman, Camarines Sur. Specifically, it aimed to assess the quality of antenatal care along six dimensions: health education, anticipatory guidance, time allocation, approachability of healthcare workers, availability of healthcare resources, and support. It also explored the level of maternal-fetal attachment in terms of positive emotion, attention to physical progress, reciprocal interaction, monitoring and imaging of the unborn baby, and desire to protect unborn baby from harm and increase mother's health practices. Furthermore, it investigated the relationship between antenatal care quality and MFA, identified contributing factors, and proposed recommendations based on the findings.

A concurrent mixed-method design was employed, integrating quantitative data from structured questionnaires with qualitative insights from in-depth interviews. Quantitative data were analyzed through weighted mean and Pearson correlations, while qualitative data were examined thematically.

Results showed that the overall quality of antenatal care was rated as Very High, the rating suggest a generally positive perception of care, particularly in interpersonal and emotional aspects. Also, the overall maternal-fetal attachment level was rated as Very Strong, reflecting a high degree of emotional and behavioral connection between mothers and their unborn children.

In exploring the relationship between QAC and MFA, the overall quality of antenatal care showed no statistically significant correlation with the total level of maternal-fetal attachment. However, specific components of care revealed important associations. Health education and time allocation showed weak and non-significant correlations with MFA dimensions, indicating limited influence. In contrast, anticipatory guidance was moderately associated with paying attention and strongly correlated with reciprocal interaction, while availability of healthcare resources was significantly linked to paying attention. Support emerged as the most influential factor, strongly correlating with positive emotion and underscoring the emotional value of encouragement and empathy from healthcare workers.

The study concludes that beyond routine clinical services, emotionally responsive and relationship-focused antenatal care is crucial in strengthening maternal-fetal attachment and supporting maternal role attainment.

Keywords*: Quality Antenatal, Maternal-Fetal Attachment, Pregnancy*

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INTRODUCTION

Antenatal care (ANC) plays a pivotal role in safeguarding both maternal and fetal health. Traditionally, ANC focuses on monitoring fetal development, managing maternal complications, and ensuring safe childbirth. However, recent developments in maternal healthcare have emphasized the importance of holistic care—care that includes not only physical assessments but also emotional support and psychosocial interventions.

The researcher aims to determine what factors can influence maternal engagement in public health services. Knowing that antenatal care is not merely on physical/medical attention but also about emotional support and maternal-fetal bonding. Likewise, she wants to explore the quality of ANC provided by healthcare workers and its relationship to maternal-fetal attachment. These are the noticeable gaps in service utilization and the need for a more holistic, empathetic, and patient-centered approach. This study aims to reveal the contributing factors that enhance or hinder effective ANC delivery and psychological preparedness of mothers, with the goal of suggesting actionable strategies to improve maternal and child health outcomes in rural and underserved communities. Thus, to identify possible strategies how to improve the quality antenatal care given by the healthcare workers in a holistic approach.

Statement of the Problems

1. What is the quality of antenatal care provided by health care workers to the well-being of pregnant mothers along the following aspects:
   a. health education
   b. anticipatory guidance
   c. time allocation
   d. approachability of healthcare worker
   e. availability of healthcare worker resources
   f. support
2. What is the level of maternal fetal attachment of the pregnant mothers during their pregnancy period in terms of:
   a. positive emotion
   b. paying attention to the physical progress of fetus and mother
   c. reciprocal interaction with the baby
   d. monitoring and imaging the unborn baby
   e. desire to protect unborn baby from harm and increase mother's health practices
3. Is there a significant relationship between the quality of antenatal care and the level of maternal fetal attachment?
4. What other factors that may contribute to the quality of antenatal care and maternal fetal attachment?
5. What health education program may be proposed based from the results of the study?

METHODOLOGY

Research Design

This study used a concurrent mixed-method design, integrating both quantitative and qualitative methodologies, to provide a comprehensive understanding of the relationship between the quality of antenatal care and maternal-fetal attachment of pregnant mothers in Canaman, Camarines Sur.

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To determine the quantitative indicators of quality antenatal and maternal-fetal attachment, a descriptive-correlational approach was used. The first part of the questionnaire are the questions designed to obtain the quality antenatal care provided by the healthcare worker. The second part contained the level of maternal-fetal attachment of the pregnant mothers during pregnancy period. The results of the questionnaire were analyzed on the basis of means. The correlation method, to determine the significant relationship between quality antenatal care and maternal-fetal attachment.

On the other hand, the qualitative aspect used a qualitative descriptive to capture the detailed experiences and perceptions of pregnant mothers regarding on quality antenatal care and its influence on maternal-fetal attachment. It was conducted using in-depth, semi-structured interviews to gather rich, narrative data, which has been analyzed thematically to identify key patterns and insights.

This methodological approach is particularly effective because it promotes data triangulation, providing a deeper comprehension of contextual factors that may be overlooked quantitative data alone, which can contribute to sustainability planning.

Respondents

In the quantitative part of this study, total enumeration was used to include all Pregnant mothers aged 20 to 49 years old, women in their last trimester of pregnancy (28-40 weeks), regardless of the number of pregnancies, and receiving their prenatal care services at least with three (3) prenatal visits in Rural Health Unit and (24) Barangay Health Stations during the study period. This approach ensured that every eligible pregnant mother in the study area was included, resulting in a sample size of 55 participants.

In the qualitative phase of this study, purposive sampling was utilized to select ten (10) respondents. These participants had completed the quantitative survey and stated willingness to participate in in-depth interviews. This approach ensured that the qualitative data came from individuals who were already familiar with the study topic and were willing to provide detailed prenatal insights and experiences.

Data Gathering Instrument

The study made use of a researcher made survey questionnaire designed to properly deduce the responses needed. To assess the quality of antenatal care, a 31-item Quality of Prenatal Care Questionnaire was utilized and some of the questions were modified from the study of Gonzales (2021) with the following parameters: Health Education, Anticipatory Guidance, Time Allocation, Approachability of Healthcare Worker, Availability of Healthcare Worker, Support. Each item would be rated using a Likert scale with four response categories consisting of “Strongly Disagree” (1), “Disagree” (2), “Agree” (3) and “Strongly Agree” (4).

To assess the maternal-fetal attachment, a 22-item was utilized and some of the questions were modified from Gonzales (2021) with the following dimension which are: positive emotion, paying attention to the physical progress of the fetus and mothers themselves, reciprocal interaction with the baby, monitoring and imaging the unborn baby, and desire to protect her unborn baby from harm and increase her health practices. Each item was rated using a Likert scale with five response categories consisting of “Strongly Disagree” (1), “Disagree” (2), “Agree” (3) and “Strongly Agree” (4).

To identify factors contributing to quality antenatal care and maternal-fetal attachment, a semi-structured interview guide with five open-ended questions was used. This tool explored pregnant mothers’

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perceptions and experiences related to care quality and emotional connection with their unborn child. The interview guide was validated by experts and pilot-tested. Responses were analyzed using thematic analysis, allowing patterns and key themes to emerge from the qualitative data.

The entire instrument was pilot-tested with 15 pregnant women in a nearby locality to assess its clarity, relevance, and appropriateness. Reliability testing was conducted using SPSS, and results revealed that all components of the instrument met the standard thresholds for high (≥0.80) to very high (≥0.90) internal consistency. Specifically, the antenatal care scale achieved a Cronbach's alpha of .941, indicating very high reliability, while the maternal-fetal attachment scale yielded a Cronbach's alpha of .867, reflecting high reliability. These results confirm that the instrument is appropriate for full implementation in the main study.

The Tagalog version of the questionnaire was officially permitted and provided by the original author, who also used it in their own study. The translation was carried out by the Sentro ng Wikang Filipino of the University of the Philippines, upon the author's request, to ensure linguistic clarity and cultural appropriateness. This authorized Tagalog version was used in the current study to enhance respondent understanding and relevance within the local context. Prior to its use, the instrument underwent content validation by field experts to ensure reliability and suitability for the target population.

Data Gathering Procedure

Before the conduct of the data gathering, a letter of approval signed by the Dean of the Graduate School was secured. To ensure the consent to conduct this study, permission in conducting this study was obtained from the Municipal Health Officer, the official authority responsible for health services in the area. Pregnant women who met the inclusion criteria answered the survey questionnaire and interviewed after her allotted time for prenatal consultation in the Barangay Health Stations and Rural Health Unit Birthing Facility. The purpose and nature of the study were clearly explained to the pregnant women, emphasizing that the interview would last approximately 10 to 15 minutes. This explanation helped establish transparency and prepared the participants for the process.

Likewise, informed consent was obtained. Pregnant women who signed the informed consent form were considered as respondents, confirming their voluntary involvement and understanding of the study's purpose and procedures.

Data were collected using a Tagalog questionnaire during the structured interview to ensures also that they can answer freely and fully understand the questions. Thus, those pregnant who cannot understand and unable to read, the data enumerator will read the items in the questionnaire and recorded the Quality of Prenatal Care and Maternal Fetal Attachment response in the instrument. This approach ensured inclusivity and accuracy in data collection, especially for those with limited literacy.

After the interview, questionnaire was being collected to ensure the completeness and accuracy of data, ensuring no items were left unanswered or misunderstood.

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Data Analysis

The researcher utilized the following statistical tools to interpret the data that were gathered.

For the independent variables, which included factors related to the quality of antenatal care, the mean was utilized to determine the average responses of the participants to relevant questionnaire items. This measure provided a general overview of how respondents perceived antenatal care and allowed for an assessment of the variability or dispersion of responses. Similarly, for the dependent variable, maternal-fetal attachment (MFA), the mean was also computed to identify the overall level of attachment reported by participants. This helped gauge the extent to which mothers felt emotionally and behaviorally connected to their unborn child and facilitated comparison across varying levels of perceived antenatal care quality.

To address the inferential aspect of the research, Pearson's correlation was employed to determine the strength and direction of the relationship between quality of antenatal care and maternal-fetal attachment. This statistical test allowed the researcher to explore whether higher levels of perceived antenatal care were associated with stronger maternal-fetal attachment among pregnant women.

For the qualitative data, Thematic Analysis was employed to identify and interpret patterns of meaning across the interview responses. The analysis followed the six-phase approach by Braun and Clarke (2006), which provided a systematic and rigorous framework for analyzing narrative data according to (Braun V., et al 2006) First, interview recordings were transcribed and thoroughly reviewed to familiarize the researcher with the content. Then, important sections of the data were manually coded and labeled based on key ideas such as accessibility, consistency, provider support, and communication. These codes were grouped to identify patterns and form initial themes, which were later reviewed and refined for clarity and relevance. Each theme was then clearly defined and named, with sub-themes developed to capture more specific aspects. The final themes were reported with supporting participant quotes and interpreted in relation to existing literature on antenatal care and maternal-fetal attachment.

RESULTS

Summary Table on Quality of Antenatal Care Provided by Health Care Workers to the Well-being of Pregnant Mothers

Indicators	Mean	Interpretation
Approachability Of Healthcare Worker	3.73	Very High
Support	3.73	Very High
Health Education	3.72	Very High
Time Allocation	3.71	Very High
Availability Of Healthcare Worker Resources	3.70	Very High
Anticipatory Guidance	3.63	Very High
Quality of Antenatal Care	3.70	Very High

Legend: 3.26-4.00 Very High; 2.51-3.25 High; 1.76-2.50 Fair; 1.00-1.75 Poor

It indicates that the quality of antenatal care delivered by healthcare providers for the well-being of expecting mothers is highly evaluated in all dimensions, 3.70 total mean score, interpreted as Very High. Among the six evaluated elements, the approachability of healthcare worker and the support they provide got the highest average score of 3.73, highlighting their vital and critical role in molding positive and

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supportive experiences for pregnant women. This suggests that the interpersonal skills of the healthcare providers—such as being welcoming, empathetic, and approachable—influence maternal satisfaction and trust in the healthcare system.

High levels of satisfaction were also recorded in the areas of health education (mean = 3.72) and time allocation (mean = 3.71). These results show a strong commitment from health care workers to provide relevant and accessible information to the expectant mothers and to offer sufficient time to each patient. This method not only improves understanding and readiness but also supports the health provider and patient relationship, an important factor of quality maternal care.

Additionally, the efficient use of healthcare resources (mean = 3.70) and the delivery of anticipatory advice (mean = 3.63) suggest that providers are generally well-equipped and capable of supporting patients with the necessary skills and knowledge. However, the slightly lower score for anticipatory advice points to a potential area for improvement in preparing women for possible difficulties and coming stages of pregnancy, including labor and postpartum care.

These findings underscore the comprehensive nature of antenatal care and emphasize its importance in meeting both the medical and emotional needs of pregnant women. The consistently high ratings across different aspects of ANC highlight the effectiveness of a patient-centered approach—one that is accessible, informative, empathetic, and responsive to the unique experiences of expectant mothers.

Summary Table on the Level of Maternal-Fetal Attachment of Pregnant Mothers during Their Pregnancy Period

Indicators	Mean	Interpretation
Positive Emotion	3.63	Very Strong
Paying Attention to The Physical Progress of Fetus and Mother	3.78	Very Strong
Reciprocal Interaction with The Baby	3.68	Very Strong
Monitoring And Imaging the Unborn Baby	3.78	Very Strong
Desire To Protect Unborn Baby from Harm and Increase Mother's Health Practices	3.83	Very Strong
Maternal Fetal Attachment	3.74	Very Strong

Legend: 3.26-4.00 Very Strong; 2.51-3.25 Strong; 1.76-2.50 Weak; 1.00-1.75 Very Weak

The overall amount of maternal-fetal connection that pregnant mothers experience during their pregnancy time is demonstrated by the total mean score of 3.74, which can be translated as Very Strong. The Desire to Protect Unborn Baby from Harm and Increase Mother's Health Practices facet received the highest mean score of 3.83 out of the five elements that were analyzed. This finding highlights the mothers' commitment to protecting their unborn child's health by taking preventative measures and engaging in healthy lifestyle practices. Both Paying Attention to the Physical Progress of Fetus and Mother and Monitoring and Imaging the Unborn Baby received the same mean of 3.78, indicating the mothers' active involvement in watching over and safeguarding their baby's health. The indicator of Reciprocal Interaction with the Baby mean 3.68 and Positive Emotion mean 3.63 highlight the emotional and interactive connection between mothers and their unborn children.

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These findings highlight a comprehensive and greatly supportive bond between the mothers and their growing babies. The significance of nurturing and encouraging the bond between mother and fetus is an essential aspect of prenatal care. The statements in all areas highlight the importance of healthcare programs focusing on educating about monitoring fetal development, maternal health practices and supporting emotional well-being. Engaging in activities like consistent prenatal checkups, ultrasound imaging, maintaining a healthy diet, and prioritizing emotional self-care can enhance this connection even more. Furthermore, offering emotional support and engaging activities, like prenatal counseling and parenting workshops, can assist mothers in enhancing their mutual interaction and emotional bond with their unborn babies. These measures improve the experience for mothers and lead to positive outcomes for the baby's physical and emotional well-being, establishing a solid foundation for development after birth.

On the other hand, the lowest mean score among the indicators of maternal-fetal attachment is observed in *Positive Emotion* (mean = 3.63), though still interpreted as Very Strong. This implies that while pregnant mothers generally demonstrate a favorable level of emotional connection with their unborn child, there may be underlying emotional or psychosocial factors such as stress, anxiety, or lack of emotional support that slightly hinder their full emotional expression and experience of joy, excitement, or affectionate bonding during pregnancy. This finding suggests the need for targeted interventions within health education programs that address emotional well-being, such as prenatal counseling, mindfulness activities, and peer support groups. Enhancing the positive emotional experiences of expectant mothers can significantly strengthen overall maternal-fetal attachment and contribute to a more fulfilling and health-promoting pregnancy journey.

Relationship between the Quality of Antenatal Care and the Level of Maternal Fetal Attachment

		Positive Emotion	Paying Attention to the Physical Progress of Fetus and Mother	Reciprocal Interaction with the Baby	Monitoring and Imaging the Unborn Baby	Desire to Protect Unborn Baby from Harm and Increase Mother's Heath Practices	Maternal Fetal Attachment
Health Education	r value	.090	.126	-.144	-.055	.107	.023
	p-value	.512	.359	.293	.689	.437	.866
Anticipatory Guidance	r value	.004	.269*	.427***	.231	.034	.268*
	p-value	.980	.047	.001	.090	.806	.048
Time Allocation	r value	.244	-.127	-.067	.089	.102	.077
	p-value	.072	.357	.629	.520	.460	.577
Approachability of Healthcare Worker	r value	.170	.020	.203	.233	.186	.229
	p-value	.215	.885	.136	.087	.175	.092
Availability of Healthcare Worker Resources	r value	.202	.375**	.218	.076	-.038	.237
	p-value	.140	.005	.109	.584	.781	.082
Support	r value	.457***	.075	-.146	.023	.009	.134
	p-value	.000	.587	.287	.867	.951	.330
Antenatal Care	r value	.254	.147	.097	.127	.086	.203
	p-value	.062	.283	.479	.357	.533	.136

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Legend: ***p ≤ 0.001 very highly significant, **p ≤ 0.01 highly significant, *p ≤ 0.05 significant, p > 0.05 not significant

The analysis of the relationship between the quality of antenatal care (QAC) and maternal-fetal attachment (MFA) revealed varying degrees of correlation across the dimensions. Among the components of QAC, **Health Education** showed weak and non-significant correlations with MFA dimensions, such as Paying Attention (r=0.126,p=0.359) and Reciprocal Interaction (r=−0.144,p=0.293). The low *r* values indicate minimal association, while *p* values above 0.05 suggest the results are not statistically significant. This implies that current antenatal education may not adequately support the emotional and psychological changes needed for maternal role attainment. As Mercer's theory emphasizes emotional bonding and self-reflection, antenatal education should be restructured to include more personalized and emotionally supportive content to better foster maternal-fetal attachment. Based on the study of Gonzales et al. (2023) that women valued the care given when it was individualized and the health workers were approachable in their ways and addressed their own particular needs. Combination of prenatal education and counselling tailored to address own particular emotional and social concerns of pregnant mothers are interventions that should be integrated in maternal care services.

Similarly, **Time Allocation** demonstrated non-significant relationships across all MFA dimensions, suggesting that time alone, without targeted interventions, might not directly influence maternal attachment. Based on the Mercer's Theory of Maternal Role Attainment, the development of the maternal role is not passive or automatic; it requires intentional emotional, cognitive, and social engagement. Therefore, time must be paired with purposeful interventions—such as reflective discussions, emotional support, and guided maternal role envisioning—to support the psychological transformation needed for maternal-fetal attachment. These findings emphasize that the quality and emotional depth of antenatal interactions, not just their duration, are critical to promoting meaningful maternal role development.

In contrast, significant positive correlations emerged in other areas. **Anticipatory Guidance** showed a moderately significant association with Paying Attention (r=0.269,p=0.047) and a very strong correlation with Reciprocal Interaction (r=0.427,p=0.001). The *r* values indicate that as the quality of anticipatory guidance improves, there is a corresponding increase in mothers' attentiveness to fetal activity and emotional engagement with their unborn child. The *p* values, both below the standard significance threshold of 0.05, suggest that these findings are statistically meaningful and not due to random variation. This highlights that when mothers receive detailed and forward-looking information, informative guidance about what to expect during pregnancy, childbirth, and early motherhood, they are more likely to actively engage with their unborn baby. This preparation improves behaviors such as monitoring fetal activity (Paying Attention) and engaging in imagined or felt dialogue with the fetus (Reciprocal Interaction)—both essential elements of maternal-fetal bonding. Therefore, the data support Mercer's theory that knowledge-based preparation is foundational to the maternal identity formation process. Moreover, a recent study by Rahmati et al. (2025) demonstrated that structured attachment training led to substantial increases in MFA scores among women with unplanned pregnancies, affirming the value of guided, anticipatory preparation.

Moreover, **Availability of Healthcare Worker Resources** was significantly associated with Paying Attention (r=0.375, p=0.005), emphasizing the important role of accessible and supportive healthcare systems in encouraging maternal mindfulness about fetal development. This suggests that when healthcare workers are readily accessible and supportive, mothers are more likely to be mindful of fetal

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development, including monitoring movements and actively engaging in prenatal bonding behaviors. Based on the study of Lima et al (2024) conducted within primary health care settings identified that perceived provider support, emotional responsiveness, and accessibility of care were significantly associated with stronger mother–fetus attachment tendencies. **Support** stood out as the most impactful factor, demonstrating a highly significant relationship with Positive Emotion ($r=0.457, p=0.000$), underlining the emotional value of encouragement and understanding provided by healthcare workers. Emphasizing the crucial emotional value of healthcare worker encouragement, empathy, and validation in fostering a positive affective connection between mother and unborn child. These findings are supported by recent study of Gonzales et al. (2023) in the Philippines emphasized that pregnant women highly valued respectful and emotionally supportive healthcare provider interactions, which significantly influenced their levels of attachment and emotional readiness for motherhood.

Finally, when analyzing the overall quality of antenatal care, no significant relationships were found with the dimensions of maternal-fetal attachment ($p>0.05$). This suggests that the aggregate score of antenatal care might mask the specific contributions of its individual components. These findings imply that averaging all elements of antenatal care into a single score may obscure the unique impact of specific components, such as emotional support or anticipatory guidance, which earlier results showed to be more directly linked to MFA outcomes. According to Mercer's Theory of Maternal Role Attainment, maternal identity develops through targeted, stage-specific experiences that meet both emotional and informational needs. Therefore, bundling all care aspects together fails to capture the nuanced processes that support the psychological transition into motherhood. This highlights the need for antenatal care evaluations to assess and strengthen individual components—particularly those aligned with Mercer's emphasis on emotional connection, social support, and self-reflective preparation—rather than relying solely on broad quality measures.

The findings highlight that specific components of quality antenatal care (QAC) significantly influence maternal-fetal attachment (MFA). **Anticipatory Guidance** was positively linked to maternal engagement, suggesting that well-informed mothers are more likely to interact with their unborn babies. Similarly, **Support** showed a strong correlation with Positive Emotion, highlighting the value of empathetic healthcare workers in fostering emotional bonding. The significant association between **Availability of Resources** and Paying Attention indicates that accessible services encourage maternal mindfulness about fetal development.

Conversely, **Health Education** and **Time Allocation** showed no significant impact on MFA, implying that information alone or time spent without meaningful engagement may not foster attachment. These results suggest that effective antenatal care must integrate educational, emotional, and practical support.

DISCUSSION

Summary of Findings, Conclusions, and Recommendations

Problem No. 1

What is the quality of antenatal care provided by health care workers to the well-being of pregnant mothers along the following aspects:

a. health education
b. anticipatory guidance
c. time allocation
d. approachability of healthcare worker

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e. availability of healthcare worker resources
f. support

- **Findings**

The findings underscore the positive experiences of pregnant women with antenatal care services. Health education received a high mean score of 3.72, indicating effective communication of essential pregnancy information. Anticipatory guidance, though slightly lower at 3.63, still reflects strong support in preparing mothers for pregnancy stages. Time allocation with a mean of 3.71 suggests that mothers felt adequately attended to during consultations. Notably, both the approachability of healthcare workers and the support provided received the highest ratings with a mean of 3.73, highlighting strong interpersonal care. The availability of healthcare resources matched the overall trend with a mean of 3.70, confirming sufficient access to essential services and personnel.

- **Conclusion**

The study concludes that pregnant women experienced a high quality of antenatal care services, particularly in areas of health education, support, and healthcare worker approachability. The consistently high mean scores across all indicators—ranging from 3.63 to 3.73—reflect effective communication, adequate time allocation, accessible resources, and strong emotional and professional support. These findings emphasize the importance of holistic, patient-centered care in enhancing the overall prenatal experience.

- **Recommendation**

1. **Sustain and Strengthen Health Education Programs**
   Maintain the quality of current health education initiatives and consider using visual aids, local dialects, and culturally sensitive materials to further enhance understanding among pregnant women.
2. **Enhance Anticipatory Guidance**
   Develop structured and individualized anticipatory guidance plans to address specific concerns of pregnant women, especially during high-risk stages, as this aspect received the lowest, though still high, rating (M = 3.63).
3. **Ensure Sufficient Consultation Time**
   Continue to allocate adequate time for each prenatal visit and adopt appointment systems or scheduling strategies to avoid long waiting times and rushed consultations.
4. **Promote Continuous Staff Training in Communication and Empathy**
   Given the highest mean score in approachability (M = 3.73), regular training should be provided to healthcare workers to maintain and further improve interpersonal skills, ensuring respectful and compassionate care.
5. **Maintain Availability of Essential Resources**
   Ensure consistent availability of medical tools, equipment, and supplies (M = 3.70) by implementing efficient inventory management systems and advocating for sustained funding and support.

Problem No. 2.
What is the level of maternal fetal attachment of the pregnant mothers during their pregnancy period in terms of:
a. positive emotion
b. paying attention to the physical progress of fetus and mother
c. reciprocal interaction with the baby
d. monitoring and imaging the unborn baby
e. desire to protect unborn baby from harm and increase mother's health practices

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- **Findings**

The overall amount of maternal-fetal connection that pregnant mothers experience during their pregnancy time is positive, as demonstrated by the total mean score of 3.74, which can be translated as Very Strong. The Positive Emotion with a mean score of 3.63, highlighting the emotional connection between mothers and their unborn children. Paying Attention to the Physical Progress of Fetus and Mother received a mean score of 3.78, indicating the mothers' active involvement in watching over the physical progress of her unborn child. Reciprocal Interaction with the Baby with a mean of 3.68, representing the interactive connection between mothers and their unborn children. Monitoring and Imaging the Unborn Baby received the mean of 3.78, indicating the mothers' active observation in their baby's development. Desire to Protect Unborn Baby from Harm and Increase Mother's Health Practices facet received the highest mean score of 3.83 out of the five analyzed elements demonstrating mother's awareness on how to protect and provide healthy practices for their unborn child well-being.

- **Conclusion**

The study confirms a very high level of maternal-fetal attachment among pregnant women, with an overall mean score of **3.74**. The strongest attachment was seen in the desire to protect the unborn baby and practice healthy behaviors (**3.83**), followed by active monitoring of fetal development (**3.78**) and reciprocal interaction (**3.68**). Positive emotion also contributed to bonding (**3.63**). These findings highlight the importance of incorporating attachment-focused education and support into prenatal care to promote maternal well-being and optimal fetal development.

- **Recommendations**

1. **Integrate Attachment-Building Activities into Routine Prenatal Visits**
Encourage healthcare providers to include brief, structured bonding activities—such as guided fetal talking, touch, or journaling during prenatal consultations to further strengthen the emotional connection between mothers and their unborn babies.
2. **Develop Culturally Sensitive Maternal-Fetal Bonding Workshops**
Implement community-based workshops that promote maternal-fetal attachment through culturally appropriate practices, enhancing mothers' awareness of the emotional and developmental benefits of early bonding.
3. **Train Health Workers on Emotional Engagement Techniques**
Provide specialized training for midwives, nurses, and prenatal educators on how to support and reinforce maternal-fetal attachment, particularly for at-risk or first-time mothers, to ensure this strong connection is nurtured across all pregnancy stages.

Problem No. 3
Is there a significant relationship between the quality of antenatal care and the level of maternal fetal attachment?

- **Findings**

Among the components of QAC, Health Education showed weak and non-significant correlations with MFA dimensions, such as Paying Attention ($r=0.126, p=0.359$) and Reciprocal Interaction ($r=-0.144, p=0.293$). Similarly, Time Allocation demonstrated non-significant relationships across all MFA dimensions, suggesting that time alone, without targeted interventions, might not directly influence maternal attachment. In contrast, significant positive correlations emerged in other areas. Anticipatory Guidance showed a moderately significant association with Paying Attention ($r=0.269, p=0.047$) and a very strong correlation with Reciprocal Interaction ($r=0.427, p=0.001$). This highlights that when mothers receive detailed and forward-looking information, they are more likely to engage with their unborn baby actively. Moreover, Availability of Healthcare Worker Resources was significantly associated with Paying Attention

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(r=0.375, p=0.005), emphasizing the important role of accessible and supportive healthcare systems in encouraging maternal mindfulness about fetal development. Support stood out as the most impactful factor, demonstrating a highly significant relationship with Positive Emotion (r=0.457,p=0.000), underlining the emotional value of encouragement and understanding provided by healthcare workers. Finally, when analyzing the overall quality of antenatal care, no significant relationships were found with the dimensions of maternal-fetal attachment (p>0.05).

- **Conclusion**

The study concludes that while overall antenatal care quality does not significantly influence maternal-fetal attachment, specific components, particularly **anticipatory guidance**, **support**, and **availability of healthcare resources** play a critical role. These elements were significantly associated with increased maternal attention, emotional bonding, and interactive behaviors with the unborn child.

In contrast, **health education** and **time allocation** showed no significant impact. These findings emphasize the need to prioritize emotionally supportive, informative, and well-resourced care to effectively strengthen maternal-fetal attachment.

- **Recommendations**

1. **Implement Real-Time Interactive Tools for Fetal Monitoring Education**
Use visual aids, fetal growth tracking apps, or interactive digital tools during prenatal visits to help mothers better visualize and understand their baby's development, enhancing reciprocal interaction and emotional investment.

2. **Conduct Periodic Maternal-Fetal Attachment Assessments During Pregnancy**
Integrate validated tools to regularly assess the level of maternal-fetal attachment during prenatal checkups, allowing healthcare providers to identify low- attachment cases early and intervene through targeted support or referral services.

Problem No. 4
What other factors may contribute to the quality of antenatal care and maternal fetal attachment?

- **Conclusion**

The thematic analysis revealed that Critical Role of Structured Community-Based of Antenatal Care, Compassionate Support from Healthcare Providers in Enhancing Antenatal Care Experiences and Strengthening Emotional Bonding through Senses and Interactive Antenatal Experiences are key factors in ensuring quality antenatal care. Pregnant women highly value structured and accessible check-ups, clear and compassionate communication from healthcare providers, and opportunities to connect emotionally with their unborn child. Additionally, providing free vitamins, laboratory tests, and educational discussions on pregnancy further enhances their overall experience. However, some participants noted concerns regarding financial assistance, waiting times, and the need for continuous support. Quality antenatal care is not solely dependent on medical check-ups but also on the holistic support provided to pregnant women. The emotional and psychological well-being of mothers is strengthened through responsive healthcare providers, regular monitoring, and meaningful interactions with their baby during check-ups. Addressing barriers such as financial constraints, long waiting times, and the availability of more comprehensive healthcare services can further improve the antenatal experience and maternal-fetal attachment.

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- **Recommendations**

1. To enhance the quality of antenatal care, healthcare systems may focus on expanding financial assistance programs, ensuring shorter waiting times through efficient scheduling, and providing continuous health education tailored to pregnant women.
2. Strengthening community-based support programs, such as home visits and peer counseling, can also offer additional guidance and reassurance.
3. Furthermore, increasing access to advanced maternal care, including routine ultrasounds and psychological support, will help foster both the physical and emotional well-being of mothers and their babies.

Problem No. 5

What health education program may be proposed based from the results of the study?

- **Conclusion**

Based on the findings of this study, a community-based health education program entitled *Ina at Sanggol: Bonding for Life is recommended*. This program aims to strengthen maternal-fetal attachment by enhancing pregnant mothers' knowledge, awareness, and emotional connection with their unborn child through culturally sensitive, accessible, and interactive sessions. Designed to be mother-friendly and sustainable, the initiative will focus on prenatal bonding practices, maternal self-care, and the importance of regular monitoring and communication with healthcare providers, ultimately fostering healthier pregnancies and stronger early parent-child relationships.