



KNOWLEDGE, ATTITUDES, AND ADHERENCE TO COMMUNITY-BASED INTERVENTIONS ON MATERNAL HEALTH IN ILOCOS SUR

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ABSTRACT

This study examines the knowledge, attitudes, and adherence to community-based maternal health interventions among pregnant women in the municipalities of Alilem, Suyo, and Sugpon, Ilocos Sur. It describes the respondents' demographic profile and assesses their knowledge of antenatal care and pregnancy danger signs, attitudes toward community-based interventions, and adherence to recommended maternal health practices. It further determines the relationships between selected demographic variables and these factors. Employing a descriptive–correlational design, data were collected from 60 pregnant women using a structured questionnaire. Statistical analyses include frequency, percentage, weighted mean, and Pearson's correlation coefficient at a 0.05 level of significance. Findings indicate generally high levels of knowledge, positive attitudes, and moderate adherence among respondents. Higher knowledge is associated with more favorable attitudes and better adherence, while selected demographic variables show significant relationships with these outcomes. The study concludes that community-based interventions play a critical role in improving maternal health outcomes. Strengthening health education, enhancing community participation, and improving access to services are recommended.

Keywords: maternal health, community-based interventions, knowledge, attitude, adherence, Ilocos Sur

INTRODUCTION

Maternal health refers to the health of women during pregnancy, childbirth, and the postpartum period, including essential services such as family planning, antenatal care, and postnatal care. Despite its importance, maternal morbidity and mortality remain global concerns. The World Health Organization (2023) emphasizes that many maternal deaths are preventable through improved access to quality healthcare, education, and regular health services.

Various maternal health programs have been implemented to improve outcomes before, during, and after pregnancy. These include antenatal care, skilled birth attendance, postnatal services, and community-based interventions. Key global initiatives such as the Maternal and Child Health Services Block Grant, the Maternal, Infant, and Early Childhood Home Visiting Program, the Alliance for Innovation on Maternal Health, and the Maternal Health Innovation Program integrate clinical care, behavioral support, and social determinants of health to improve maternal outcomes (HRSA, 2022; AIM, 2021; CDPH, 2022).

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The study is anchored on the Health Belief Model, Social Ecological Model, and Community Participation Model, which explain how individual perceptions, social environments, and community engagement influence maternal health behaviors (Rosenstock et al., 1988; Bronfenbrenner, 1979; Laverack, 2006). Using the Input–Process–Output framework, the study examines how demographic factors and community-based interventions influence maternal health knowledge, attitudes, and adherence (Creswell & Creswell, 2018).

In the Philippines, the maternal mortality ratio remains high at 108 per 100,000 live births, exceeding the Sustainable Development Goal target of less than 70 by 2030 (Philippine Statistics Authority, 2023). Studies show that limited maternal health knowledge and poor health-seeking behavior contribute significantly to adverse outcomes (Amanuel et al., 2024; Baten et al., 2025). Community-based interventions have been shown to improve maternal knowledge, attitudes, and service utilization, particularly in rural and underserved areas (Ahmed et al., 2023; Sialubanje et al., 2023). However, gaps in access and awareness remain persistent challenges (Sarikhani et al., 2024).

Given these issues, this study evaluates community-based maternal health interventions in Ilocos Sur to determine their effectiveness in improving knowledge, attitudes, and adherence among pregnant women and to provide evidence for strengthening maternal health programs in rural communities.

OBJECTIVE OF THE STUDY

This study aimed to determine the knowledge, attitude, and adherence to community-based maternal health interventions among pregnant women in the municipalities of Alilem, Suyo, and Sugpon, Ilocos Sur.

Specifically, it sought to:

1. Describe the demographic profile of the respondents.

2. Determine the level of knowledge, attitude, and adherence of pregnant women toward community-based maternal health interventions.
3. Analyze the relationship between selected demographic variables and the respondents' knowledge, attitude, and adherence.

METHODOLOGY

This study employed a quantitative descriptive–correlational research design to describe the characteristics of the respondents and examine relationships among variables. It was conducted in Ilocos Sur, Philippines, specifically in the Geographically Isolated and Disadvantaged Areas (GIDA) of Alilem, Suyo, and Sugpon.

Furthermore, a purposive sampling technique was used to select 60 pregnant women as respondents. Data were gathered using a structured questionnaire. Statistical tools included frequency and percentage, weighted mean, and Pearson's correlation coefficient to analyze relationships among variables.

RESULTS AND DISCUSSION

1. Demographic Profiles

Most respondents were aged 26–30, representing women in their prime reproductive years (Yaya & Ghose, 2019). The majority were married (71.7%), although some were single or in cohabiting relationships, reflecting varied family structures (Tiruneh et al., 2020). Most had completed secondary education (63.3%), with a notable proportion reaching tertiary level, indicating adequate literacy for understanding maternal health information (Ahmed et al., 2023).

Regarding obstetric history, many respondents were in their second pregnancy, while others were in their third, indicating a predominance of multiparity (Alipio, 2020). A similar pattern was observed in full-term deliveries, with half having one delivery, and



others either first-time mothers or with multiple deliveries (Alipio, 2020).

Employment and income data showed a mix of employed and unemployed respondents, with most earning ₱11,000–20,000 and a significant proportion below ₱10,000, indicating economic constraints that may affect access to healthcare services (Sarikhani et al., 2024).

In terms of accessibility, many respondents travelled 31–59 minutes to reach birthing facilities, while only a few lived within 15 minutes, highlighting geographic barriers to maternal health services (Sialubanje et al., 2023).

2. Level of Maternal Health Knowledge in Community-Based Intervention

Maternal health knowledge among pregnant women in Ilocos Sur was assessed in three key areas: antenatal and pregnancy care, recognition of danger signs during pregnancy, and awareness of community-based maternal health interventions. These domains reflect respondents' understanding of safe pregnancy practices, early detection of complications, and available preventive services within the community (Amanuel et al., 2024; Yaya & Ghose, 2019; Baten et al., 2025).

3. Level of Maternal Health Knowledge as to Antenatal and Pregnancy

The findings show that respondents have a generally high level of knowledge on antenatal care and pregnancy, with an overall weighted mean of 3.97, interpreted as "Knowledgeable" (Cresswell et al., 2025). The highest awareness was observed on the importance of early prenatal check-ups (4.20), indicating strong recognition of timely maternal care (Sialubanje et al., 2023). Respondents also demonstrated good knowledge of iron and folic acid supplementation and proper nutrition (3.93), reflecting awareness of preventive maternal health practices (Ahmed et al., 2023).

Lower scores were noted for the recommended number of antenatal visits (3.90)

and tetanus toxoid vaccination (3.87), suggesting gaps in specific guideline awareness (Sarikhani et al., 2024). Overall, while knowledge is generally strong, further health education is needed to ensure a complete and consistent understanding of essential antenatal care practices (Baten et al., 2025; Sialubanje et al., 2023).

Table 1
Knowledge on Antenatal and Pregnancy

Indicators	Mean	DE
1. Importance of early prenatal check-ups	4.20	K
2. Recommended number of antenatal visits during pregnancy	3.90	K
3. Importance of taking iron and folic acid supplements	3.93	K
4. Proper nutrition during pregnancy	3.93	K
5. Importance of tetanus toxoid vaccination	3.87	K
AWM	3.97	K

4. Level of Maternal Health Knowledge as to Danger Signs during Pregnancy

Table 2
Knowledge of Danger Signs during Pregnancy

Indicators	Mean	DE
1. Severe headache and blurred vision	3.88	K
2. Vaginal bleeding during pregnancy	3.82	K
3. Swelling of the face and hands	3.80	K
4. Severe abdominal pain	3.83	K
5. Reduced or absent fetal movement	3.88	K
AWM	3.84	K

The results show that respondents are generally knowledgeable about danger signs during pregnancy, with an overall weighted mean of 3.84, interpreted as "Knowledgeable." More so, it indicates adequate awareness of critical symptoms requiring immediate medical attention, although not yet at a highly advanced level (Cresswell et al., 2025).

The highest awareness was noted on severe headache and blurred vision (3.88) and



reduced or absent fetal movement (3.88), followed by severe abdominal pain (3.83) and vaginal bleeding (3.82), reflecting good recognition of common obstetric emergencies (Sialubanje et al., 2023). Swelling of the face and hands (3.80) had the lowest mean, suggesting relatively weaker awareness of preeclampsia-related symptoms (Sarikhani et al., 2024).

Overall, the findings indicate that while respondents are generally informed about danger signs, there remain gaps in recognizing less obvious but critical conditions. Strengthening targeted health education is recommended to improve early detection and timely care-seeking behavior, thereby reducing maternal and neonatal risks (Baten et al., 2025).

5. Level of Maternal Health Knowledge as to Maternal Health Intervention

The findings indicate that respondents are generally knowledgeable about maternal health interventions, with an overall weighted mean of 3.84, interpreted as "Knowledgeable." Also, it suggests a consistent awareness of available maternal health services and preventive measures, although knowledge has not yet reached a highly advanced level (Amanuel et al., 2024; Baten et al., 2025).

Higher awareness was noted on key health conditions such as severe headache and blurred vision (3.88) and reduced or absent fetal movement (3.88), followed by severe abdominal pain (3.83) and vaginal bleeding (3.82), reflecting strong recognition of critical maternal health concerns (Sialubanje et al., 2023; Ahmed et al., 2023). Swelling of the face and hands (3.80) received the lowest score, indicating comparatively weaker awareness of hypertensive disorder-related symptoms (Sarikhani et al., 2024).

Overall, the results suggest that while respondents are generally informed about maternal health interventions and warning signs, gaps remain in fully understanding less obvious but serious conditions. Strengthening focused health education and community-based information campaigns is recommended to

improve knowledge depth and encourage timely health-seeking behavior (Baten et al., 2025).

Table 3
Knowledge on Maternal Health Intervention

Community-Based Maternal Health Interventions	Mean	DE
1. Role of Barangay Health Workers (BHWs)	3.92	K
2. Importance of home visits during pregnancy	3.87	K
3. Benefits of attending community health education sessions	3.85	K
4. Availability of maternal services in the barangay	3.85	K
5. Referral system for pregnant women in emergencies	3.68	K
AWM	3.83	K

6. Attitude Towards Community-Based Intervention

Table 4

Indicators	Mean	DE
1. I believe that attending community-based maternal health programs is important for my well-being.	4.03	A
2. I feel motivated to participate in health education sessions provided by the community.	3.70	A
3. I think community health workers provide helpful guidance for pregnant women.	3.88	A
4. I feel comfortable asking questions or sharing concerns during community programs.	3.75	A
5. I trust the information and advice given in community-based interventions.	3.93	A
6. Participation in community programs positively affects my pregnancy outcomes.	3.87	A
AWM	3.86	A

Attitude on Community-Based Intervention

The results indicate that respondents generally hold a positive attitude toward community-based maternal health interventions, with an overall weighted mean of 3.86, interpreted as "Agree." This suggests that participants recognize the importance of these programs and



are receptive to participation, although attitudes have not yet reached the “Strongly Agree” level (Amanuel et al., 2024; Sialubanje et al., 2023).

The highest agreement was on the importance of attending community-based maternal health programs (4.03), followed by trust in information provided (3.93) and confidence in community health workers (3.88), reflecting strong acceptance of local health services (Yaya & Ghose, 2019; Sarikhani et al., 2024). Respondents also agreed that participation improves pregnancy outcomes (3.87) and that they feel comfortable during sessions (3.75). The lowest mean was on motivation to attend health education sessions (3.70), indicating room for improvement in sustaining engagement (Baten et al., 2025).

Overall, findings show favorable attitudes toward community-based interventions, which support effective maternal health programs. However, enhancing motivation and participation through more engaging, culturally appropriate strategies is recommended to further strengthen community involvement and improve outcomes (Ahmed et al., 2023).

7. Level of Adherence to Community-Based Intervention

The results show mixed adherence to community-based maternal health interventions. Attendance at antenatal care sessions was relatively high, with most respondents attending regularly or sometimes, indicating strong engagement with routine maternal services (Amanuel et al., 2024; Ahmed et al., 2023). However, adherence to health advice was weaker, as most respondents reported only sometimes following recommendations, suggesting limited translation of knowledge into practice (Sialubanje et al., 2023).

For supplementation, adherence was moderate, with some regularly taking iron and folic acid while others did so inconsistently or not at all (Yaya & Ghose, 2019). Nutrition and lifestyle modifications showed the lowest compliance, with a large proportion not following recommended practices, highlighting a key gap in maternal health behavior (Baten et al., 2025). In contrast,

attendance at community health promotion and vaccination activities was relatively strong, reflecting good awareness of preventive services (Sarikhani et al., 2024).

Table 5
Adherence to community-based intervention

Indicators	Yes	Sometimes	No
1. Have you attended all scheduled antenatal care sessions organized in your community?	35	24	1
2. Do you follow the advice provided during community-based maternal health sessions?	13	45	2
3. Do you take the recommended supplements (iron, folic acid, etc.) as advised in community programs?	20	34	6
4. Do you practice the recommended nutrition and lifestyle changes suggested in the community interventions?	23	0	37
5. Have you attended community-based vaccination or health promotion events during this pregnancy?	26	32	2

Overall, while participation in maternal health services is evident, consistent practice of recommended behaviors remains limited. Strengthening health education, follow-up support, and addressing barriers such as economic and cultural factors are essential to improve adherence and maternal health outcomes (Ahmed et al., 2023).

8. Correlation between Demographic Profile and Knowledge on Antenatal and Pregnancy



The Pearson correlation analysis shows that the highest educational attainment has significant positive relationships across all antenatal knowledge indicators. Education is correlated with awareness of early prenatal check-ups ($r = .355$, $p = 0.005$), recommended antenatal visits ($r = .275$, $p = 0.033$), iron and folic acid supplementation ($r = .407$, $p = 0.001$), proper nutrition ($r = .504$, $p = 0.000$), and tetanus toxoid vaccination ($r = .369$, $p = 0.004$) (Amanuel et al., 2024; Ahmed et al., 2023). This indicates that higher education strongly enhances maternal health knowledge (Sialubanje et al., 2023).

Travel time to health facilities also shows a significant relationship with knowledge of recommended antenatal visits ($r = .346$, $p = 0.007$), suggesting that access to services may influence awareness and exposure to maternal health information (Yaya & Ghose, 2019; Baten et al., 2025). In contrast, age, civil status, pregnancy history, occupation, and income were not significantly associated with knowledge indicators (Sarikhani et al., 2024).

Overall, the findings highlight education as the strongest predictor of antenatal knowledge, while healthcare accessibility also plays a contributing role. Strengthening educational interventions and improving access to maternal health services are essential to further enhance maternal knowledge and practices (Ahmed et al., 2023).

9. Correlation between Demographic Profiles and Knowledge of Danger Signs During Pregnancy

The results show several significant relationships between demographic factors and knowledge of danger signs during pregnancy. Occupation has a significant negative correlation with knowledge of severe headache and blurred vision ($r = -0.259$, $p = 0.045$), suggesting lower awareness among certain occupational groups due to limited exposure or time constraints (Amanuel et al., 2024; Ahmed et al., 2023). Civil status also shows a significant negative relationship with knowledge of severe abdominal pain ($r = -0.297$, $p = 0.021$), indicating differences

in awareness based on marital situation (Sialubanje et al., 2023).

In contrast, travel time to health facilities has a significant positive correlation with knowledge of reduced or absent fetal movement ($r = 0.335$, $p = 0.009$), suggesting that longer travel may be associated with greater exposure to health education during visits (Yaya & Ghose, 2019). Other variables such as age, income, pregnancy history, and full-term deliveries showed no significant relationships, while educational attainment showed weak but non-significant positive trends (Baten et al., 2025; Sarikhani et al., 2024).

Overall, the findings indicate that knowledge of danger signs is influenced more by contextual factors such as occupation, civil status, and healthcare access than by socioeconomic characteristics alone. This highlights the need for targeted and context-sensitive maternal health education strategies to improve early recognition of pregnancy danger signs (Amanuel et al., 2024).

10. Correlation between Demographic Profiles and Knowledge on Maternal Health Intervention

The findings show significant relationships between selected demographic factors and knowledge of maternal health interventions. Educational attainment is positively correlated with knowledge of the role of Barangay Health Workers ($r = 0.354$, $p < 0.01$), indicating that higher education improves awareness of frontline maternal health services (Amanuel et al., 2024; Ahmed et al., 2023).

Travel time also shows a significant positive correlation with knowledge of available barangay maternal health services ($r = 0.466$, $p < 0.01$), suggesting that women who travel longer distances may have greater exposure to information during facility visits (Yaya & Ghose, 2019; Sialubanje et al., 2023). Other variables such as age, civil status, pregnancy history, occupation, and income were not significantly related to knowledge levels (Baten et al., 2025; Sarikhani et al., 2024).



Overall, the results highlight education and healthcare accessibility as key determinants of maternal health knowledge. Strengthening educational initiatives and improving the visibility and accessibility of community-based maternal health services are essential to enhance awareness and utilization (Amanuel et al., 2024; Ahmed et al., 2023).

11. Correlation between Demographic Profile and Attitude on Community Health-based Intervention

The results show that none of the demographic profiles—age, civil status, educational attainment, pregnancy history, occupation, income, or travel time—have statistically significant relationships with attitudes toward community-based maternal health interventions (Amanuel et al., 2024; Ahmed et al., 2023; Sialubanje et al., 2023). This indicates that these factors do not influence respondents' attitudes in the study.

Overall, attitudes toward community-based interventions are consistent across all demographic groups, suggesting a generally shared positive perception regardless of socioeconomic or personal characteristics (Yaya & Ghose, 2019; Baten et al., 2025). Respondents uniformly recognize the importance and benefits of these programs.

This uniformity implies strong and widespread acceptance of community-based maternal health interventions. It also suggests that future maternal health programs can build on this already favorable attitude without the need for major demographic-specific adjustments in messaging or approach (Sarikhani et al., 2024; Ahmed et al., 2023).

12. Correlation between Demographic Profile and Adherence to Community Health-based Intervention

The results reveal several significant relationships between demographic factors and adherence to community-based maternal health interventions. Age shows a significant negative correlation with attendance at antenatal care sessions ($r = -0.344$, $p = 0.007$), indicating that younger women are more consistent in attending compared to older respondents (Amanuel et al., 2024; Sialubanje et al., 2023).

Educational attainment is significantly associated with attendance at community-based health promotion or vaccination events ($r = -0.321$, $p = 0.012$), suggesting that women with lower education may rely more on these services for health information (Ahmed et al., 2023; Yaya & Ghose, 2019). Occupation shows a significant positive correlation with adherence to nutrition and lifestyle changes ($r = 0.279$, $p = 0.031$), indicating that employed women are more likely to practice recommended health behaviors (Baten et al., 2025).

Other factors such as civil status, pregnancy history, income, and travel time showed no significant relationships with adherence indicators (Sarikhani et al., 2024). Overall, adherence is influenced by specific demographic factors, particularly age, education, and occupation, rather than being uniform across all groups.

13. Output of the Study: Action Plan

The Proposed Action Plan to Improve Maternal Health Knowledge, Attitudes, and Adherence among pregnant women. The plan outlines specific objectives, corresponding strategies and activities, persons involved, time frames, and expected outcomes. It focuses on strengthening community-based interventions such as health education (Amanuel et al., 2024; Sialubanje et al., 2023), promoting positive attitudes toward maternal health services (Ahmed et al., 2023; Yaya & Ghose, 2019), improving compliance with antenatal care and recommended practices (Baten et al., 2025; Sarikhani et al., 2024), enhancing access to services in GIDA areas (Khan et al., 2022; Oladapo et al., 2021), encouraging family and community participation



(Amanuel et al., 2024), and strengthening monitoring and evaluation mechanisms (WHO, 2023). This Action Plan serves as a practical guide for health workers, local officials, and stakeholders in implementing evidence-based interventions aimed at improving maternal health outcomes in the community.

CONCLUSION

Based on the findings, the study concludes that respondents are mostly married women in their prime reproductive years, with secondary education, multiparous histories, and low- to middle-income backgrounds. Despite a generally adequate maternal health background, access to birthing facilities remains limited due to travel time and geographic barriers, affecting timely utilization of services (Amanuel et al., 2024; Baten et al., 2025; Khan et al., 2022; Oladapo et al., 2021).

Respondents demonstrate high levels of maternal health knowledge and a generally positive attitude toward community-based interventions, with moderate to high participation in related programs (Ahmed et al., 2023; Sialubanje et al., 2023; Yaya & Ghose, 2019). Educational attainment and travel time are key factors influencing knowledge, highlighting the importance of both access and education in maternal health outcomes.

Attitudes toward community-based interventions are consistently positive and not influenced by demographic variables, indicating broad acceptance within the community (WHO, 2023). However, adherence is influenced mainly by age, education, and employment status, while other demographic factors show minimal impact (Sarikhani et al., 2024).

Overall, the findings emphasize the need to strengthen educational initiatives, improve geographic access to services, and provide targeted support strategies to enhance adherence and improve maternal health outcomes at the community level.

RECOMMENDATION

Based on the findings of the study, the following recommendations are proposed:

1. Local health authorities should strengthen community-based maternal health education programs to further improve knowledge on pregnancy care and danger signs.
2. Rural health units should expand outreach services to ensure that pregnant women in geographically isolated areas have better access to maternal health care.
3. Continuous training should be provided for community health workers to enhance their capacity in delivering maternal health education and support.
4. Future researchers are encouraged to conduct similar studies in other geographically isolated communities to further assess the effectiveness of community-based maternal health interventions.

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AUTHOR'S PROFILE

Librada D. Amboni, Registered Nurse, is a graduate student at Virgen Milagrosa University Foundation in San Carlos City, Pangasinan, Philippines, where she is pursuing a Master of Public Health degree. Her research interests include maternal and child health, community-based health interventions, public health promotion, and rural health development. She conducted a study on maternal health knowledge, attitudes, and adherence among pregnant women in geographically isolated and disadvantaged areas in Ilocos Sur, with the goal of improving maternal health services, strengthening community-based programs, and promoting safer pregnancy and childbirth outcomes.

Ma. Christina B. Ortega is affiliated with the College of Midwifery, Health Care Services and Caregiving. She has contributed to the advancement of maternal and community health through her involvement in academic instruction, research, and community engagement. Her expertise supports initiatives aimed at improving maternal health outcomes and strengthening community-based healthcare services.

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