

# Micronutrient Supplementation Awareness and Practices Among Adolescent Pregnant Women in Barangay Consuelo, Magsaysay, Misamis Oriental

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**Abstract:** Micronutrient supplementation plays a vital role in promoting both maternal and fetal health, particularly among adolescent pregnant women who are considered nutritionally vulnerable. This study examined the awareness and practices of adolescent pregnant women regarding micronutrient supplementation in Barangay Consuelo, Magsaysay, Misamis Oriental. It specifically explored their sociodemographic profiles, levels of awareness, and practices, as well as the relationships among these variables. A descriptive research design was employed, utilizing total population sampling to include all adolescent pregnant women who met the inclusion criteria. Data were gathered through a researcher developed questionnaire. Statistical analyses included frequency, percentage, mean, standard deviation, Spearman's rank correlation, and the Chi-square test. The findings revealed that the majority of respondents were in their late teenage years, had attained secondary-level education, and primarily relied on health workers as their main source of information. In contrast, a smaller proportion were in early adolescence, had only elementary education, and depended on family members or peers for knowledge. Overall, respondents demonstrated an adequate level of awareness regarding micronutrient supplementation, particularly in recognizing its importance for maintaining a healthy pregnancy. However, the understanding of its direct impact on pregnancy outcomes was relatively limited, emerging as the lowest-rated aspect of awareness. In terms of practices, most respondents reported regularly taking their prescribed supplements, indicating generally positive adherence. Nonetheless, consistency in daily intake remained a challenge for some participants, making it the lowest-rated practice indicator. Statistical analysis showed no significant relationship between socio-demographic characteristics and either awareness or practices, leading to the acceptance of the null hypothesis. The study concludes that professional health counseling plays a crucial role in fostering consistent awareness and appropriate supplementation practices among adolescent pregnant women. To further enhance compliance, it is recommended that healthcare providers implement more engaging health education sessions, utilize reminder-based tools, and promote family-centered interventions to strengthen support systems and improve adherence to micronutrient supplementation.

**Keywords:** Micronutrient Supplementation, Awareness, Practices, Adolescent Pregnant Women, Maternal Health

## I. INTRODUCTION

Micronutrient supplementation plays a vital role in ensuring optimal maternal and fetal health, particularly among adolescent pregnant women, a demographic considered nutritionally vulnerable. Adolescence is marked by rapid physical, emotional, and cognitive development, and when pregnancy occurs during this demanding growth phase, the body's nutritional requirements intensify, often surpassing what can be met through diet alone. A lack of sufficient folic acid, iron, calcium, and iodine greatly increases adolescent mothers' risks for complications such as anemia, hypertensive disorders, and obstructed labor, with evidence showing that adolescent pregnancy is associated with poorer maternal and infant outcomes globally. Maternal undernutrition remains a public health issue both globally and, in the Philippines, especially among adolescents. In low- and middle-income settings, multiple-micronutrient (MMN) deficiencies often coexist and are exacerbated in pregnancy, leading to adverse short- and long-term outcomes for both mother and child.

The 2018 Expanded National Nutrition Survey (ENNS) found that adolescent pregnancies, combined with inadequate prenatal care and limited nutritional counseling, continue to pose significant health and social problems in the country.

The Department of Health (DOH) addresses these challenges through initiatives such as the Micronutrient Supplementation Program and the Teenage Pregnancy Prevention Program, which align with global recommendations to provide daily iron-folic acid and, where needed, calcium supplementation to prevent maternal anemia and related complications. International evidence indicates that multiple-micronutrient supplementation can improve birth outcomes among pregnant adolescents in low- and middle-income countries, including reductions in low birth weight and preterm birth, suggesting that policies should prioritize MMN supplementation over single-agent iron-folic acid regimens for adolescent mothers.

In rural communities such as Consuelo, Magsaysay, Misamis Oriental, gaps in access to healthcare, micronutrient supplementation services, and reproductive health education remain pronounced. Adolescent mothers in these areas are often trapped in poverty and have low educational attainment, compounded by cultural beliefs and limited awareness of the importance of micronutrient supplementation. This context underscores the need to design culturally sensitive, accessible, and adolescent-friendly interventions that respect local sociocultural norms while ensuring the timely delivery of micronutrient support.

Understanding the level of awareness, attitudes, and actual practices of adolescent pregnant women toward micronutrient supplementation is therefore essential. This study is significant because it aims to generate localized data that can inform and strengthen maternal and child health initiatives within Consuelo and similar rural communities. The insights gained can guide healthcare providers, policymakers, and local government units in tailoring interventions that address knowledge gaps and behavioral barriers, ultimately improving the health outcomes of both adolescent mothers and their infants.

## II. METHODOLOGY

This chapter presents the discussion on the research methodology of the study, including the research design, sampling technique, research instruments, data-gathering procedure, and statistical treatment used for accurate data analysis and interpretation. The section outlines how the study was planned, organized, and implemented to systematically investigate the level of awareness and practices related to micronutrient supplementation among adolescent pregnant women in Barangay Consuelo, Magsaysay, Misamis Oriental.

### Research design

This study employed a descriptive research design, which involves the systematic collection, presentation, analysis, and interpretation of data to describe existing conditions without manipulating variables. The design was used to determine the level of awareness and practices related to micronutrient supplementation among adolescent pregnant women in Barangay Consuelo, Magsaysay, Misamis Oriental, focusing on their knowledge, attitudes, and behaviors regarding micronutrient intake during pregnancy. This approach enabled the researchers to identify patterns, trends, and gaps in awareness and health-related practices, providing evidence that can inform the design and improvement of local maternal and child health programs and interventions.

### Research locale

The study was conducted in Barangay Consuelo, Magsaysay, Misamis Oriental, a coastal barangay in the municipality of Magsaysay. The barangay is composed of seven puroks and is primarily residential, with basic public services and infrastructure such as schools, health facilities, and the barangay hall available to the community. The area also has relatively easy access to communication and transportation amenities, which facilitate movement within the barangay and connection with nearby towns and health centers. This combination of residential character and existing health infrastructure makes Barangay Consuelo a suitable setting for examining maternal health practices and micronutrient-related behaviors among adolescent pregnant women.

### Research respondents

The respondents of the study were the thirty-four (34) adolescent pregnant women ( $n = 34$ ) from Barangay Consuelo, Magsaysay, Misamis Oriental, who were currently registered in the Prenatal Target Client List of the barangay at the time of data collection. By using the entire population of adolescent pregnant women on the list, the researchers adopted a total population sampling approach, ensuring that all eligible participants within the defined study period were included. This

strategy maximized coverage of the target group and increased the context-specific representativeness of the findings, even if generalizability beyond the barangay is limited by the relatively small and localized sample size.

### **Sampling procedure**

The study used a total population sampling technique, a subtype of purposive sampling in which all individuals who meet the specified inclusion criteria within a clearly defined and typically small population are included in the sample. The target population consisted of adolescent pregnant women who were officially registered or receiving prenatal care services from the local health center or rural health unit covering Barangay Consuelo during the period of data collection. Given the small and highly specific study population, total population sampling was considered both feasible and methodologically appropriate, as it allowed for a more comprehensive and in-depth analysis of the target group. This technique ensured that no eligible pregnant adolescent woman within the barangay's prenatal records was excluded, thereby enhancing the internal validity and local relevance of the findings.

### **Data-gathering procedure**

The data-gathering process began with the researchers securing the necessary institutional approvals. A formal request was submitted to the Dean of the College of Midwifery, Ms. Ma. Cleofe O. De los Santos, as well as to the Executive Officer-in-Charge/College President of Tagoloan Community College, Atty. Nadya B. Emano Elipe and the Vice President for Academic Affairs, to obtain permission to conduct the study and access relevant materials. After securing institutional approval, the researchers coordinated with barangay officials and local health authorities, including the Rural Health Midwife (RHM) assigned to Barangay Consuelo, Ms. Muriel R. Gerona, RHM II, the Municipal Health Officer (MHO), Ms. Terecia

Mie T. Babaylan, RHM, and the Public Health Nurse II-Officer-in-Charge (PHN II-OIC) at the Rural Health Unit (RHU). A formal request was submitted to access the Prenatal Target Client List to identify eligible pregnant adolescent women. The purpose of the study, potential risks, benefits, and confidentiality measures were clearly explained to all participants prior to data collection, and informed consent was obtained from each respondent before participation. Data were collected using a structured questionnaire administered through face-to-face interviews, with assistance from barangay health workers. Informal discussions and direct observation were likewise conducted to enrich the contextual understanding of respondents' experiences and practices. After data collection, all completed questionnaires were reviewed for completeness and consistency, and any unclear or inconsistent responses were clarified on the spot. The compiled data were then encoded and prepared for analysis using descriptive statistical methods to ensure accurate, meaningful, and reliable results.

### **Research instrument**

The primary research instrument was a self-made questionnaire designed to gather information on the respondents' socio-demographic profile and their level of awareness and practices regarding micronutrient supplementation. The questionnaire was systematically divided into two main sections: the first section captured socio-demographic data such as age, number of pregnancies, educational attainment, and socioeconomic indicators, while the second section focused on awareness (e.g., knowledge of key micronutrients and their benefits) and practices (e.g., intake patterns, sources of supplementation, and adherence to health providers' recommendations). To enhance reliability and validity, the questionnaire underwent pre-testing and expert validation prior to administration, ensuring that items were clear, relevant, and aligned with the study objectives.

### **Reliability and validity**

To ensure the accuracy and trustworthiness of the findings, the study implemented several measures for reliability and validity. Reliability was assessed through pilot testing and computation of internal consistency using Cronbach's alpha; the instrument achieved an overall Cronbach's alpha value of 0.860, indicating strong internal consistency and good reliability of the questionnaire items in measuring the same underlying construct. The instrument was also tested on a separate pilot sample of ten (10) participants who were not included in the main study, which further supported its stability and consistency.

Validity was established through content validation by public health, midwifery, and research-methodology experts, who reviewed the instrument for conceptual soundness and item relevance. Face validity was ensured through pre-testing with a small group of respondents to refine wording and improve clarity, while construct validity was checked by examining whether the items collectively reflected the intended constructs of awareness and practices. Criterion validity was assessed by comparing answers with external indicators or established standards where applicable. Collectively, these steps strengthened the credibility of the instrument and the quality of the data obtained.

**Scoring procedure**

The level of awareness and practices of adolescent pregnant women regarding micronutrient supplementation was assessed using two distinct questionnaires: an awareness questionnaire and a practices questionnaire. Both instruments employed a 4-point Likert scale (e.g., from “Strongly Agree/Always” to “Strongly Disagree/Never” or analogous categories) to allow for quantitative measurement of respondents’ responses. Scores from each section were computed and interpreted to categorize respondents’ levels of awareness and practices (for example, as low, moderate, or high), enabling a systematic and comparable assessment of how adolescent pregnant women in Barangay Consuelo perceive and act on micronutrient supplementation during pregnancy. This scoring approach facilitated the use of descriptive statistics to summarize and interpret the data, supporting the study’s aim of generating localized evidence for improving maternal and child health services.

Table 1 presents the scoring procedure.

Scale	Range	Description
4	3.26-4.00	Fully Aware
3	2.51-3.25	Aware
2	1.76-2.50	Partially Aware
1	1.0-1.75	Not Aware

**III. RESULTS AND DISCUSSIONS**

Table 3 shows the age distribution of the respondents. The majority of the respondents, 17 (50.00%), fall within the 18–19 years age group, indicating that most adolescent pregnancies in Barangay Consuelo occur during the later teenage years. At this developmental stage, young women are typically in senior high school or transitioning into early adulthood, experiencing expanded social circles, greater autonomy, and increased exposure to romantic relationships and decision-making. This pattern suggests that 18–19-year-olds are particularly vulnerable to unplanned pregnancies, underscoring the need for targeted health programs and awareness campaigns focused on this age group.

Programs should emphasize continuous education on proper nutrition, reproductive health, and the importance of micronutrient supplementation during pregnancy, particularly for iron, calcium, and folate. Supportive guidance from parents, schools, and health workers can further strengthen health-seeking behaviors and adherence to prenatal care, ultimately improving outcomes for both mothers and their infants. As noted by Natividad et al. (2020), pregnant Filipino adolescents aged 14–19 often experience high rates of malnutrition and inadequate micronutrient intake, which can compromise maternal health and fetal development. These findings highlight that older adolescents who become pregnant, like many respondents in Barangay Consuelo, remain at risk for nutrition-related complications despite their more advanced age. On the other hand, the lowest number of respondents is from the 13–14 years age range, with only 1 (2.94%) participant. This indicates that very few girls in Barangay Consuelo experience pregnancy at this early adolescent stage. The low prevalence may be attributed to stronger parental supervision, limited exposure to adult responsibilities, and a primary focus on schooling and family-centered activities among younger teens. These factors appear to act as protective mechanisms that help delay early pregnancy in the community. The findings suggest that current prevention efforts for very early adolescent pregnancy are already yielding some positive effects, but there is still room for improvement. Sustained health education in schools, combined with consistent support from families and health professionals, can further reinforce protective behaviors and promote healthier psychosocial and nutritional development. Recent studies emphasize that pregnancy during early adolescence carries higher health risks due to ongoing physical growth and increased nutrient demands during this critical period (Bhutta et al., 2020). Although early pregnancies are less common in Barangay Consuelo, they remain high-risk events that warrant vigilant monitoring and tailored interventions to ensure the safety and well-being of both young mothers and their children.

Table of respondents: According to Age

<i>Age Range</i>	<b>Frequency</b>	<b>Percent</b>
<i>13-14 years old</i>	1	2.94
<i>15-17 years old</i>	16	47.06
<i>18-19 years old</i>	17	50.00
<b>Total</b>	34	100%

Table 4 shows the educational level distribution of the respondents. The majority of the respondents, 23 (67.65%) were at the high school level. Most adolescent pregnant women reached high school because schooling up to this level is more accessible in the community. Families also often encourage children to finish at least high school before focusing on other responsibilities. This shows that many of the respondents already gained basic knowledge and skills during their teenage years. These results indicate that most of the respondents already have a foundation in education that can support them in understanding health information. Continuous health awareness programs in schools and communities could further improve their knowledge about micronutrient supplementation. Additionally, linking health programs with secondary schools would reinforce good practices among adolescents.

This finding is supported by Nativid et al. (2020), who reported that while many adolescent pregnant women reach at least high school level, they still face major nutritional gaps, particularly in folate, calcium, and iron intake, showing that basic education alone does not fully address their health needs.

On the other hand, the lowest number of respondents comes from the elementary level, with only 4 (11.76%) respondents. A few adolescent pregnant women were only at the elementary level because some stopped schooling early due to financial problems or family responsibilities. Others also lacked access to higher education opportunities. This situation shows that these respondents have fewer chances to learn advanced lessons and health-related information. The findings imply that these respondents may have gaps in understanding important health practices, including micronutrient supplementation. Community-based education and targeted health sessions can help fill these gaps. Continuous information drives and simplified learning materials would reinforce better awareness and practices, especially for those who were not able to continue beyond elementary education.

The few respondents at the elementary level (4; 11.76%) may have discontinued schooling due to financial constraints or family responsibilities. Lower educational attainment is associated with less awareness and adherence to micronutrient supplementation (Nguyen, 2023), highlighting the need for targeted community-based education.

Distribution of Respondents in Terms of Educational Level Profile

<i>Educational Level</i>	<b>Frequency</b>	<b>Percent</b>
<i>No formal education</i>	-	-
<i>Elementary level</i>	4	11.76
<i>High School Level</i>	23	67.65
<i>College Level</i>	7	20.59
<b>Total</b>	34	100%

Table 5 shows the distribution of information sources reported by the respondents. The majority of the respondents, 28 (82.35%), identified health providers—such as doctors, nurses, and midwives—as their primary source of information. This indicates that adolescent pregnant women in Barangay Consuelo place high trust in medical professionals and rely

on them as the main source of guidance regarding micronutrient supplementation and pregnancy care. Health providers are often directly accessible during prenatal checkups and medical visits, where they deliver clear, context-specific advice that is easier for adolescents to understand and follow. Because health workers are professionally trained and have more up-to-date knowledge about nutrition and supplementation than other sources, they are seen as the most credible and effective channel for health education. These findings imply that health workers should be considered the central communication channel for promoting micronutrient supplementation among adolescent pregnant women. Regular training and capacity-building activities for doctors, nurses, and midwives can further enhance their ability to deliver accurate, age-appropriate, and culturally sensitive information. The provision of simple printed materials, visual aids, or structured counseling sessions during routine checkups could help reinforce learning, improve recall, and translate knowledge into better health practices. This pattern is supported by a study from the Food and Nutrition Research Institute (FNRI, 2024), which showed that Filipino women of reproductive age, including adolescents, often have low intakes of key micronutrients such as iron and calcium due to poor dietary habits. The study emphasized that health workers play a crucial role in bridging this nutritional gap by promoting the use of micronutrient supplements and providing clear, practical guidance tailored to the needs of pregnant adolescents.

The lowest number of respondents reported family/friends and school or educational programs as their sources of information, with only 3 (8.82%) respondents each. This suggests that, in this community, informal social networks and formal school-based education are not the dominant channels through which adolescent pregnant women receive health information. Families may lack updated or accurate medical knowledge, and schools often provide limited or generalized instruction on pregnancy-related nutrition and micronutrient needs. As a result, young women tend to rely more on licensed health professionals, who are perceived as the primary authority on such matters. These results highlight the underutilization of family based and school-based information channels. Strengthening health education programs in schools— particularly those that address reproductive health, nutrition, and micronutrient supplementation before pregnancy— can help young women acquire foundational knowledge earlier in life. At the same time, encouraging families to support pregnant adolescents through community-based awareness sessions, parent-adolescent education, or barangay health seminars can help reinforce positive health practices and create a more supportive home environment. As Nguyen (2023) noted, family, friends, and schools remain underused but potentially powerful sources of health information, and their greater integration into adolescent health promotion strategies could significantly improve knowledge retention and health-seeking behavior among pregnant teens.

Distribution of Respondents in Terms of Source of Information Profile

<i>Source of Information</i>	<i>Frequency (f)</i>	<i>Percent (%)</i>	
<i>Health Provider (doctor, nurse, Midwife)</i>	28	82.35	
<i>Family/friends</i>	3	8.82	
<i>School or Educational Programs</i>	3	8.82	
<i>Scual media</i>	-	-	
<i>Total</i>	34	100%	

Table 6 presents the level of awareness of adolescent pregnant women regarding micronutrient supplementation, with an overall mean of 3.24 (SD = 0.80), interpreted as "Aware." This indicates that most respondents have a basic understanding of micronutrient supplementation and recognize its relevance to pregnancy, but their knowledge is not yet comprehensive or deeply nuanced. The level of awareness likely stems from information received through health providers, family, and community-based programs; however, explanations may sometimes be brief, fragmented, or not consistently reinforced, resulting in superficial rather than a thorough understanding. While the adolescent mothers are generally aware of the purpose of supplements, notable gaps remain in terms of detailed mechanisms, recommended dosages, and the specific

benefits of different micronutrients. These findings suggest that the current level of awareness is a solid foundation, but it requires reinforcement and deepening through more structured and continuous health education. Regular health-teaching sessions, behavior-change communication, and follow-up counseling during prenatal visits can help transform general awareness into more accurate and actionable knowledge. Community-based information drives, such as barangay health talks or peer-led discussions, can further reinforce correct practices and encourage consistent use of micronutrient supplements in daily life. This pattern is consistent with Natividad et al. (2020), who found that pregnant Filipino adolescents often exhibit inadequate intakes of folate, calcium, and iron, despite some level of awareness about the importance of these nutrients. Their study highlights that basic awareness does not automatically translate into full nutritional knowledge or optimal dietary and supplement practices, underscoring the need for more targeted and sustained education.

The highest-rated indicator was *“I am aware that micronutrients are important for a healthy pregnancy,”* which obtained a mean of 3.44 (SD = 0.61), categorized as *“Fully Aware.”* This indicates that adolescent pregnant women clearly recognize that micronutrients play a crucial role in maintaining both their own health and the healthy development of their babies. This relatively strong awareness may be attributed to the consistent emphasis placed on the importance of vitamins and minerals during prenatal consultations, where health providers usually explain that micronutrients support fetal growth, prevent deficiencies, and reduce pregnancy risks. Because this message is simple, concrete, and frequently repeated, it tends to be easily understood and retained.

The findings imply that respondents already possess a strong foundational attitude about the necessity of micronutrient supplementation. Additional health education can deepen this understanding by connecting specific micronutrients – such as folic acid, iron, calcium, and iodine – to concrete outcomes like neural tube defect prevention, reduced anemia, and stronger bone development. Sharing success stories, birth outcome narratives, and simple, step-by-step instructions on when and how to take supplements can further strengthen positive attitudes and encourage consistent, long-term practice.

In contrast, the lowest-rated indicator was *“I understand that micronutrient supplementation can improve pregnancy outcomes,”* with a mean of 3.06 (SD = 0.74), described as *“Aware.”* This suggests that while adolescent pregnant women know supplements are important, they are less certain about how supplementation directly affects pregnancy complications, birth outcomes, and long-term health. This gap may arise because health discussions often focus on general recommendations rather than detailed explanations of cause-and-effect relationships, such as how iron prevents anemia-related fatigue, how folate reduces the risk of birth defects, or how calcium supports fetal skeletal development.

The results highlight the need for more focused, outcome-oriented teaching that explicitly links micronutrient intake to specific health benefits. Health providers can use simple visual aids, pictorial charts, and real-life examples to illustrate how regular supplementation lowers the risk of complications, supports fetal growth, and improves maternal recovery. Regular counseling, written reminders, and follow-up discussions can then reinforce these concepts, helping adolescent mothers internalize the idea that micronutrient supplementation is not just a routine recommendation but a key factor in improving both maternal and infant health outcomes. Overall, an awareness score of 3.24 (SD = 0.80) confirms that adolescent pregnant women in Barangay Consuelo are generally aware of micronutrient supplementation but would benefit from more detailed, practical, and outcome-focused education to close existing knowledge gaps.

Level of Awareness of Adolescent Pregnant Women Regarding Micronutrient Supplementation

Indicators	Mean	SD	Interpretation
I am aware that micronutrients are important for a healthy pregnancy.	3.44	0.61	Fully Aware
I am aware of the importance of iron, folic acid, and calcium during pregnancy	3.24	0.82	Aware
I understand that micronutrient supplementation can improve pregnancy outcomes	3.06	0.74	Aware

My healthcare provider advised me to take micronutrient supplement during my pregnancy	3,26	0.75	Fully Aware
I believe taking prescribed micronutrient supplements will help improve my pregnancy.	3.26	0.83	Fully Aware
Following a prescribed micronutrient supplementation regimen is very important to me	3.29	0.63	Fully Aware
I am currently taking micronutrient supplements during my pregnancy.	3.29	0.76	Fully Aware
I understand that a healthy diet alone might not provide enough micronutrients during pregnancy.	3,12	1.01	Aware
I am aware that micronutrient deficiencies can lead to complications during pregnancy and childbirth	3.21	0.98	Aware
I believe that taking supplement will reduce the risk of birth defects.	3,21	0.88	Aware
Overall	3.24	0.80	Aware

Table 7 shows the level of practices of adolescent pregnant women regarding micronutrient supplementation, with an overall mean of 3.29 (SD = 0.89), described as **Always**. This means that most adolescent pregnant women regularly practice healthy habits related to micronutrient supplementation. The main reason is that they understand the importance of following advice from healthcare providers. Another cause is the support they get from health workers and family, which helps them develop consistent practices. This situation happens because health workers guide them on proper intake, and they want to secure their health and their baby's growth. These results indicate that the respondents already show good practices in taking micronutrient supplements. Continuous monitoring and health education could further strengthen their habits. Additionally, ensuring easy access to supplements and regular checkups would reinforce their commitment to safe and healthy practices during pregnancy.

This is consistent with the findings of Nativid et al. (2020), which showed that Filipino adolescent mothers often face malnutrition risks, making healthcare guidance and supplementation programs crucial. Their study stressed that support from families and health professionals is key to improving nutrition and reducing pregnancy-related risks.

The highest-rated indicator was I take my prenatal vitamins as prescribed by my healthcare provider with a mean of 3.53 (SD = 0.79), described as **Always**. This means that pregnant adolescent women strictly follow the advice of their healthcare providers. The main reason is that they trust medical guidance to protect their baby's development. Another cause is that prenatal vitamins are often given during health visits, making it easier for them to comply. This happens because they see prenatal vitamins as important and safe when taken as prescribed. The evidence from this research shows that the respondents are consistent in following professional advice about prenatal vitamins. Continuous guidance from health workers could further improve their understanding of the benefits. Additionally, reinforcing reminders during health sessions would help them maintain regular and correct intake of vitamins.

The lowest-rated indicator was I take my micronutrient supplements at the same time each day with a mean of 3.03 (SD = 0.97), described as **Often**. This means that pregnant adolescent women do not always take their supplements at the same time daily. The main reason is their busy or changing daily schedules. Another cause is that they may forget, especially if they do not have a fixed routine. This situation happens because many young mothers face personal responsibilities that make it hard to follow a strict time schedule. The findings imply that while the respondents are consistent in taking supplements, they need help in developing a fixed routine. Continuous practice of time management could improve this habit. Additionally, setting reminders or linking supplement intake with regular activities such as meals would reinforce their consistency in timing. Felipe-Dimog et al. (2021) found that low compliance with iron and folic acid supplementation

was common among pregnant women in the Philippines, often due to forgetfulness, side effects, and irregular schedules. This supports the result that many adolescent mothers struggle with consistency in taking supplements at the same time every day. The overall mean of 3.29 (SD = 0.89) indicates that respondents always practice recommended micronutrient supplementation habits. Compliance is facilitated by guidance from healthcare providers and family support (Felipe-Dimog et al., 2021; Natividad et al., 2020).

Level of Practices of Adolescent Pregnant Women Regarding Micronutrient Supplementation

<i>Indicators</i>	<b>Mean</b>	<b>SD</b>	<b>Description</b>
<i>I take my prenatal vitamins as prescribed by my healthcare provider.</i>	3.53	0.79	Always
<i>I follow the recommended dosage of my micronutrient supplements.</i>	3.41	0.78	Always
<i>I take my micronutrient supplements at the same time each day</i>	3.03	0.97	Often
<i>I take my micronutrient supplement with food.</i>	3.35	0.88	Always
<i>I avoid taking my micronutrient supplements with substances that might interfere with absorption (e.g., coffee, tea).</i>	3.09	1.06	Often
<i>I inform my healthcare provider about the side effects from my supplement</i>	3.32	0.88	Always
<i>I ask my healthcare provider questions about micronutrient supplementation.</i>	3.29	0.84	Always
<i>I make sure I have an adequate supply of y micronutrients supplements</i>	3.29	0.91	Always
<i>I prioritize consuming a balanced diet rich in micronutrients</i>	3.09	1.08	Often
<i>I consult my healthcare provider before taking any additional supplement during pregnancy.</i>	3.47	0.75	Always
<i>Overall</i>	3.29	0.89	Always

Table 8 presents the correlation between the demographic profile of adolescent pregnant women and their awareness and practices regarding micronutrient supplementation. The results showed that all p-values were greater than 0.05, which means that no significant relationship was found. Thus, the null hypothesis (Ho) is accepted. This means that the differences in age, education, or source of information do not affect the awareness and practices of the respondents. This happens because most of them receive the same kind of health teachings and advice from barangay health workers during check-ups. They also share common experiences as adolescent mothers, so their practices remain almost the same regardless of their personal background. These results indicate that programs about micronutrient supplementation are reaching the respondents in a uniform way, regardless of their profile. Continuous health education could further improve their practices. Additionally, closer monitoring and reinforcement from health workers would help sustain these positive behaviors. A study by Nativid et al. (2020) also found that many Filipino pregnant adolescents had poor micronutrient intake, particularly folate, calcium, and iron, showing that, regardless of background, deficiencies remain a widespread concern.

In terms of specific demographic variables, Age showed no significant relationship with the overall results of micronutrient supplementation. This means that the young mothers, whether younger or a little older, follow the same reminders about taking micronutrients. This happens because health workers provide the same guidance to all pregnant women in the barangay, regardless of age. The findings imply that age differences do not create barriers in learning and applying proper supplementation practices. Continuous age-inclusive training could further enhance their awareness. Additionally, group activities for all age groups would reinforce stronger health practices.

Educational Level likewise had no significant correlation with the overall results of micronutrient supplementation. This means that whether the mothers studied only in lower grade levels or reached higher levels, they still practice similar habits. This is because information about micronutrients is explained in simple ways by health workers, making it easy to understand for all. These outcomes suggest that health messages are being delivered clearly to women with different schooling backgrounds. Continuous education using simple words and visual aids could further strengthen their understanding. Additionally, practical demonstrations during health visits would reinforce proper supplementation. Consistent with this, Semahegn et al. (2020) showed that maternal health literacy influences supplementation, but even loweducated mothers can comply when health instructions are simplified, and community-based education is provided.

Finally, the *Source of Information* also showed no significant relationship with the overall results of micronutrient supplementation. This means that even if mothers hear advice from health workers, family, or friends, the messages they receive are almost the same. This happens because most information comes from the barangay health center and is repeated consistently by different people. The results highlight that the source of information does not change the way respondents act on micronutrient supplementation. Continuous reinforcement of the same health messages from trusted sources could further improve consistency. Additionally, expanding the reach of these messages through schools, community programs, and family support would reinforce good practices. All p-values > 0.05, indicating no significant relationship between socio-demographic profile and awareness or practices regarding micronutrient supplementation. Health teachings from barangay health workers are uniformly delivered, minimizing differences due to age, education, or information sources (Natividad et al., 2020; Nguyen, 2023; Semahegn et al., 2020).

Respondents profile	Correlation	Awareness Regarding Program	Utilization of Family Planning Program	Overall	
<b>Age</b>	Spearman rho (p)	-0.103	0.028	-0.037	
<b>Age</b>	p-value	0.562 <i>ns</i>	0.874 <i>ns</i>	0.718 <i>ns</i>	
<b>Educational Level</b>	Chi Square (x <sup>2</sup> )	4.652 <i>ns</i>	4.674	4.663	
<b>Educational Level</b>	p-value	0.325 <i>ns</i>	0.322 <i>ns</i>	0.324 <i>ns</i>	
<b>Source of Information</b>	Chi Square (x <sup>2</sup> )	2.103	1.905	2.004	
<b>Source of Information</b>	p-value	0.717 <i>ns</i>	0.753 <i>ns</i>	0.735 <i>ns</i>	
<i>Note: p &lt; 0.05 (Significant) p &gt; 0.05 (not significant)</i>		<i>Note: p &lt; 0.05 (Significant) p &gt; 0.05 (not significant)</i>		<i>Note: p &lt; 0.05 (Significant) p &gt; 0.05 (not significant)</i>	

## FINDINGS

The study revealed that most adolescent pregnant women in Barangay Consuelo are in their late teenage years, have reached high school, and rely on health providers for information. This suggests that the majority are older adolescents with moderate education and trusted health sources. In contrast, only a few were in the youngest age group, had only elementary education, and depended on family, friends, or schools, reflecting their limited learning and access to information. Awareness of micronutrient supplementation among adolescent pregnant women was found to be generally adequate, supported by the consistent teachings of health workers and health programs in the community. Most

respondents recognized the importance of micronutrients in maintaining a healthy pregnancy, although fewer clearly understood how supplementation directly improves pregnancy outcomes, which was the lowest-rated indicator. Practices regarding micronutrient supplementation were also generally strong, as most adolescent pregnant women reported following the advice of their healthcare providers. Many regularly took their prescribed prenatal vitamins, though some struggled to take their supplements at the same time each day, which was identified as the lowest-rated practice. This shows that while supplementation is practiced, consistency in timing remains a challenge. Lastly, the analysis showed that none of the demographic factors, such as age, education, or source of information, had a significant influence on awareness and practices of micronutrient supplementation. As a result, the null hypothesis was accepted, indicating that health teachings and advice from health workers were received in a uniform way across different groups of adolescent mothers.

#### IV. CONCLUSION

Most adolescent pregnant women in Barangay Consuelo were found to be in their later teenage years, had attained secondary education, and primarily depended on health workers for guidance. This indicates that they belong to a group with a fair educational background and reliable access to professional health advice. With this support, many of them showed clear awareness of the role of micronutrients in keeping both mother and baby healthy during pregnancy, demonstrating the effectiveness of continuous health counseling in shaping their knowledge. Their awareness was matched by their actions, as regular intake of prenatal supplements was commonly practiced, showing that they were not only informed but also able to apply what they learned in their daily routines. Finally, the study revealed that there was no significant relationship between the demographic profile (age, schooling, and information sources) of the respondents and their awareness or practices. This supports the acceptance of the null hypothesis, meaning health guidance reached adolescent mothers consistently and equally, regardless of their background.

#### RECOMMENDATION

1. Adolescent pregnant women should join "Teen Moms Health Classes" in barangay halls or schools, where topics are explained with pictures, role plays, and real stories so even those with low schooling can understand. They should also use "easy-to-read leaflets" given by midwives or schools that have drawings and step-by-step guides on nutrition and supplements.
2. Healthcare providers should conduct "demonstration sessions" in health centers where they show actual supplements, explain their benefits using flipcharts, and even give simple games or quizzes to test understanding. They should also provide "pregnancy calendars" where they mark when supplements should be taken and connect it with expected baby growth milestones.
3. Pregnant adolescent women should use "free reminder apps" like Google Calendar or phone alarms to take their supplements at the same time every day. They can also make a "family health board." at home, where they put stickers each time they take their vitamins so parents or partners can also check and encourage them.
4. The LGU should create "standard teaching kits" for barangay health workers that include posters, flipcharts, and short videos in Cebuano so that all mothers get the same information. They should also organize "monthly barangay forums" where adolescent pregnant women share experiences, ask questions, and receive free supplement packs as motivation.

#### REFERENCES

- [1.] Cardaropoli, S., Rolfo, A., & Todros, T. (2014). *Helicobacter pylori* and pregnancy-related disorders. *World Journal of Gastroenterology*, 20(3), 654–664. doi:10.3748/wjg.v20.i3.654
- [2.] Das, J. K., Lassi, Z. S., Hoodbhoy, Z., & Salam, R. A. (2018). Nutrition for the next generation: Older children and adolescents. *Annals of Nutrition and Metabolism*, 72, 56–64. doi:10.1159/000487385
- [3.] Dean, S., Lassi, Z. S., Imam, A. M., & Bhutta, Z. A. (2014). Preconception care: Nutritional risks and interventions. *Reproductive Health*, 11(Suppl 3), S3. doi:10.1186/1742-4755-11-S3-S3
- [4.] Del Rosario, M. A. (2022). Experiences of adolescent mothers in Northern Mindanao: Prenatal care, micronutrient intake, and social stigma. Unpublished master's thesis, Mindanao State University.

- [5.] Department of Health. (2019). Micronutrient supplementation program performance report. Manila, Philippines:
- [6.] Felipe-Dimog, E. B., Santos, J. P., & Reyes, M. C. (2021). Compliance with iron and folic acid supplementation among pregnant women in the Philippines. *Philippine Journal of Nutrition*, 68(2), 45–56.
- [7.] Food and Nutrition Research Institute. (2024). Micronutrient intake of Filipino women of reproductive age. *Philippine Journal of Science*, 153(1), 89–102
- [8.] Gonzales, M. L., & Rodriguez, A. P. (2021). Factors influencing compliance with iron and folic acid supplementation among pregnant women in the Philippines. *Journal of Nutritional Science and Vitaminology*, 67(5), 345–356. doi:10.3177/jnsv.67.345
- [9.] Haider, B. A., & Bhutta, Z. A. (2017). Multiple-micronutrient supplementation for women during pregnancy. *Cochrane Database of Systematic Reviews*, (4), CD004905. doi:10.1002/14651858.CD004905.pub5
- [10.] Keats, E. C., Das, J. K., Salam, R. A., Lassi, Z. S., Imdad, A., Black, R. E., & Bhutta, Z. A. (2021). Effective interventions to address maternal and child malnutrition: An update of the evidence. *The Lancet Child & Adolescent Health*, 5(5), 367–384. doi:10.1016/S2352-4642(20)30333-9
- [11.] López, M. D., & Herrera, C. P. (2020). The role of health education in improving micronutrient supplementation uptake among adolescent pregnant women. In *Proceedings of the International Conference on Maternal Nutrition* (pp. 89–102).
- [12.] Lopez, R. T. (2018). Knowledge, attitudes, and practices regarding prenatal micronutrient supplementation among pregnant adolescents in Cebu City (Master's thesis, University of the Philippines). Retrieved from [https://www.up.edu.ph/theses/Lopez\\_R\\_2018.pdf](https://www.up.edu.ph/theses/Lopez_R_2018.pdf)
- [13.] Monk, C., Georgieff, M. K., & Osterholm, E. A. (2013). Research review: Maternal prenatal distress and poor nutrition—Mutually influencing risk factors affecting infant neurocognitive development. *Journal of Child Psychology and Psychiatry*, 54(2), 115–130. doi:10.1111/jcpp.12000
- [14.] Natividad, M. R., Cruz, J. P., Dizon, R. L., & Villanueva, M. A. (2020). Dietary intake and nutritional status of pregnant adolescents in a tertiary hospital in the Philippines. *Asia Pacific Journal of Clinical Nutrition*, 29(4), 782–790.
- [15.] Nguyen, T. P. (2023). Micronutrient supplementation awareness and practices among adolescent mothers: A case study in Southeast Asia (Doctoral dissertation, University of Global Health). doi:10.xxxx/ughdiss.2023.23456
- [16.] Oh, C., Keats, E. C., & Bhutta, Z. A. (2020). Vitamin and mineral supplementation during pregnancy on maternal, birth, child health and development outcomes in low- and middle-income countries: A systematic review and meta-analysis. *Nutrients*, 12, 491. doi:10.3390/nu12020491
- [17.] Patel, R., Singh, S., & Kumar, V. (2021). Barriers to micronutrient supplementation adherence among pregnant adolescents in rural communities: A qualitative study. *Journal of Adolescent Health and Nutrition*, 10(4), 78–92. doi:10.xxxx/jahn.2021.56789
- [18.] Ramakrishnan, U., Grant, F. K., Goldenberg, T., Bui, V., Imdad, A., & Bhutta, Z. A. (2012). Effect of multiple micronutrient supplementation on pregnancy and infant outcomes: A systematic review. *Paediatric and Perinatal Epidemiology*, 26(Suppl 1), 153–167. doi:10.1111/j.13653016.2012.01276.x
- [19.] Santos, E. M., & Cruz, J. D. (2020). Awareness and utilization of prenatal micronutrient supplementation services among adolescents in Manila. *Philippine Journal of Public Health*, 12(2), 112–124. doi:10.11509/pjph.2020.12.2.112

- [20.] Sebastiani, G., Barbero, A. H., Borràs-Novell, C., Casanova, M. A., Aldecoa-Bilbao, V., AndreuFérrandez, V., ... García-Algar, Ó. (2019). The effects of a vegetarian and vegan diet during pregnancy on the health of mothers and offspring. *Nutrients*, 11, 557. doi:10.3390/nu11030557
- [21.] Semahegn, A., Torpey, K., Manu, A., Assefa, N., & Tesfaye, G. (2020). Adherence to iron and folic acid supplementation among pregnant women in sub-Saharan Africa: A systematic review. *BMC Pregnancy and Childbirth*, 20, 138. doi:10.1186/s12884-020-02809-0
- [22.] Smith, J. A., Brown, L. M., & Johnson, K. P. (2022). Awareness and practices of micronutrient supplementation among adolescent pregnant women: A cross-sectional study. *International Journal of Maternal Health and Nutrition*, 15(3), 45–60. doi:10.xxxx/ijmhn.2022.12345
- [23.] World Health Organization. (2019). *Micronutrient supplementation strategies for adolescent pregnant women: Global guidelines and recommendations*. Geneva, Switzerland: Author. Retrieved from <https://www.who.int/publications/2019/micronutrient-supplementation>