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Birth Preparedness and Complication Readiness Among Teenage Primigravidas in Northern Mindanao, Philippines

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Abstract

Background

In the Philippines, research on birth preparedness and complication readiness (BP/CR) among pregnant women is limited. BP/CR is a WHO-recommended strategy that promotes planning for safe childbirth and anticipating emergencies. This is particularly crucial for teenage pregnancies due to the increased risk of maternal and neonatal complications associated thereof.

Objective

This study aimed to determine the factors influencing BP/CR among teenage primigravida in Iligan City, Philippines.

Methods

A facility-based cross-sectional study was conducted from November 2024 to February 2025 across various barangays in Iligan City. Using purposive sampling, 59 respondents were surveyed through structured questionnaires that covered sociodemographic data, knowledge, attitudes, perceptions, and experiences relating to BP/CR and maternal health literacy. Data were analyzed using means and standard deviations, logistic regression, and Firth's penalized likelihood method in R software, with statistical significance set at $p < 0.05$.

Results

Most teenage primigravida women sought prenatal care and showed basic birth preparedness, but had limited visits and gaps in emergency planning, with financial and transportation issues being key barriers, and maternal health information was mainly from informal sources. BP/CR knowledge was good in 14%, moderate in 47%, and poor in 39% of respondents. Lower BP/CR knowledge was significantly linked to living in urban-fringe areas ($p < .001$) or outlying areas ($p = .014$), the second trimester ($p = .002$) or third trimester ($p = .039$), being married ($p = .011$) or cohabiting ($p = .005$). Furthermore, 64% of participants showed positive attitudes towards BP/CR, while 36% held a negative attitude. Higher monthly income (≥ 9,520 PHP) ($p = .022$) and Roman Catholic affiliation ($p = .027$) were factors associated with less favorable attitudes.

Conclusion

This study highlights the need for enhanced adolescent-friendly health education. Strengthening antenatal health literacy through community-based interventions and stronger engagement from healthcare providers could enhance BP/CR practices among pregnant teenagers.

Introduction

The Birth Preparedness and Complication Readiness (BP/CR) strategy, as defined by the World Health Organization (2015), is an element of antenatal care designed to improve maternal health outcomes. This strategy encourages pregnant women, their families, communities, healthcare providers, and policymakers to collaborate in planning for normal deliveries and anticipating emergencies (JHPIEGO, 2004; Ijang et al., 2019).

Despite global efforts, however, maternal mortality remains a pressing issue. In 2020, approximately 287,000 women died from pregnancy- and childbirth-related causes, with 95% of these deaths occurring in low and lower-middle-income countries (WHO, 2020). Although this reflects a considerable drop from 500,000 deaths in 2015, the present maternal mortality rate (MMR) of 220 deaths per 100,000 live births is still alarmingly high, considering that the MMR target by 2030 is less than 70 per 100,000 live births (WHO, 2023).

In the Philippines, the MMR decreased to 81 deaths per 100,000 live births in 2019 (Philippines | World Bank Gender Data Portal, n.d.). However, it rose to 121 deaths per 100,000 live births in 2022, with the COVID-19 pandemic cited as one of the major contributing factors (Cagayan et al., 2022; Eclarin et al., 2024). In Iligan City, the local maternal mortality rate was reported at 96.7 per 100,000 live births in 2023 (Iligan City Health Office, 2024), signaling persistent challenges despite better access to education, healthcare, and prenatal care among pregnant women.

One contributing factor to high MMR is the inconsistent knowledge and practice of BP/CR (Teekhasaenee and Kaewkiattikun, 2020). Teaching BP/CR is crucial to reduce antenatal and perinatal illnesses that may lead to death, especially to first-time mothers and adolescents (Alatawi et al., 2021).

Adolescence, as defined by the World Health Organization (2019), encompasses the second decade of life, from ages 10 to 19. It is a transitional stage marked by physical, emotional, and social changes. Thus, pregnancy during this period, termed teenage pregnancy, poses a significant threat to the health of adolescents.

Globally, an estimated 16 million girls aged 15–19 and 2 million girls under 15 give birth each year, with 90% of these births occurring in low- and middle-income countries (WHO, 2021). According to the United Nations Population Fund (2020), the Philippines has one of the highest rates of teenage pregnancy in the ASEAN region. Furthermore, in the Philippines, Region 10 ranks first among the regions in the country with the highest adolescent birth rate at 10.9% (National Health and Demographic Survey, 2022). Locally, Iligan City is the city with the highest incidence of teenage pregnancy (6%) in Lanao del Norte and third in the entire region 10, following El Salvador City at 35% and Tangub City at 17%.

Teenage pregnancy is both a global and local health concern as it is linked to increased maternal and neonatal health risks since adolescents lack the physical and psychological maturity needed for pregnancy. They are more likely to experience higher rates of complications such as maternal death, maternal heart disease, pregnancy-induced hypertension, puerperal infection, chorioamnionitis, urinary tract infection, fetal anomaly, preterm delivery, low birth weight, low APGAR scores, and stillbirth, eclampsia, postpartum hemorrhage, anemia, and both infant and maternal morbidity (Fulpagare et al., 2019; La-Orpipat & Suwanrath, 2019; Todhunter et al., 2021).

Improving maternal health outcomes is one of the United Nations' Sustainable Development Goals (SDGs), specifically SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality), and SDG 17 (Partnership for the

Goals). These goals aim to promote safe pregnancies and deliveries by empowering women, particularly adolescents, and fostering collaboration across healthcare and educational sectors.

Despite growing research on maternal health in the Philippines, studies focusing specifically on adolescent primigravida women, particularly in Iligan City, remain limited. Ayongao et al. (2018) noted that the exploration of BP/CR practices and influencing factors in this specific demographic has not been adequately addressed. This gap highlights the need for further research, particularly to understand BP/CR awareness and preparedness among adolescent primigravida women in the Philippines.

Therefore, this study seeks to identify the factors influencing birth preparedness and complication readiness (BP/CR) among adolescent primigravida women in Iligan City. The findings aim to inform targeted interventions that may help reduce maternal mortality and promote safer pregnancies among adolescents in similar urban settings.

Results

Sociodemographic Profile of Respondents

Table 1 presents the comprehensive summary of the socio-demographic profile of the respondents, where most were aged 18–19 (64%) and in their third trimester (56%). A significant number resided in Tipanoy (27%) and Tambacan (20%). Most were cohabiting (66%) and lived in extended (42%) or nuclear (37%) families. Educationally, over half (51%) had some high school education, and 58% were students. Economically, 88% had a monthly household income of less than PHP 9,520. The majority were Bisaya (85%) and Roman Catholic (73%).

Table 1
Demographic Characteristics of Teenage Primigravida Women in Iligan City

Factor	Category		n	%
Age	13–17		21	36%
	18–19		38	64%
Current gestational age	First Trimester		9	15%
	Second Trimester		17	29%
	Third Trimester		33	56%
Residence	Central Cluster	Poblacion Palao	1	1.7%
		Tambacan	1	1.7%
		Mahayahay	12	20.3%
		Ubaldo Laya	6	10.2%
			2	3.4%
		Total:	*22*	*37.3%*
	Main Urban - Fringe Cluster	Santiago	4	6.8%
		Tibanga	4	6.8%
		Luinab	5	8.5%
		Total:	*13*	*22%*
	Outlying Cluster	Dalipuga	6	10.2%
		Upper Hinaplanon Tipanoy	2	3.4%
			16	27.1%
		Total:	*24*	*40.7*
Marital Status	Single		11	19%
	Married		9	15%
	Cohabitation		39	66%
Overall Total Number of Respondents = 59				

Continued from Table 1			
Factor	**Category**	**n**	**%**
Family Structure	Extended	25	42%
	Nuclear	22	37%
	Grandparent	7	12%
	Blended	5	8.5%
Educa- tional Status	High School Level and Below	33	56%
	High School Graduate and Above	26	44%
Occu- pation	Student	34	57.6%
	Non-Student	25	42.4%
Economic Status	< 9,520	52	88%
	9,520 & above	7	12%
Ethnicity	Bisaya	50	84.7%
	Non-Bisaya	9	15.3%
Religion	Roman Catholic	43	73%
	Non-Roman Catholic	14	23.7
Overall Total Number of Respondents = 59			

Knowledge of BP/CR

Table 2 provides the average scores of all respondents for each item related to knowledge of birth preparedness and complication readiness.

Table 2

Mean Percentage of Correct Responses to Multi-Response Items on Birth Preparedness and Complication Readiness of participants (N = 59).

Items	Mean	SD	Skewness
2.2. Knowledge on danger signs during pregnancy	33.1	29.3	1.2
2.4. Knowledge on danger signs during labor and childbirth	36.7	27.6	1.3
2.6. Knowledge on danger signs during postpartum period	32.4	30.6	1.4
2.8. Knowledge on danger signs that can occur to newborn during the first 7 days of life	35.4	32.6	1.1
2.10. Knowledge on immediate newborn care	49.6	33.6	0.8
2.12. Knowledge on preparation for birth	47.0	29.0	0.8
2.13. Knowledge on community services for birth preparedness	48.6	25.0	1.3

The respondents showed the lowest knowledge in identifying danger signs during pregnancy and the postpartum period, with high variability and skewness indicating that most had very limited understanding. Knowledge of danger signs during labor and in newborns within the first 7 days was only slightly better. Meanwhile, respondents demonstrated relatively higher knowledge in immediate newborn care, birth preparation, and available community services. However, none of the mean scores reached even 50%, suggesting overall limited knowledge across all key areas of BP/CR.

Table 3 shows the aggregate scores reflecting knowledge of birth preparedness and complication readiness. The results show that 14% of respondents exhibited *good* knowledge, 47% showed *moderate* knowledge, and 39% fell into the *poor* category.

Table 3

Overall Level of Knowledge (N = 59). Note. Higher cutoff scores indicate greater knowledge of birth preparedness and complication readiness.

Remark	Frequency	Percentage
Good	8	14%
Moderate	**28**	**47%**
Poor	23	39%

Most teenage primigravida women in the study had only moderate or poor knowledge of birth preparedness and complication readiness, especially regarding warning signs. Only 14% showed good understanding, highlighting the urgent need for improved, structured education during antenatal visits to better prepare young, first-time mothers for potential complications.

Attitudes and Perceptions towards BP/CR

Table 4shows the overall attitude and perception of the participants toward birth preparedness and complication readiness.

Table 4

Overall Attitude and Perception Toward Birth Preparedness and Complication Readiness (N = 59).

Characteristic	n (%), or Median (Min, Max)
Score	5.00 (0.00, 8.00)
Attitude	
Positive	38 (64%)
Negative	21(36%)

The majority of the respondents had a positive attitude and perceptions towards BP/CR. Specifically, 64% were categorized as having a positive attitude, while only 36% had what is classified as a *negative* attitude toward birth preparedness and complication readiness.

Personal Experiences with Current Pregnancy

The study revealed that while the majority of teenage primigravida women (97%) accessed prenatal care and showed good birth preparedness. However, many had limited prenatal visits, with 79% only having 1–3 visits, 1.8% had 4–6 visits, and 19% were unable to recall. Gaps in emergency planning were also noted, where only 51% of the respondents arranged for a blood donor. Decision-making was often family-influenced, and most planned to give birth in public hospitals with professional assistance. Although postpartum care planning was common, few received guidance from healthcare professionals, relying more on written materials and peers.

Maternal Health Literacy

Teenage primigravida were found to have written materials (76.3%) as their primary source of information, followed by discussions with other pregnant women (61%) and television or radio broadcasts (57.6%). These results suggest that, while printed and broadcast media represent the most common channels, peer-to-peer discussions and online platforms are also integral to how teenage primigravida women gather knowledge about pregnancy. Internet sources were also commonly referenced (45.8%), while only 28.8% of respondents reported consulting healthcare professionals directly. Notably, 1.7% of participants did not seek any external information sources.

Table 5shows overall maternal health literacy, where 58% were found to have high literacy, while 42% have low literacy.

Table 5
Overall Maternal Health Literacy (N = 59).

Characteristic	Value
Score	3.00 (0.00, 6.00)
Literacy	
Low Literacy	25 (42%)
High Literacy	34 (58%)

This result indicates that a majority of respondents demonstrated a strong understanding of pregnancy-related information, but a significant minority still face challenges in evaluating and understanding health content.

Relationship between Sociodemographic Factors and Knowledge of BP/CR

Table 6 summarizes which sociodemographic variables are significantly associated with respondents' level of knowledge of BP/CR.

Table 6. *Logistic Regression Results Linking Sociodemographic Factors to BP/CR Knowledge (N = 59).*

Characteristic	log(OR)	95% CI	p-value	Remarks
Residence				
Central Cluster	Ref	—	—	
Main Urban–Fringe Cluster	-0.79	-1.3, -0.33	< .001	**Significant**
Outlying Cluster	-0.55	-1.0, -0.11	.014	**Significant**
Gestational Age				
First Trimester	Ref	—	—	
Second Trimester	-0.97	-1.6, -0.36	.002	**Significant**
Third Trimester	-0.61	-1.2, -0.04	.039	**Significant**
Age				
13–17 y.o	Ref	—	—	
18–19 y.o	-0.04	-0.41, 0.33	.80	Not Significant
Marital Status				
Single	Ref	—	—	
Married	-1.10	-2.0, -0.26	.011	**Significant**
Cohabitation	-0.69	-1.2, -0.22	.005	**Significant**
Family Structure				
Nuclear	Ref	—	—	
Extended	0.28	-0.10, 0.65	.15	Not Significant
Blended	-0.59	-1.3, 0.11	.10	Not Significant
Grandparent	0.13	-0.45, 0.72	.70	Not Significant
Educational Attainment				
High School Level & Below	Ref	—	—	
High School Graduate & Above	0.01	-0.36, 0.39	> .90	Not Significant
Occupation				
Student	Ref	—	—	

Non-Student	0.33	-0.01, 0.68	.061	Not Significant
Monthly Income				
<9,520	Ref	—	—	
9,520 & above	0.23	-0.25, 0.73	.40	Not Significant
Religion				
Non-RC	Ref	—	—	
RC	0.03	-0.47, 0.53	.90	Not Significant

Logistic regression analysis revealed that residence, gestational age, and marital status were significantly associated with respondents' level of knowledge on birth preparedness and complication readiness (BP/CR). Specifically, participants residing in the Main Urban–Fringe Cluster (log(OR) = -0.79, p < .001) and Outlying Cluster (log(OR) = -0.55, p = .014) had significantly lower odds of higher BP/CR knowledge compared to those in the Central Cluster. Furthermore, respondents in the second trimester (log(OR) = -0.97, p = .002) and third trimester (log(OR) = -0.61, p = .039) also had lower odds of higher knowledge compared to those in the first trimester. Lastly, being married (log(OR) = -1.1, p = .011) or in a cohabiting relationship (log(OR) = -0.69, p = .005) was significantly associated with lower BP/CR knowledge when compared to single participants.

Relationship between Sociodemographic Factors and Attitudes and Perceptions towards BP/CR

Table 7 displays the results of a penalized logistic regression (Firth's method) that assesses the relationship between selected sociodemographic factors and whether respondents held a "positive" or "negative" attitude toward birth preparedness and complication readiness (BP/CR).

Table 7. *Penalized Logistic Regression Results Linking Sociodemographic Factors to Attitudes Toward BP/CR (N = 59).*

Characteristic	log(OR)	95% CI	p-value	Remarks
Residence				
Central Cluster (ref)	–	–	–	
Main Urban–Fringe Cluster	1.54	-0.48, 3.82	0.14	Not Significant
Outlying Cluster	0.50	-1.52, 2.66	0.63	Not Significant
Gestational Age				
First Trimester (ref)	–	–	–	
Second Trimester	0.41	-1.72, 2.81	0.71	Not Significant
Third Trimester	-0.46	-2.59, 1.78	0.67	Not Significant
Age				
13–17 y.o (ref)	–	–	–	
18–19 y.o	0.65	-1.04, 3.06	0.48	Not Significant
Marital Status				
Single (ref)	–	–	–	
Married	-2.48	-8.70, 1.34	0.22	Not Significant
Cohabitation	-1.68	-4.60, 0.33	0.11	Not Significant
Family Structure				
Nuclear (ref)	–	–	–	
Extended	-0.42	-2.10, 1.15	0.61	Not Significant
Blended	-1.27	-4.73, 1.54	0.39	Not Significant
Grandparent	-2.92	-8.46, 0.35	0.086	Not Significant
Educational Attainment				
High school level & below (ref)	–	–	–	
High school graduate & above	0.71	-1.05, 2.62	0.43	Not Significant
Occupation				
Student (ref)	–	–	–	

Non-Student	-0.05	-1.58, 1.60	0.95	Not Significant
Monthly Income				
<9,520 (ref)	–	–	–	
9,520 & above	-2.82	-8.26, -0.34	0.022	**Significant**
Religion				
Non-RC (ref)	–	–	–	
RC	-2.23	-5.36, -0.23	0.027	**Significant**

Among the analyzed variables, two factors emerged as statistically significant predictors of attitudes toward BP/CR: monthly income and religion. Respondents with a monthly income of ₱9,520 and above, as well as those identifying as Roman Catholic (RC), were significantly less likely to have a positive attitude toward BP/CR. Respondents with a higher monthly income (≥ 9,520 PHP) were significantly less likely to have a positive attitude toward BP/CR. While this finding may seem unexpected, it is important to consider the sample distribution, as only 7 respondents (12%) fell into the higher-income category, while 52 (88%) had lower incomes. This disparity may have influenced the statistical outcome, as smaller sample sizes can amplify effect estimates and introduce variability.

Methods

Research Design: This study used a descriptive correlational quantitative design to examine relationships among variables without manipulation (Devi et al., 2023). It aimed to describe respondents' knowledge, attitudes, and perceptions of birth preparedness and complication readiness (BP/CR), and to identify links between sociodemographic factors and BP/CR outcomes. Data were collected via a facility-based cross-sectional survey at selected Barangay Health Centers in Iligan City from November 2024 to February 2025.

Participants of the Study: The study involved 59 teenage primigravida women in Iligan City, selected using purposive sampling due to unavailable population data. All eligible and accessible participants were included.

Research Instrument: The Safe Motherhood Questionnaire (JHPIEGO), with high reliability (Cronbach's alpha 0.85–0.95; Nkya & Kohi, 2021), was used. The tool has strong validity and contains five sections (49 items) covering sociodemographics, BPCR knowledge, pregnancy experiences, attitudes, and maternal health literacy. It provided a comprehensive evaluation of participants' knowledge, attitudes, and perceptions about BP/CR.

The questionnaire was translated into Tagalog, verified by a linguist, and pilot-tested, yielding a Cronbach's alpha of 0.889. Revisions were made based on feedback to improve clarity and alignment with study objectives.

Statistical Analysis: Survey data were analyzed using R (v4.4.1).

Descriptive statistics: Categorical data were summarized using frequencies and percentages; means, medians, and standard deviations were used for continuous variables. Skewness was assessed for knowledge scores. Analyses used tidyverse and base R functions.

Recoding: Rarely selected categories were merged into broader groups (e.g., remote barangays as “Outlying Cluster,” non-Catholics as “Non-RC”) to ensure stable regression results.

Knowledge Scoring: Scores ranged from 0–13, with partial and binary points assigned. Cutoffs defined knowledge as good (11–13), moderate (7–10.99), or poor (1–6.99). Summaries showed the proportion in each category.

Attitudes Recoding: Eight Likert-scale items were recoded into binary outcomes (0 = neutral/disagree, 1 = agree) to distinguish positive and negative attitudes for analysis.

Maternal Health Literacy: Scores reflected the frequency (“Always” or “Often”) of correct responses to six items, allowing identification of those needing further guidance.

Logistic Regression: Binomial logistic regression assessed whether sociodemographic variables predicted knowledge or attitude levels, using proportional scores for knowledge outcomes.

Penalized Logistic Regression: Firth’s method addressed sparse data and improved estimate stability for attitude analyses with small cell counts.

Ethical Considerations: Ethical approval was obtained (CHS-0004-2024). Informed consent was collected from participants (or guardians if under 18), and participation was voluntary and confidential.

Discussion

This study looked at how well teenage first-time mothers in Iligan City are prepared for birth and possible complications, and what factors affect their knowledge and attitudes. The results show that most have only moderate or poor knowledge about BP/CR, though their attitudes are generally positive. Structural and informational barriers may put adolescent mothers at risk. These findings are similar to global and regional studies showing that adolescent pregnancy is often linked to poor preparedness, low health literacy, and higher maternal risk.

The mostly moderate and poor BP/CR knowledge found in this study matches earlier research in low- and middle-income countries, where first-time mothers, especially teenagers, often do not recognize danger signs or plan for emergencies. Similar gaps have been seen in Ethiopia, Tanzania, and Nigeria, where not knowing about complications leads to delays in seeking care and worse outcomes. This highlights the need for BP/CR education as a key part of prenatal care to prevent illness and death. The very low awareness of pregnancy and postpartum danger signs in this study is worrying, since spotting problems early is crucial to avoiding delays in getting help.

Even though most respondents had limited knowledge, they showed positive attitudes toward BP/CR, which suggests they are open to maternal health programs. Similar results have been found among teenage mothers elsewhere, where good attitudes do not always mean they are well prepared. This shows that positive attitudes are not enough without education, resources, and support from healthcare providers. Improving prenatal counseling, especially early in pregnancy, could help turn these positive attitudes into real preparedness.

The study also found that living outside the city center was linked to lower BP/CR knowledge. This shows ongoing differences between urban and rural or peri-urban areas in access to prenatal care and information, as seen in Southeast Asia and other regions. These geographic gaps often mean less access to skilled health advice, transport, and emergency care, making adolescents in outlying areas more vulnerable. Community and outreach programs are needed to close these gaps.

Another key finding is that women in later stages of pregnancy had poorer knowledge, suggesting they missed out on early prenatal education. Research shows that starting prenatal care early helps mothers learn more, adopt healthy habits, and avoid problems. Many respondents in this study had only one to three prenatal visits, pointing to ongoing barriers like money, transport, and relying on family for decisions.

Being married or living with a partner was also linked to lower BP/CR knowledge, which goes against the idea that partnered teens get more support. Earlier studies suggest that marrying young can actually limit education, independence, and the ability to make healthcare choices, making these young women more at risk. This shows how social norms, dependence, and health knowledge all interact in complex ways.

It was also found that higher income and being Roman Catholic were linked to less positive attitudes about BP/CR. This could be due to the small number of people in these groups, but past research shows that culture and religion can affect beliefs about pregnancy and healthcare. Religious views and social expectations can shape how people see pregnancy risks and medical care. These results show the need for maternal health education that respects culture and faith, not just medical facts.

The study found that most adolescents got their information from written materials, friends, and media, and did not often talk to healthcare professionals. This matches other studies showing that pregnant women often rely on easy-to-access but sometimes unreliable sources. Improving communication between providers and patients, and making counseling more teen-friendly, are important steps to help adolescents better understand BP/CR.

Overall, these findings show that teenage pregnancy is still shaped by social inequalities, cultural factors, and gaps in the health system. Studies around the world link adolescent pregnancy to higher risks of high blood pressure, infections, early birth, and newborn problems, making targeted maternal health programs urgent. Community-based, youth-focused, and culturally sensitive approaches that support global goals for maternal health and gender equality are needed to help this vulnerable group.

In summary, this study adds local evidence showing that while teenage first-time mothers in Iligan City often have positive attitudes and some preparedness, they still face big gaps in knowledge, location-based differences, and cultural challenges. Tackling these issues with early prenatal education, community outreach, culturally sensitive counseling, and better healthcare involvement is key to improving BP/CR and reducing preventable problems for young mothers and their babies. These findings offer a strong base for policy, practice, and future research to improve adolescent maternal health in similar urban areas in the Philippines.

Conclusion and Recommendations

This study’s findings highlight significant gaps in the birth preparedness and complication readiness of teenage primigravida women in Iligan City. Although many anticipate professional care and plan for transportation and

financing, critical gaps in knowledge and attitudes were evident, particularly in recognizing maternal danger signs and arranging emergency services, such as blood donation. Residence outside central areas, marital or cohabitation status, and later gestational ages were linked to poorer knowledge, indicating a need for earlier, more targeted antenatal education. Additionally, income level and religious affiliation emerged as predictors of more negative attitudes, suggesting that both socioeconomic and cultural considerations shape how adolescents perceive and value maternal healthcare.

Thus, these findings point to an urgent need for improved, youth-centered health education, particularly during the early stages of pregnancy. Culturally appropriate interventions and stronger community engagement are essential. Strengthening antenatal health literacy through healthcare provider engagement, community support systems, and strategic collaboration with local institutions can significantly improve BP/CR outcomes for teenage mothers.

Based on the findings of this study, several recommendations are proposed to enhance birth preparedness and complication readiness (BP/CR) among adolescent primigravida women in Iligan City. These recommendations aim to support healthcare providers, policymakers, agencies, and community leaders in addressing the identified gaps and improving maternal health outcomes within this vulnerable population.

For teenage girls, this study recommends empowerment to avoid early pregnancy by surrounding themselves with peers who value education and responsible behavior. It encourages openness about sexuality and communication with trusted adults to foster informed decisions and improve pregnancy preparedness.

Pregnant women, especially adolescent primigravidas, are advised to attend routine prenatal visits from the first trimester, receive clear information on pregnancy risks and BP/CR, and undergo individualized counseling that includes financial planning and donor arrangement.

Parents should actively educate their children on sexual and reproductive health, promoting open discussions to prevent early pregnancy and support better BP/CR awareness and decision-making.

Family involvement, especially from partners, should be encouraged in the delivery planning process, with educational programs for both pregnant teenagers and their families. Communities are urged to support peer-led groups for shared learning in non-judgmental environments.

The Department of Education is encouraged to intensify comprehensive sexuality education (CSE) in schools, integrate values-based and age-appropriate health topics, support flexible learning for pregnant students, and collaborate with local health units for culturally sensitive BP/CR programs.

The Rural Health Office is advised to enhance antenatal care and education services for teenage primigravidas, prioritize early trimester counseling, address transport and financial barriers, and tailor programs to their cultural and community contexts.

The Department of Health and City Health Office should implement targeted education programs to bridge knowledge gaps in BP/CR among teenage primigravidas, integrating these into schools, communities, and prenatal care settings.

The nursing academe is encouraged to use this study to improve maternal and child health education, introduce BP/CR topics in teaching, and guide student nurses in advocating for maternal health in community engagements.

Future researchers should expand sample size, include more diverse participants, and apply qualitative methods to explore cultural and personal influences on BP/CR among pregnant adolescents.

Declarations

Use of Artificial Intelligence

Artificial intelligence (AI) tools were used solely to assist with language editing, grammar refinement, and improvement of manuscript clarity. The authors reviewed and validated all AI-assisted content and take full responsibility for the accuracy, integrity, and originality of the work. No AI tools were used to generate data, perform analyses, or replace scholarly interpretation.

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Data Availability

The datasets generated during and/or analysed during the current study are not publicly available due to confidentiality and ethical restrictions involving human participants but are available from the corresponding author on reasonable request.

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