Psychosocial Predictors of Teenage Pregnancy: Roles of Self-Esteem, Study Attitude, and Family Attachment

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ABSTRACT

Teenage pregnancy remains a significant public health concern in low- and middle-income countries, including the Philippines, where rural and underserved communities continue to experience persistent social and health inequities. Despite ongoing policy and programmatic efforts, adolescent fertility rates remain disproportionately high in socioeconomically disadvantaged areas. This study examined psychosocial factors associated with teenage pregnancy using a cross-sectional retrospective design. Participants were adult women aged 20 years and above who were purposively selected from barangay records in rural communities and classified as teenage mothers (first childbirth at ages 13–19) or non-teenage mothers (first childbirth at age 20 or older). A total of 441 respondents completed structured questionnaires assessing self-esteem, study attitudes, and family attachment as recalled prior to their first pregnancy. Independent-sample t-tests were conducted to examine group differences, while multivariable logistic regression was used to identify psychosocial predictors of teenage pregnancy. Results indicated that non-teenage mothers reported significantly higher self-esteem, more positive study attitudes, and stronger maternal attachment than teenage mothers ($p < .001$). Logistic regression analysis showed that self-esteem (OR = 0.16), study attitude (OR = 0.66), and maternal attachment (OR = 0.20) were significant protective factors against teenage pregnancy. The model demonstrated robust predictive performance, with an overall classification accuracy of 82% and high sensitivity in identifying teenage mothers. These findings underscore the importance of psychosocial and relational factors in shaping adolescent reproductive outcomes within structurally constrained rural contexts. Strengthening adolescents' self-esteem, sustaining school engagement, and promoting supportive mother–child relationships may be critical components of preventionoriented strategies to reduce teenage pregnancy, particularly in rural and resource-constrained settings.

Keywords: Adolescent reproductive health; academic engagement; maternal bonding; youth vulnerability; early childbearing; rural communities

INTRODUCTION

Teenage pregnancy remains a persistent public health and development concern in low- and middle-income countries, reflecting entrenched social, economic, and health inequities that disproportionately affect adolescents in rural and underserved communities (World Health Organization [WHO], 2019; United Nations Population Fund [UNFPA], 2022). Despite global declines in adolescent fertility, the Philippines continues to report one of the highest teenage pregnancy rates in Southeast Asia. Although recent national data indicate a decline to 5.4% in 2022, substantial regional disparities persist, particularly in geographically isolated and economically constrained provinces such as those in Eastern Visayas (Philippine Statistics Authority [PSA], 2023). These patterns underscore the continuing vulnerability of Filipino adolescents to early childbearing and its associated social and health consequences (Cabigon, 2020).

Teenage pregnancy is widely recognized as a multidimensional phenomenon shaped by the interplay of biological, socioeconomic, relational, and psychosocial factors, rather than by individual behavior alone

(Diabelková et al., 2023; Sezgin & Punamäki, 2020). Early childbearing has been consistently associated with increased risks of obstetric complications, inadequate antenatal care, and adverse mental health outcomes among adolescent mothers (Erfina et al., 2019; Burgess et al., 2022). Beyond immediate health consequences, early pregnancy often disrupts educational trajectories and limits future employment opportunities, contributing to long-term socioeconomic disadvantage and the intergenerational transmission of poverty (Neal et al., 2018; Pueyo, 2022). Children born to adolescent mothers also face elevated risks of low birth weight, developmental delays, and early childhood illness (Neal et al., 2018; Singh et al., 2023).

While structural determinants such as poverty, limited access to reproductive health services, and educational inequality remain critical drivers of teenage pregnancy, increasing attention has been given to psychosocial factors that shape adolescent decision-making and sexual behavior (Maqbool et al., 2019; Olorunsaiye et al., 2022). Self-esteem has been identified as a key psychological resource influencing adolescents' sense of agency, future orientation, and capacity to negotiate sexual boundaries. Lower self-esteem has been associated with earlier sexual initiation and reduced ability to engage in protective behaviors, thereby increasing vulnerability to unintended pregnancy (Karababa, 2022; Zamiri-Miandoab et al., 2022). Similarly, weak academic engagement and unfavorable study attitudes have been linked to school disengagement, diminished aspirations, and a higher likelihood of early childbearing (Mohr et al., 2019; Houtepen et al., 2020).

Family relationships, particularly emotional attachment and parental involvement, also play a crucial protective role in adolescent development. Strong family attachment has been associated with delayed sexual initiation, reduced engagement in risky behaviors, and improved psychosocial adjustment among adolescents (Garcia Saiz et al., 2021; Ravitz et al., 2010). Theoretical frameworks such as Social Control Theory (Hirschi, 1969) and Attachment Theory (Bowlby, 1988) suggest that strong bonds to family and school serve as regulatory mechanisms that discourage behaviors with potentially adverse life-course consequences. In caregiving-oriented cultural contexts such as the Philippines, maternal attachment may be particularly influential, as mothers often serve as primary emotional caregivers and sources of guidance during adolescence (Masud et al., 2019).

Despite growing recognition of psychosocial influences, empirical research in the Philippine context has relied mainly on national-level datasets such as the National Demographic and Health Survey and has focused primarily on descriptive or correlational analyses (PSA, 2023; Diabelková et al., 2023). Such approaches may obscure localized psychosocial dynamics operating in rural communities and limit the development of contextspecific prevention strategies. Predictive studies that examine how psychosocial factors jointly distinguish women who experienced teenage pregnancy from those who delayed childbearing remain scarce, particularly in resource-constrained settings where longitudinal adolescent data are rarely available (Olorunsaiye et al., 2022). Moreover, retrospective community-based analyses that explore psychosocial characteristics prior to the first pregnancy are limited in the Philippine literature.

Addressing these gaps, the present study adopts a predictive analytical approach to examine whether self-esteem, study attitude, and family attachment are significantly associated with teenage pregnancy among women in a rural Philippine setting. By comparing teenage and non-teenage mothers and retrospectively assessing psychosocial characteristics prior to the first pregnancy, this study provides localized, policy-relevant evidence on psychosocial correlates of early childbearing. Rather than asserting causal relationships, the study aims to identify psychosocial risk and protective markers that can inform prevention-oriented, strengths-based interventions designed to reduce teenage pregnancy and promote adolescent well-being in rural and underserved communities.

Objectives Of the Study

This study aimed to examine the association and predictive contribution of selected psychosocial factors, selfesteem, study attitude, and family attachment, to teenage pregnancy among women in a rural Philippine setting. Specifically, the study sought to:

1. Describe the socio-demographic and family-related characteristics of teenage and non-teenage mothers, including age at first sexual intercourse, residence prior to first pregnancy, educational attainment before pregnancy, parental occupation, family structure, and parenting style.

2. Determine whether significant differences exist in levels of self-esteem, study attitude, and family attachment (to mother, father, and siblings) between teenage mothers and non-teenage mothers, based on recalled psychosocial conditions prior to the first pregnancy.

3. Assess the predictive contribution of self-esteem, study attitude, and family attachment in distinguishing teenage mothers from non-teenage mothers.

METHODOLOGY

Research Design

This study employed a cross-sectional retrospective quantitative design to examine psychosocial factors associated with teenage pregnancy. Adult women were asked to retrospectively report their psychosocial characteristics—self-esteem, study attitude, and family attachment—as recalled prior to their first pregnancy. A retrospective approach was adopted due to the absence of longitudinal adolescent cohort data in the study setting, and is consistent with community-based reproductive health research conducted in low-resource contexts. As with all cross-sectional designs, the findings are interpreted as associational and predictive rather than causal.

To mitigate limitations inherent in retrospective recall, psychosocial items were framed to anchor responses to salient life stages (e.g., the schooling period prior to the first pregnancy) rather than to abstract time points. This anchoring strategy is commonly used to enhance recall accuracy when prospective data are unavailable.

Study Setting

The study was conducted in 5 coastal villages in Catbalogan City, Samar, a coastal urban center in Eastern Visayas characterized by mixed urban–rural barangays and documented challenges in adolescent reproductive health. The area exhibits socioeconomic diversity but includes communities with limited access to educational and health resources. Barangay health and civil registry records served as the primary sources for identifying eligible participants, ensuring community-based coverage across both inland and coastal barangays.

Participants and Sampling

Participants were purposively selected from barangay records to ensure accurate classification of reproductive history. The target population comprised women aged 20 years and above at the time of data collection who had experienced at least one live birth. This age threshold was set to allow sufficient temporal distance from adolescence while minimizing recall decay.

Participants were classified into two groups based on age at first childbirth:

1.   Teenage mothers – women whose first delivery occurred between the ages of 13 and 19

2.   Non-teenage mothers – women whose first delivery occurred at age 20 or older

Barangay health workers assisted in verifying eligibility and reproductive histories using community health and civil registry records. While purposive sampling limits statistical generalizability, this approach was appropriate for addressing the study's specific comparative and predictive objectives and for ensuring the inclusion of participants with verifiable reproductive timelines.

Eligibility Criteria

Inclusion criteria were: (a) age 20 years or older at the time of the study, (b) residency in Catbalogan City at the time of first pregnancy, (c) documented history lof at least one live birth, and (d) capacity to provide informed consent. Women with reported cognitive impairments or conditions that could limit comprehension of the questionnaire were excluded.

Instruments

Data were collected using a structured questionnaire composed of a demographic profile and validated

psychosocial scales. The demographic section captured age at first sexual intercourse, residence prior to first pregnancy, educational attainment before pregnancy, parental occupation, family structure, and parenting style. These variables were included to contextualize participants' social environments but were not treated as primary predictors.

Self-esteem was measured using a 10-item Likert-type scale adapted from established self-esteem instruments (Rosenberg, 1965). Items were rated from 1 (Not true) to 5 (Always true), with higher scores indicating more positive self-evaluation. The scale demonstrated acceptable internal consistency (Cronbach's $\alpha = .78$).

Study attitude was assessed using a 10-item Likert-type scale measuring attitudes toward schoolwork, learning, and academic engagement, rated from 1 (Strongly disagree) to 5 (Strongly agree). Reliability analysis yielded a Cronbach's α of .76.

Family attachment was measured using three 11-item subscales assessing attachment to the father, mother, and siblings. Items were rated on a five-point scale from 1 (Strongly disagree) to 5 (Strongly agree), including reverse-coded statements. The adapted scale demonstrated acceptable internal consistency (Cronbach's $\alpha = .80$).

Parenting style was assessed using a 10-item scale measuring parental warmth, discipline, and supervision (Cronbach's $\alpha = .82$). This variable was used for descriptive purposes and contextual interpretation but was not included in the final regression model. All instruments were forward-translated into the local language, reviewed by subject-matter experts for cultural appropriateness, and pilot-tested prior to data collection.

Validity, Reliability, and Recall Bias Considerations

Content validity was established through expert review by psychologists and social science researchers with expertise in adolescent development and reproductive health. All psychosocial scales demonstrated acceptable internal consistency ($\alpha \geq .75$). To address recall bias, several strategies were employed. First, items were framed around specific and memorable developmental periods, such as schooling years and family interactions prior to the first pregnancy, rather than requiring precise chronological recall. Second, pilot testing included a two-week test–retest interval to assess response stability. Third, participants were drawn from community records that verified reproductive histories, reducing misclassification of outcome status. While recall bias cannot be eliminated, these procedures were implemented to enhance the reliability of retrospective reporting.

Data Processing and Analysis

Data were encoded and analyzed using SPSS Version 21. Descriptive statistics were computed to summarize socio-demographic and psychosocial characteristics. Independent-sample t-tests were used to examine group differences between teenage and non-teenage mothers. Multivariable binary logistic regression was conducted to assess the predictive contribution of self-esteem, study attitude, and family attachment in distinguishing teenage from non-teenage mothers. Odds ratios with 95% confidence intervals were reported. Model adequacy was evaluated using likelihood ratio tests and classification accuracy. Statistical significance was set at $p < .05$.

Generalizability and Ethical Considerations

Given the purposive, community-based sampling and rural study setting, findings are analytically generalizable to similar rural and resource-constrained contexts rather than statistically generalizable to the national population. The study aims to contribute context-sensitive evidence that complements national survey findings and informs locally responsive intervention strategies. Ethical approval was obtained from a recognized review board. Participation was voluntary, informed consent was secured, and confidentiality and anonymity were strictly maintained. Participants were informed of their right to withdraw at any time without penalty.

Ethical Considerations

The study received approval from a Review Board. Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality and anonymity were strictly observed, and participants were informed of their right to withdraw at any point without consequence.

RESULTS

Sociodemographic and Family Context of Participants

Table 1 summarizes the sociodemographic and family-related characteristics of the respondents. Apparent differences were observed between teenage and non-teenage mothers in terms of age at first sexual intercourse, educational attainment prior to pregnancy, and living arrangements before pregnancy.

Table 1. Demographic Characteristics of Participant

Variables	Teen Moms (n=307)		Non-Teen Moms (n=134)		Total (n= 441)
	f	%	f	%	
Age of First Sexual Intercourse					
20 and above	0	0.00	91	67.91	91
17-19	208	67.75	42	31.34	250
16 and below	99	32.25	1	0.75	100
Residence Before First Pregnancy					
Boarding house	108	35.18	63	47.01	171
With parents	122	39.74	44	32.84	166
With parents' partner	50	16.29	13	9.70	63
Others	27	8.79	14	10.45	41
Highest Educational Attainment Before Pregnancy					
Elem. Graduate	66	21.50	11	8.21	77
Finishing HS	87	28.34	22	16.42	109
HS Graduate	95	30.94	38	28.36	133
Finishing College	59	19.22	63	47.01	122
Occupation of Father					
Farmer/Fisher	124	40.39	60	44.78	184
Vendor	29	9.45	6	4.48	35
Tailor	36	11.73	10	7.46	46
Plain Husband	44	14.33	16	11.94	60
Businessman	8	2.61	7	5.22	15
Gov't Employee	46	14.98	24	17.91	70
Others	20	6.51	11	8.21	31
Family Structure					
Intact	234	76.22	110	82.09	344
Broken	73	23.78	24	17.91	97
Parenting Style of Father					

Authoritative	105	34.20	40	29.85	145
Authoritarian	150	48.86	77	57.46	227
Permissive	52	16.94	17	12.69	69
Parenting Style of Mother					
Authoritative	111	36.16	44	32.84	155
Authoritarian	172	56.03	75	55.97	247
Permissive	24	7.82	15	11.19	39

A substantial proportion of teenage mothers (32.25%) reported initiating sexual intercourse at age 16 or younger, compared with only 0.75% among non-teenage mothers. In contrast, the majority of non-teenage mothers (67.91%) reported first sexual intercourse at age 20 or older. These findings suggest an earlier sexual debut among women who experienced a teenage pregnancy.

Differences were also evident in educational attainment prior to pregnancy. Teenage mothers were more likely to have completed only secondary education, whereas nearly half of non-teenage mothers were pursuing college education at the time of their first pregnancy. Living arrangements before pregnancy further indicated varying levels of parental supervision, with a larger proportion of teenage mothers residing in boarding houses or nonparental households.

Most respondents came from families engaged in farming, fishing, or informal employment, reflecting the study area's predominantly rural socioeconomic context. Family structure was largely intact in both groups, although authoritarian parenting styles were commonly reported among both mothers and fathers. While these demographic and family characteristics were not included as predictors in the regression model, they provide important contextual information regarding the environments in which teenage pregnancy occurred.

Group Differences in Self-Esteem, Study Attitude, and Family Attachment

Table 2 presents the results of the independent-sample t-tests comparing teen and non-teen mothers across psychosocial variables.

Table 2. Comparison of Scores of Moms' Self-esteem, Study Attitudes, Attachment to Parents and Siblings

Variables	**Teen Mother M (SD)**	**Non-Teen Mother M (SD)**	**t**	**p-value**
Self-esteem	2.59 (0.42)	3.08 (0.70)	9.13	<.000
Study Attitude	2.96 (1.08)	3.46 (0.96)	4.62	<.000
Attachment to				
Father	2.92 (0.98)	2.85 (0.97)	-0.63	.532
Mother	3.14 (0.80)	3.81 (0.53)	8.86	<.000
Siblings	3.91 (2.56)	3.61 (0.75)	1.87	.062

Independent-sample t-tests; df = 439.

Independent-sample t-tests were conducted to compare psychosocial characteristics between teenage and nonteenage mothers (Table 2). Non-teenage mothers reported significantly higher levels of self-esteem ($M = 3.08$, $SD = 0.70$) than teenage mothers ($M = 2.59$, $SD = 0.42$), $t(439) = 9.13$, $p < .001$. Similarly, study attitude was significantly more positive among non-teenage mothers ($M = 3.46$, $SD = 0.96$) compared with teenage mothers ($M = 2.96$, $SD = 1.08$), $t(439) = 4.62$, $p < .001$.

With respect to family attachment, attachment to mothers was significantly higher among non-teenage mothers (M = 3.81, SD = 0.53) than teenage mothers (M = 3.14, SD = 0.80), t(439) = 8.86, p < .001. No statistically significant differences were found for attachment to fathers, t(439) = −0.63, p = .532, or attachment to siblings, t(439) = 1.87, p = .062.

These results indicate that lower self-esteem, weaker academic engagement, and reduced maternal attachment characterize women who experienced a teenage pregnancy.

Psychosocial Predictors of Teenage Pregnancy

Results of the binary logistic regression analysis (Table 3) indicate that self-esteem, study attitude, and maternal attachment were significant protective predictors of teenage pregnancy. Higher self-esteem was associated with substantially lower odds of teenage pregnancy, followed by maternal attachment and study attitude. Attachment to fathers and siblings did not significantly predict teenage pregnancy status after adjustment for other psychosocial variables.

Table 3. Binary Logistic Regression Predicting Teenage Pregnancy Status

Variable	**B**	**SE**	**OR(Exp(B))**	*p*
Self-esteem	-1.823	0.199	0.16	.000*
Study Attitude	-.416	0.123	0.66	.001*
Attachment to				
Father	.046	0.137	1.05	.737
Mother	-1.609	0.186	0.20	.000*
Siblings	-.052	0.101	0.95	.609
Constants	12.994	2.011	-	.000*

Outcome variable coded as 1 = teenage mother, 0 = non-teenage mother.

Higher levels of self-esteem were associated with significantly lower odds of teenage pregnancy (OR = 0.16, p < .001). Study attitude also emerged as a significant predictor, with higher academic engagement associated with reduced likelihood of teenage pregnancy (OR = 0.66, p = .001). In addition, maternal attachment demonstrated a strong protective effect (OR = 0.20, p < .001).

In contrast, attachment to fathers (OR = 1.05, p = .737) and attachment to siblings (OR = 0.95, p = .609) were not significant predictors in the multivariable model.

Table 4. Classification Table of Teen Mom and Non-Teen Mom

OBSERVED		**PREDICTED**		
		Teenage Mother	Non-Teenage Mother	% Correct
Classification	Teenage Mother(n=397)	51	83	91
of Mothers	Non-teenage Mother (n=137)	278	29	62
Overall Percentage				82

Cut-off probability = 0.50.

The classification table derived from the logistic regression model is presented in Table 4. Using a cutoff probability of 0.50, the model demonstrated an overall classification accuracy of 82%. The model correctly classified 91% of teenage mothers (sensitivity) and 62% of non-teenage mothers (specificity).

The higher sensitivity indicates that the model was particularly effective in identifying women who experienced teenage pregnancy. The comparatively lower specificity suggests that additional factors not included in the model may influence delayed childbearing among non-teenage mothers.

DISCUSSION

This study examined psychosocial factors associated with teenage pregnancy in a rural Philippine setting and found that lower self-esteem, weaker study attitudes, and reduced maternal attachment were significantly associated with a higher likelihood of teenage pregnancy. These findings reinforce the growing body of evidence suggesting that adolescent reproductive outcomes are shaped not only by structural constraints but also by internal psychological resources and close relational bonds operating during critical developmental periods.

Self-Esteem and Adolescent Vulnerability

Self-esteem emerged as the strongest protective predictor against teenage pregnancy in this study. Women who delayed childbearing reported significantly higher self-esteem prior to their first pregnancy, and higher selfesteem was associated with substantially reduced odds of teenage pregnancy. This finding is consistent with prior research linking low self-esteem to earlier sexual initiation, diminished assertiveness, and increased susceptibility to peer pressure (Karababa, 2022; Zamiri-Miandoab et al., 2022). From a developmental perspective, adolescents with higher self-worth may possess stronger self-regulation and future orientation, enabling them to navigate relational pressures and evaluate long-term consequences more effectively.

In rural and resource-constrained settings, where adolescents often face limited educational and economic opportunities, internal psychosocial assets such as self-esteem may play a vital buffering role. While structural barriers remain influential, this finding suggests that psychological vulnerability may amplify risk exposure, especially in environments with fragile external supports.

Study Attitude, School Engagement, and Reproductive Timing

Study attitude also demonstrated a significant protective association with teenage pregnancy. Adolescents who exhibited more positive academic engagement prior to pregnancy were less likely to experience early childbearing. This finding aligns with existing literature emphasizing the role of school engagement in delaying pregnancy by reinforcing future aspirations and strengthening attachment to conventional institutions (Mohr et al., 2019; Houtepen et al., 2020).

Social Control Theory (Hirschi, 1969) provides a helpful lens for interpreting this result. Strong attachment to school may discourage behaviors perceived as disruptive to educational goals, including early pregnancy. However, the moderate predictive strength of study attitude observed in this study suggests that academic engagement alone may not be sufficient; its protective influence appears strongest when combined with supportive psychosocial and family environments.

Maternal Attachment as a Central Relational Factor

Among the family attachment variables examined, attachment to mothers emerged as a robust protective factor against teenage pregnancy. In contrast, attachment to fathers and siblings did not significantly predict pregnancy status in the multivariable model. This pattern is consistent with Attachment Theory (Bowlby, 1988), which emphasizes the role of secure emotional bonds with primary caregivers in promoting adaptive coping and decision-making during adolescence.

Empirical studies have shown that maternal warmth, emotional availability, and open communication are associated with delayed sexual initiation and reduced sexual risk behaviors (Garcia Saiz et al., 2021; Racz & McMahon, 2011). In the Philippine context, mothers often serve as primary caregivers and moral guides,

particularly in discussions of relationships and sexuality. The salience of maternal attachment observed in this study likely reflects these culturally embedded caregiving dynamics.

The absence of significant predictive effects for paternal and sibling attachment does not imply that these relationships are unimportant. Instead, their influence may be indirect or context-dependent. In many rural Philippine households, fathers' roles are often oriented toward economic provision, which may limit their direct involvement in adolescents' relational and emotional decision-making. Sibling relationships, while supportive, may lack the regulatory authority necessary to shape reproductive behavior.

Contextualizing Psychosocial Findings within Structural Constraints

It is important to interpret these psychosocial findings within the broader structural realities of rural communities. Structural determinants such as poverty, limited access to adolescent-friendly health services, and educational discontinuity remain well-established drivers of teenage pregnancy (Neal et al., 2018; UNFPA, 2022). The moderate specificity of the regression model in this study suggests that psychosocial factors do not operate in isolation but interact with broader socioeconomic and service-access conditions.

In this regard, the findings are consistent with community-based health research in Samar conducted by Cananua-Labid et al. (2024), which documented gaps in awareness, availment, and satisfaction with health services among rural populations. While that study did not focus specifically on teenage pregnancy or psychosocial predictors, it provides important contextual evidence of health system and access limitations that may compound psychosocial vulnerability among adolescents. Taken together, these findings suggest that psychosocial risk operates within, rather than independently of, structural disadvantage.

Policy and Programmatic Implications

The results of this study underscore the need for integrated, prevention-oriented interventions that combine psychosocial development with educational and family-centered strategies. Programs aimed at reducing teenage pregnancy in rural settings should not be limited to reproductive health information alone, but should incorporate:

•   Self-esteem and life-skills development within school and community youth programs

•   School engagement and retention initiatives, including mentoring and academic support

•   Mother–adolescent communication and attachment-strengthening interventions, delivered through schools, barangay health systems, or parent education programs

These approaches align with global recommendations emphasizing adolescent empowerment, family engagement, and culturally responsive programming (World Health Organization, 2019; United Nations Population Fund, 2022). In rural Philippine contexts, leveraging existing community structures—such as barangay health workers and school-based programs—may enhance the feasibility and sustainability of such interventions.

Strengths And Limitations of the Study

Strengths of the Study

A key strength of this study lies in its predictive-analytical approach to examining the psychosocial correlates of teenage pregnancy in a rural Philippine setting. By employing multivariable logistic regression, the study was able to quantify the independent contribution of self-esteem, study attitude, and family attachment in distinguishing teenage from non-teenage mothers, thereby moving beyond purely descriptive or correlational analyses commonly found in the local literature. The model's strong overall classification accuracy and high sensitivity underscore the robustness of the identified psychosocial markers of vulnerability.

Another notable strength is the study's community-based and context-specific design. Drawing participants from barangay records ensured accurate classification of reproductive histories and enabled the inclusion of women

from both inland and coastal communities. This localized approach addresses an important gap in Philippine research, which often relies on national survey data that may obscure psychosocial dynamics operating in rural and resource-constrained settings.

The study also benefits from its holistic psychosocial framework, integrating internal psychological resources (self-esteem), behavioral–academic orientation (study attitude), and relational factors (family attachment). This multidimensional perspective aligns with established theoretical frameworks such as Social Control Theory and Attachment Theory and supports a more comprehensive understanding of adolescent reproductive vulnerability. Notably, the study emphasizes protective factors, offering a strengths-based perspective that is particularly useful for informing prevention-oriented interventions and policy design.

Finally, the use of validated and reliability-tested instruments, along with culturally appropriate translation and pilot testing, strengthens the internal consistency and credibility of the findings. The careful framing of retrospective questions around salient developmental periods further enhances the methodological rigor of the study within the constraints of available data.

Limitations of the Study

Despite its strengths, several limitations should be considered when interpreting the findings. First, the study employed a cross-sectional retrospective design, which precludes causal inference. Although participants were asked to recall psychosocial characteristics prior to their first pregnancy, the temporal ordering of variables cannot be definitively established. As such, the findings should be interpreted as associational and predictive rather than causal.

Second, the reliance on retrospective self-report introduces the possibility of recall bias. Participants may reconstruct past psychosocial experiences from current perspectives or life outcomes, which, in turn, may influence self-esteem, study attitude, and family attachment. While the study mitigated this limitation by anchoring questions to specific life stages and verifying reproductive histories through barangay records, recall bias cannot be entirely eliminated.

Third, the use of purposive sampling limits statistical generalizability. The findings are most applicable to women in similar rural and resource-constrained contexts and should not be generalized to urban populations or the national level without caution. However, the study's intent was analytic rather than population-level generalization, and its value lies in generating context-sensitive evidence that complements national survey findings.

Fourth, the study focused primarily on selected psychosocial and maternal relational factors and did not include other potentially influential variables, such as peer norms, male partner characteristics, access to adolescentfriendly reproductive health services, or broader structural determinants, such as household income trajectories. The moderate specificity of the predictive model suggests that these unmeasured factors may also play a role in delayed childbearing.

Finally, although family attachment was examined, the study did not explore qualitative dimensions of family relationships, such as communication styles or conflict dynamics, which may provide deeper insight into the mechanisms underlying the observed associations. Future mixed-methods or longitudinal research could address these gaps and further elucidate developmental pathways leading to teenage pregnancy.

CONCLUSIONS

This study examined psychosocial factors associated with teenage pregnancy in a rural Philippine setting. It demonstrated that self-esteem, study attitude, and maternal attachment are significant psychosocial correlates of early childbearing. Women who experienced a teenage pregnancy reported lower self-esteem, weaker academic engagement, and reduced attachment to their mothers prior to their first pregnancy, highlighting the salience of internal psychological resources and close maternal relationships in shaping adolescent reproductive outcomes. By employing a predictive analytical approach, the study contributes evidence that extends beyond descriptive accounts and underscores the role of psychosocial vulnerability alongside structural disadvantage.

At the same time, the findings should be interpreted in light of the study's methodological limitations. The crosssectional retrospective design precludes causal inference, and reliance on recalled psychosocial experiences introduces the possibility of recall bias. In addition, the purposive, community-based sampling limits statistical generalizability beyond similar rural and resource-constrained contexts. Nonetheless, the study's strengths— particularly its robust analytic strategy, use of validated measures, and focus on a rural population often underrepresented in national analyses—support the credibility and relevance of the findings for analytic and policy-oriented purposes.

From a policy and programmatic perspective, the results suggest that strategies to reduce teenage pregnancy should not focus solely on reproductive health education or service provision. Psychosocial development, school engagement, and maternal–adolescent relationships emerge as critical domains for intervention. Programs that strengthen adolescents' self-esteem, sustain educational participation, and promote open, supportive communication between mothers and daughters may enhance the effectiveness of existing adolescent health initiatives. Integrating these components into school-based programs, community youth initiatives, and barangay-level health services offers a context-responsive approach to prevention in rural settings.

Future research would benefit from longitudinal and mixed-methods designs to clarify developmental pathways and explore how psychosocial factors interact with structural conditions such as poverty, access to adolescentfriendly services, and partner dynamics. Despite its limitations, this study provides contextually grounded, policy-relevant evidence that psychosocial and relational factors are central to understanding and addressing teenage pregnancy in rural Philippine communities.

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