

Determinants of early marriage incidence in adolescents in Rural West Kupang District, East Nusa Tenggara

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ABSTRACT

Early marriage remains a major public health problem in East Nusa Tenggara (NTT), particularly in rural areas where local cultural practices have received limited quantitative investigation despite their potential influence on marriage decisions. This study aimed to identify the determinants of early marriage among adolescents in rural West Kupang District. This quantitative study employed a cross-sectional design involving 98 adolescents aged 15–19 years from two villages (Oenaek and Sumlili) selected using the Slovin formula. Data were analyzed using univariate, bivariate (chi-square), and multivariate (multiple logistic regression) analyses. The prevalence of early marriage was 27.6%. Bivariate analysis identified six factors significantly associated with early marriage ($p < 0.05$), while multivariate analysis showed that local cultural/customary perceptions (AOR = 6.1; 95% CI: 1.9–19.6; $p = 0.002$), poor reproductive health knowledge (AOR = 3.2; $p = 0.036$), and poor family economic status (AOR = 2.9; $p = 0.049$) were the dominant determinants. The novelty of this study lies in quantitatively examining the role of local cultural perceptions, including the *belis* tradition, together with socioeconomic and behavioral factors in a rural NTT setting. These findings provide evidence to support culturally sensitive policies, strengthen adolescent reproductive health education, and guide community-based interventions to prevent early marriage in rural areas.

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INTRODUCTION

Early marriage is still a global problem that threatens children's health and rights. WHO defines early marriage as a marriage involving one or both couples who are under the age of 18 (World Health Organization, 2021), and the *United Nations Children's Fund* notes that the practice is still widespread especially in low- and middle-income countries (United Nations Children's Fund,

2023; Yaya et al., 2019). In Indonesia, the results of a national survey show that the prevalence of girl marriage reaches around 12.53%, which means that one in nine young women has experienced early marriage (Kuswanto et al., 2024). Data from the Central Statistics Agency in 2024 also shows that although the proportion of women aged 20-24 years who marry before the age of 18 nationally decreased to 5.90%, a number of provinces, including provinces in the Nusa Tenggara region, still recorded a figure that is far above the national average (Badan Pusat Statistik, 2025).

East Nusa Tenggara Province is one of the regions with real early marriage challenges. Data from the Central Statistics Agency of NTT Province cited in a study in Manggarai Regency shows that the proportion of women who marry for the first time at the age of 17-18 years continues to increase from 18.94% in 2018 to 24.07% in 2020 (Badan Pusat Statistik Kabupaten Manggarai, 2023), a trend that indicates that the problem of child marriage in this region is not only unaddressed, but tends to be more prevalent (Batyra & Pesando, 2021). This phenomenon is also seen in the rural areas of West Kupang District, where most of the population makes a living as farmers and fishermen with limited access to adolescent reproductive health services.

The persistence of early marriage in rural NTT is influenced by multiple interrelated factors. Globally, the conceptual framework proposed by Psaki et al. identifies poverty, restrictive social and cultural norms, limited educational opportunities, lack of life choices for adolescent girls, and concerns about premarital pregnancy as major drivers of child marriage (Psaki et al., 2021). In the context of East Nusa Tenggara, the customary tradition of *belis* (bride wealth) also plays an important role in family decision-making. *Belis* is a traditional marriage payment from the groom's family to the bride's family that symbolizes respect, kinship, and social legitimacy. However, in economically disadvantaged households, the expectation of receiving *belis* may create financial incentives for parents to approve or encourage daughters to marry at a younger age. Conversely, the obligation to provide *belis* may also pressure young men and their families to enter marriage earlier in order to fulfill customary expectations. Thus, while *belis* serves important cultural functions, it may unintentionally contribute to the persistence of early marriage under conditions of poverty and strong adherence to customary norms (Idaroyani Neonnub & Triana Habsari, 2018). On the other hand, adolescents' increasing access to social media also contributes to promiscuity and premarital pregnancy, which in turn encourages families to immediately marry children as a social outlet (Harvey et al., 2022; Kohno et al., 2020). The low level of formal education of adolescents and parents also increases this risk, as found in national data-driven studies in rural Indonesia (Fitria et al., 2024) (Efevbera & Bhabha, 2020).

Previous studies consistently indicate that early marriage is a multifactorial phenomenon influenced by individual, family, socioeconomic, and socio-cultural factors (Zulfa Zuhriyyah Ayudiputri et al., 2024). Systematic reviews and national studies in Indonesia have identified knowledge (Berliana et al., 2021), education, economic status, family welfare, and social environment as important determinants of early (Kuswanto et al., 2024). Likewise, prospective studies have shown that parental history of child marriage increases the likelihood of early marriage among their children, suggesting an intergenerational pattern (Hidayah et al., 2024). Although these studies consistently recognize socioeconomic disadvantage as a key driver, they differ in the emphasis placed on cultural influences, with most quantitative studies focusing primarily on demographic and economic factors while providing limited assessment of local customary practices. Consequently, evidence regarding the relative contribution of local cultural traditions, such as *belis*, alongside other determinants remains limited, particularly in rural East Nusa Tenggara. Early marriage has also been consistently associated with adverse outcomes, including pregnancy complications, domestic violence, and school dropout (Adedini et al., 2022; Fan & Koski, 2022).

However, most previous studies have focused on national-level data or general socioeconomic factors, with limited attention to local cultural practices that may influence early

marriage in rural communities. Evidence on the relative contribution of these factors in rural East Nusa Tenggara therefore remains limited.

Studies on the factors that influence early marriage in adolescents in West Kupang District, NTT, is still very limited, even though this region has socio-cultural and economic peculiarities that are different from other regions. The purpose of this study is to examine the factors that influence teenage early marriage in rural West Kupang by considering parental education factors, family economy, reproductive health knowledge, social media exposure, peer roles, cultural/customary perceptions, and living with parents. The novelty of this study lies in the use of a *cross-sectional design* with a proportional sample in two villages as well as the inclusion of local cultural variables (*adat/belis*) as specific determinants of NTT that are rarely studied quantitatively.

RESEARCH METHOD

This study employed a quantitative cross-sectional design to analyze the determinants of early marriage among adolescents. The study was conducted in May 2026 in Oenaek and Sumlili villages, West Kupang District, Kupang Regency, East Nusa Tenggara Province. The study population consisted of 130 adolescents aged 15–19 years. Because some eligible adolescents could not be reached during the study period due to school, work, or temporary migration, the sample size was determined using the Slovin formula, resulting in 98 respondents selected through proportional stratified random sampling (Naing et al., 2006). The dependent variable was early marriage, defined as marriage before the age of 19 years in accordance with Law No. 16 of 2019, Article 7(1) (Undang-undang Republik Indonesia No 16, 2019), and categorized as “early marriage” or “not yet married.” Independent variables included parental education, family economic status, reproductive health knowledge, social media exposure, peer influence, cultural/customary perceptions, and living arrangements with parents. Cultural/customary perception was measured using six Likert-scale statements adapted from previous studies on *belis* and local marriage customs, with higher scores indicating stronger support for customary practices that encourage early marriage. Social media exposure was assessed based on the frequency and duration of daily use and exposure to relationship- or marriage-related content. Data were collected using a structured questionnaire adapted from previous studies and modified to fit the local context. The questionnaire demonstrated acceptable validity (item-total correlation >0.30) and reliability (Cronbach's $\alpha = 0.82$).

Data were obtained through guided door-to-door interviews conducted by the researchers together with community health workers. To minimize selection bias, respondents were selected using proportional stratified random sampling, while information bias was reduced through the use of a standardized questionnaire, trained interviewers, and confidential face-to-face interviews. Data were analyzed using univariate, bivariate (chi-square), and multivariate analyses. All independent variables with $p < 0.25$ in the bivariate analysis were included in the multiple logistic regression model using the backward stepwise method to identify the dominant determinants of early marriage. Statistical significance was set at $p < 0.05$. This study was approved by the Health Research Ethics Committee. Written informed consent was obtained from respondents aged 18 years or older, while written parental or guardian consent and adolescent assent were obtained from respondents younger than 18 years before data collection.

RESULTS AND DISCUSSIONS

The characteristics of the study respondents are presented in Table 1. Of the 98 respondents, most were aged 17–19 years old (65.3%) and came from Oenaek Village (52.0%). As many as 37.8% of respondents were recorded as dropping out of school or not continuing formal education. Additionally, the univariate analysis's findings revealed that the research area's adolescent population's early marriage prevalence was 27.6% (27 out of 98 respondents).

Table 1. Characteristics of research respondents (n=98)

Features	n	%
Age:		
15-16 years old	34	34,7
17-19 years old	64	65,3
Village of origin:		
Oenaek	51	52,0
Sumlili	47	48,0
Current education status:		
Still in school	61	62,2
Dropping out of school/ out of school	37	37,8
Early marriage status:		
Early marriage	27	27,6
Unmarried	71	72,4

Remarks: The frequency distribution was calculated from a total sample of 98 adolescents aged 15-19 years in Oenaek Village and Sumlili Village, West Kupang District.

The bivariate analysis's findings between the determinants studied and the incidence of early marriage are presented in Table 2. The results of the chi-square test showed that parental education, family economic status, reproductive health knowledge, peer roles, local cultural/customary perceptions, and parental living status were significantly related to the incidence of early marriage ($p < 0.05$). Local cultural/customary perceptions that favor early marriage show the strongest relationship, with the proportion of early marriage being 47.8% in the cultural/customary group that perceives early marriage, compared to 9.6% in the group that does not. Social media/promiscuity exposure showed a tendency to be in a relationship but had not reached a statistical significance at the level of 0.05 ($p = 0.058$).

Table 2. Bivariate analysis of determinants of early marriage incidence in adolescents (n=98)

Variabel	Early Marriage		OR (95% CI)	p
	Ya n (%)	No n (%)		
Parent education:				
Low (n=52)	20 (38,5)	32 (61,5)	3,5 (1,3-9,4)	0,010
Height (n=46)	7 (15,2)	39 (84,8)	1 (ref)	
Family economy:				
Poor (n=48)	19 (39,6)	29 (60,4)	3,4 (1,3-8,9)	0,012
Not poor (n=50)	8 (16,0)	42 (84,0)	1 (ref)	
Reproductive health knowledge				
Less (n=55)	21 (38,2)	34 (61,8)	3,8 (1,4-10,4)	0,008
Good (n=43)	6 (14,0)	37 (86,0)	1 (ref)	
Social media exposure/socialization				
Height (n=50)	18 (36,0)	32 (64,0)	2,4 (0,96-6,1)	0,058
Low (n=48)	9 (18,8)	39 (81,2)	1 (ref)	
Peer roles:				
Support (n=44)	17 (38,6)	27 (61,4)	2,8 (1,1-6,9)	0,023
Not supported (n=54)	10 (18,5)	44 (81,5)	1 (ref)	
Perception of local culture/customs:				
Support (n=46)	22 (47,8)	24 (52,2)	8,4 (2,8-25,2)	<0.001
Not supported (n=52)	5 (9,6)	47 (90,4)	1 (ref)	
Status of living with parents:				
Not living together (n=34)	14 (41,2)	20 (58,8)	2,8 (1,1-6,9)	0,030
Living together (n=64)	13 (20,3)	51 (79,7)	1 (ref)	

Description: OR = *odds ratio*; CI = *confidence interval*; 1 (ref) = comparison group (reference category); chi-square test; $p < 0.05$ is considered statistically significant.

All variables with a $p < 0.25$ value in the bivariate analysis (parental education, family economics, reproductive health knowledge, social media exposure, peer roles, cultural/customary perceptions, and parental living status) were included in the backward stepwise approach of

multivariate analysis utilizing multiple logistic regression. The results of the multivariate analysis in the final model showed that the perception of local culture/customs in favor of early marriage was the most dominant determinant (AOR=6.1; 95% CI: 1.9–19.6; $p=0.002$), followed by poor reproductive health knowledge (AOR=3.2; 95% CI: 1.1–9.6; $p=0.036$) and the economic status of poor families (AOR=2.9; 95% CI: 1.0–8.5; $p=0.049$). AOR (adjusted odds ratio) is a ratio of the odds that has been controlled against other confounding variables, so that it reflects the pure relationship between each determinant and the incidence of early marriage. The variables of parental education, peer roles, social media exposure, and parental living status no longer showed a statistically meaningful relationship after being controlled for by these three dominant variables ($p>0.05$).

Table 3. Results of multivariate analysis of multiple logistic regression determinants of early marriage

Variables (Final Model)	AOR	95% CI	p
Cultural/customary perceptions support early marriage	6,1	1,9–19,6	0,002
Lack of reproductive health knowledge	3,2	1,1–9,6	0,036
Poor family economy	2,9	1,0–8,5	0,049
Poor parental education*	2,1	0,7–6,3	0,181

AOR = Adjusted Odds Ratio (multiple logistic regression, backward stepwise method).

*Variables are not significant in the final model but are shown as significant in bivariate analysis.

According to this study, early marriage is common among teenagers in rural areas of West Kupang District was 27.6%, a figure much higher than the Indonesian national average of 12.53% (Kuswanto et al., 2024) and the national average based on the latest BPS data of 5.90% (Badan Pusat Statistik, 2025). The high prevalence in this study is in line with the trend of increasing The percentage of women in East Nusa Tenggara Province who are married between the ages of 17 and 18 which reportedly increased from 18.94% in 2018 to 24.07% in 2020 (Badan Pusat Statistik Kabupaten Manggarai, 2023) and reinforces the finding that rural areas consistently have a higher risk of early marriage than urban areas (Fitria et al., 2024).

The finding that local cultural/customary perceptions are the most dominant determinants (AOR=6,1) reinforces a global conceptual framework that places social and cultural norms as one of the main drivers of child marriage, in addition to poverty and limited life choices for adolescent girls. Although the confidence interval was relatively wide (95% CI: 1.9–19.6), this may be attributed to the relatively small sample size and the unequal distribution of respondents across categories; however, the association remained statistically significant. In the context of East Nusa Tenggara, *the traditional practice of Belis* that accompanies the process of proposal and marriage has high social and cultural value in maintaining the harmony of indigenous communities, but in practice it can also encourage the decision to marry children sooner, both due to pressure to fulfill customary obligations and in response to premarital pregnancy (Idaroyani Neonnub & Triana Habsari, 2018). This finding supports the theory that child marriage is shaped by the interaction of structural, individual, and socio-cultural factors, with cultural norms appearing to have a stronger influence than socioeconomic characteristics in the rural context of West Kupang. Culture appears to be the dominant factor in West Kupang because customary values remain deeply embedded in community life, where marriage decisions are commonly influenced by parents, extended families, and traditional leaders. This is in line with the findings of a qualitative review that identified family pressure to maintain honor as one of the key factors driving adolescent girls to enter early marriage (Kohno et al., 2020).

Lack of reproductive health knowledge was also shown to be an important determinant in this study, consistent with a systematic review of the determinants of child marriage in Indonesia that identified knowledge as one of the key factors influencing the decision to marry at a young age (Alomair et al., 2022; Harper et al., 2022). Adolescents with limited knowledge of reproductive health tend to be less aware of the health risks of marriage and early pregnancy, including the

increased risk of *premarital conception* which in turn encourages families to marry children as a social response to such pregnancies, a pattern that has also been found to be consistent in some Southeast Asian countries (Harvey et al., 2022). The coexistence of limited reproductive health knowledge, economic hardship, and strong customary norms may reduce adolescents' autonomy in marriage decisions, thereby increasing the likelihood of early marriage in rural communities. This low level of knowledge is likely related to limited access to adolescent reproductive health services and education in rural areas far from referral health facilities.

The economic status of poor families is also a significant determinant, in line with various studies that consistently show that poverty increases social acceptance of child marriage, both due to considerations of reducing the economic burden of the family and due to limited access to further education for adolescent girl (Fitria et al., 2024) (Zulfa Zuhriyyah Ayudiputri et al., 2024). Meanwhile, although parental education was significant in bivariate analysis, this relationship weakened in multivariate analysis after being controlled by cultural/customary perceptions and reproductive health knowledge, indicating that the influence of parental education on the incidence of early marriage may be indirect, i.e. through the formation of adolescent and family knowledge and attitudes towards applicable social norms. as also stated in a study based on Indonesian rural data (Fitria et al., 2024).

These findings have important implications for obstetrics and adolescent reproductive health services in rural areas of NTT. The health consequences of early marriage have been well documented, including an increased risk of pregnancy complications, domestic violence, and educational disconnection (Fan & Koski, 2022) (Molitoris et al., 2023). From a policy perspective, local governments, the Health Office, BKKBN, schools, and community leaders should collaborate to develop culturally appropriate interventions that strengthen reproductive health education, empower families economically, and engage traditional leaders in delaying the age of marriage. From a clinical perspective, midwives and primary healthcare providers should strengthen adolescent reproductive health counseling, early identification of adolescents at risk of early marriage, and family-based education through youth-friendly health services (Badan Pusat Statistik, 2020). Strengthening adolescent reproductive health education through schools and youth organization activities, as well as family economic empowerment programs, also needs to be prioritized as part of comprehensive prevention efforts (Lewington et al., 2022; Mohammed Tohit & Haque, 2024).

This research has several limitations. First, the research was only carried out in two villages (Oenaek Village and Sumlili Village) in one sub-district (West Kupang) with a relatively small sample number (98 respondents), so generalization of results to other regions in East Nusa Tenggara needs to be done carefully. Second, the measurement of variables such as cultural/customary perceptions and reproductive health knowledge using respondents' self-reports has the potential to cause social *desirability bias*, especially since the topic of early marriage and premarital sexual activity is still considered sensitive in the local community. Nonetheless, researchers have sought to minimize this bias by maintaining the confidentiality of respondents' identities and conducting in-person guided interviews (Burhan et al., 2026; Herlin & Marwiyah, 2025).

CONCLUSION

The prevalence of early marriage among adolescents in rural areas of West Kupang District, East Nusa Tenggara, was 27.6%. Local cultural/customary perceptions favoring early marriage emerged as the strongest determinant, followed by poor reproductive health knowledge and poor family economic status. The novelty of this study lies in quantitatively examining the role of local cultural perceptions, including the *belis* tradition, together with individual and socioeconomic factors in a rural NTT setting. These findings support the importance of socio-cultural factors in explaining early marriage and provide practical evidence for developing culturally appropriate

reproductive health education and family empowerment programs. They also suggest that government agencies, the Health Office, BKKBN, schools, and community leaders should collaborate to implement community-based strategies for preventing early marriage. This study was limited by its cross-sectional design, relatively small sample size, and inclusion of only two villages, limiting causal inference and generalizability. Future studies should involve larger, multi-district samples and longitudinal or mixed-methods designs to further explore the influence of local cultural practices on early marriage.

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These findings confirm that the prevention of early marriage in the region requires a multi-sectoral approach that not only focuses on reproductive health education and family economic empowerment, but also engages indigenous leaders and community leaders to jointly reduce the socio-cultural pressures that drive child marriage. Further research with cohort or case-control designs over a wider area is needed to strengthen the evidence of a cause-and-effect relationship between these determinants and the incidence of early marriage.

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