

Effect of school-based early marriage education on adolescent knowledge of early marriage, parenting readiness, and child health

Adelgrit Trisia¹, Dian Mutiasari², Lia Sasmitae¹, Ira Jayanti³, Margareth Karina Elisinta¹ and Yemina Hasianna¹

Abstract

Introduction: Early marriage is a persistent public health problem with intergenerational consequences for adolescents, mothers, and children. Because knowledge is a modifiable determinant of health behavior, school-based education may strengthen adolescents' understanding of early marriage, parenting readiness, and child health risks. **Objective:** This study aimed to evaluate the effect of a school-based early marriage education session on adolescents' short-term knowledge of early marriage, parenting readiness, and child health consequences. **Method:** The study used a quasi-experimental one-group pre-test–post-test design involving 89 adolescents at Christian Vocational High Schools and State Islamic Senior High Schools Model Palangka Raya in 2025. A single educational session was delivered using interactive presentations and discussion. Knowledge was measured before and after the intervention using the same structured questionnaire, and paired comparisons were analyzed with the Wilcoxon test. **Results:** Knowledge improved significantly after the intervention ($p < 0.001$). Post-test findings showed a clear shift toward the good and very good categories for knowledge about early marriage, parenting readiness, and the child health consequences of early marriage. **Conclusion:** A brief school-based educational intervention was effective in improving adolescents' short-term knowledge. The findings support integrating early marriage education into school health programs while highlighting the need for controlled studies with follow-up to assess persistence of knowledge gains and behavioral relevance.

Keywords: adolescent knowledge, child health, early marriage, health education

1 Introduction

Child marriage remains a major public health problem with cross-generational consequences, particularly for adolescent, maternal, and child health. Each year, millions of girls marry before the age of 18, increasing the likelihood of teenage pregnancy, obstetric complications, and maternal morbidity. From a child health perspective, adolescent pregnancy is associated with greater risks of low birth weight, prematurity, neonatal morbidity and mortality, and suboptimal early development. For these reasons, child marriage remains an important social determinant of health and a persistent public health priority [1, 2].

The burden of early marriage in Asia remains substantial. UNICEF reports that globally, approximately 12 million girls marry before the age of 18 each year, and approximately 640 million women and girls alive today were married as children. Nearly half of the world's child brides are in South Asia (45%), while the East Asia and Pacific region also contributes substantially, with approximately 93 million child brides and about 1 in 13 women aged 20–24 married or living with a partner before the age of 18 [3, 4]. These data underscore that early marriage is not only a social concern, but also a major health and human development challenge across the region.

Central Kalimantan, as part of the East Asia and Pacific region, continues to face the challenge of early marriage despite regulatory efforts to raise the minimum age at marriage. A commonly used national indicator is the proportion of women aged 20–24 who married before the age of 18. In 2024, the national figure was 5.90%, whereas Central Kalimantan remained higher at 9.89%, indicating a persistent provincial burden above the national average. This pattern is also reflected in the continuing number of marriage-dispensation requests, which illustrates ongoing adolescent vulnerability to social, cultural, and economic pressures [5, 6].

¹Department of Clinical Medicine, Faculty of Medicine, Palangka Raya University

²Department of Public Health Sciences, Faculty of Medicine, Palangka Raya University

³Department of Medical Laboratory, Faculty of Medicine, Palangka Raya University

Adelgrit Trisia (adelgrit@med.upr.ac.id)

Received: 13/12/2025 - Approved: 12/02/2026 - Published 11/03/2026

Early marriage affects not only adolescent reproductive health but also preparedness for future parenting roles. Adolescents who marry at a young age are often still developing psychologically, socially, and economically, which can limit their readiness to meet children's basic needs, including nutrition, health care, developmental stimulation, and emotionally responsive caregiving. Previous studies have suggested that inadequate preparation for parenting among adolescent couples may contribute to less responsive caregiving and less favorable developmental conditions for children [7, 8].

From a child health perspective, these risks make prevention efforts especially important. However, interventions in school settings often focus on reproductive health in general and less often evaluate knowledge specifically related to early marriage, parenting readiness, and child health consequences. Because adolescent knowledge is a modifiable factor that can influence risk perception and decision-making, strengthening knowledge may support healthier choices before marriage decisions occur. This study therefore evaluates whether a structured school-based educational session can improve adolescents' short-term knowledge about early marriage, parenting readiness, and the consequences of early marriage for children's health [9].

2 Method

This study used a quasi-experimental design with a one-group pre-test–post-test approach. The study was designed as a preliminary educational evaluation to assess short-term changes in adolescents' knowledge about early marriage before and after a school-based intervention. The study was conducted at Christian Vocational High Schools and State Islamic Senior High Schools Model Palangka Raya in 2025. The study population was all adolescent students actively enrolled at the two schools. The sample consisted of 89 respondents selected using purposive sampling. Inclusion criteria were students aged 14–18 years, actively enrolled, willing to participate, and present throughout the study procedures.

The intervention consisted of health education on early marriage, covering the definition of early marriage, contributing factors, consequences for adolescent and child health, parenting readiness, and prevention efforts. The education was delivered once through interactive presentations and guided discussion.

The main outcome was adolescents' knowledge about early marriage and related health consequences. Measurements were conducted using the same 30-question structured questionnaire for the pre-test and post-test. Each correct answer received a score of 1 and each incorrect answer received a score of 0. Scores were interpreted as percentages of correct responses and categorized as very good (>80), good (60–80), and poor (<60).

Data collection consisted of a pre-test before the intervention and a post-test after the educational session. Data were analyzed descriptively and with paired nonparametric testing (Wilcoxon test) to determine whether knowledge levels differed before and after the intervention. The results are presented as frequency distributions and paired comparisons across the measured knowledge domains.

3 Results

Most respondents were 15 years old (55.1%) and in 10th grade (70.8%). The majority were Christian (50.6%) or Muslim (41.6%), and the largest ethnic group was Dayak (67.4%). Parents' education levels were most commonly senior high school and bachelor's degree (44.9% each), and the majority of parents worked in the private sector (51.7%). Most respondents were not in a relationship (78.7%) and had not received the HPV vaccine (74.2%), see Table 1.

Table 1: Respondent characteristics

Variables	Frequency (n)	Percentage (%)
Age		
14 years	2	2.2
15 years	49	55.1
16 years	23	25.8
17 years	12	13.5
18 years	3	3.4
Class		
X	63	70.8
XI	17	19.1
XII	9	10.1
Religion		
Hindu	6	6.7
Islam	37	41.6
Catholic	1	1.1
Christian	45	50.6
Ethnic group		
Banjar	12	13.5
Batak	2	2.2
Bugis	1	1.1
Dayak	60	67.4
Java	13	14.6
Malay	1	1.1
Education		
Elementary School	1	1.1
JUNIOR HIGH SCHOOL	8	9.0
SENIOR HIGH SCHOOL	40	44.9
Bachelor	40	44.9
Work		
Farmers/Gardeners	19	21.3
Police/PNS	24	27.0
Private	46	51.7
Dating Status		
Already	19	21.3
Not yet	70	78.7
HPV Vaccine Status		
Already	23	25.8
Not yet	66	74.2
Total	89	100

3.1 Univariate analysis

Of the 89 respondents who received early marriage education, 60.7% were female and 39.3% were male, see Table 2.

Table 2: Number of respondents who received early marriage education

Respondents	Frequency (n)	Percentage (%)
Male	35	39.3
Female	54	60.7
Total	89	100

Before the educational intervention, the majority of respondents had a good level of knowledge (57.3%), but there was still a substantial proportion with poor knowledge (37.0%), and only a small proportion were in the very good category (5.7%), see Table 3.

Table 3: Adolescents' knowledge about early marriage (pre-test)

Level of Knowledge	Frequency (n)	Percentage (%)
Poor	33	37
Good	51	57.3
Very good	5	5.7
Total	89	100

After receiving education, knowledge increased markedly, with the majority of respondents in the very good category (77.5%). Respondents with poor knowledge decreased to 3.4%, see Table 4.

Table 4: Adolescents' knowledge about early marriage after education (post-test)

Level of Knowledge	Frequency (n)	Percentage (%)
Poor	3	3.4
Good	17	19.1
Very good	69	77.5
Total	89	100

Post-test results for parenting readiness showed a more balanced distribution, with good (35.9%) and very good (29.2%) categories together exceeding the poor category (34.9%), see Table 5.

Table 5: Adolescents' knowledge of the impact of early marriage on parenting readiness (post-test)

Level of Knowledge	Frequency (n)	Percentage (%)
Poor	31	34.9
Good	32	35.9
Very good	26	29.2
Total	89	100

Most respondents had good (43.8%) and very good (48.3%) levels of knowledge, indicating that the majority of adolescents had understood the impact of early marriage on children's health after education, see Table 6.

Table 6: Adolescents' knowledge of the impact of early marriage on children's health (post-test)

Level of Knowledge	Frequency (n)	Percentage (%)
Poor	7	7.9
Good	39	43.8
Very good	43	48.3
Total	89	100

3.2 Bivariate analysis

The Wilcoxon test showed a significant difference between pre-test and post-test scores ($Z = -8.21$; $p < 0.001$). After the intervention, the distribution shifted from predominantly good knowledge with a substantial poor subgroup to predominantly very good knowledge, see Table 7.

Table 7: Results of the Wilcoxon test of adolescents' knowledge about early marriage (pre-test and post-test)

Knowledge Variable	Pre-Test (n=89)	Post-Test (n=89)	Z	p-value
Knowledge about Early Marriage	The majority of categories are good (57.3%) with poor at 37.0%	The majority of categories are very good (77.5%)	-8.21	<0.001

There was a significant increase in knowledge about parenting readiness after education ($Z = -6.47$; $p < 0.001$), with 65.1% of respondents in the good and very good categories at post-test, see Table 8.

Table 8: Results of the Wilcoxon test of adolescents' knowledge about parenting readiness

Knowledge Variable	Pre-Test (n=89)	Post-Test (n=89)	Z	p-value
Childcare Readiness	Dominant category poor	Good and very good categories increased (65.1%)	-6.47	<0.001

The Wilcoxon test also showed a significant increase in knowledge about child health consequences ($Z = -7.02$; $p < 0.001$), with 92.1% of respondents in the good and very good categories at post-test, compared with lower baseline knowledge, see Table 9.

Table 9: Results of the Wilcoxon test of adolescents' knowledge about the impact of early marriage on children's health

Knowledge Variable	Pre-Test (n=89)	Post-Test (n=89)	Z	p-value
Impact on Children's Health	Most respondents were in the poor category	Good and very good categories dominated (92.1%)	-7.02	<0.001

4 Discussion

This study demonstrates that a single school-based early marriage education session was associated with significant short-term improvements in adolescents' knowledge about early marriage, parenting readiness, and child health consequences. The finding supports the value of school-based health education as a practical promotive strategy for strengthening adolescent health literacy before young people face more complex

decisions about relationships and marriage. At the same time, the outcome measured in this study was knowledge change, so the findings should be interpreted as evidence of short-term educational effectiveness rather than direct evidence of behavior change or child health protection [10, 11].

The respondent profile, dominated by 15–16-year-olds and 10th-grade students, is consistent with an age group in an important phase of cognitive and psychosocial development. During mid-adolescence, young people begin to consolidate abstract reasoning, anticipate consequences, and form attitudes toward social norms, including marriage and future family roles. Educational interventions delivered at this stage are therefore well positioned to improve health knowledge before beliefs and behaviors become more firmly established [12, 13].

The pre-test distribution showed that, although many respondents already had good baseline knowledge about early marriage, a substantial proportion still had poor knowledge. This indicates a meaningful information gap in a population that is already approaching later adolescence. Within health behavior theory, knowledge functions as a predisposing factor that shapes risk perception, attitude formation, and behavioral intention. Adolescents with limited knowledge may underestimate the risks of early marriage and may be more susceptible to prevailing social pressures [14, 15].

After the educational session, knowledge about early marriage improved markedly, with the very good category becoming dominant and the Wilcoxon test confirming a statistically significant pre-test to post-test shift. This pattern is consistent with prior reports showing that structured reproductive and adolescent health education can improve awareness, risk appraisal, and critical reflection. The magnitude of the observed shift suggests that even a brief, focused session can produce a meaningful immediate gain in understanding when it combines factual information with interactive discussion [16, 17].

Knowledge about parenting readiness also improved, although the post-test distribution remained more balanced than the early-marriage knowledge domain. This more modest shift is important because it suggests that parenting readiness is a more complex construct for adolescents to grasp. Unlike factual information about early marriage, parenting readiness requires adolescents to consider emotional, social, and economic responsibilities that many have not yet experienced directly. This pattern indicates that repeated exposure and deeper discussion may be needed to strengthen understanding in this domain [18, 19].

Knowledge about the impact of early marriage on children's health also increased substantially, with good and very good categories accounting for 92.1% at post-test. This domain may have been easier for respondents to understand because the material linked early marriage to concrete and observable health outcomes in children. Presenting the issue through downstream child health consequences may therefore increase relevance and perceived urgency among adolescents [20, 21].

Although all three Wilcoxon tests indicated statistically significant gains, the study design places clear limits on interpretation. Because the study used a single-group pre-test–post-test design, the results cannot exclude testing effects, short-term recall, or social desirability as contributors to the observed change. In addition, the study assessed immediate knowledge outcomes only and did not evaluate retention, attitude change, delayed marriage intentions, or actual health outcomes.

The findings should therefore be viewed as preliminary but useful evidence to support the inclusion of early marriage content in school health curricula and future controlled studies with longer follow-up. In practical terms, the results provide a basis for developing school-based promotive programs that strengthen adolescent health literacy while more rigorous evaluations are undertaken [22].

5 Conclusion

This study shows that a brief school-based educational intervention significantly improves adolescents' short-term knowledge about early marriage, parenting readiness, and the child health consequences of early marriage. The Wilcoxon test confirms a consistent pre-test to post-test improvement across all measured do-

mains, indicating that the intervention was effective as an educational strategy.

Interventions for adolescents aged 15–16 remain strategic because this is a critical stage for the development of risk perception, attitudes, and future decision-making. Material that links early marriage to child health consequences appears especially understandable and may help adolescents frame the issue in concrete public health terms.

Overall, the findings support the integration of early marriage education into school health and education programs as an evidence-informed promotive effort. However, because this study assessed short-term knowledge in a one-group design, further controlled studies with follow-up are needed to determine whether these gains persist and translate into changes in attitudes or behavior.

Research ethics

This research was conducted in accordance with ethical principles for human subject research, including respect for respondents' rights, safety, and fairness. All respondents received an explanation of the study purpose and procedures and participated voluntarily after providing informed consent.

The confidentiality and anonymity of respondent data were strictly maintained, and the data were used solely for research purposes. Respondents had the right to withdraw at any time without consequence. The study posed no physical or psychological risk to respondents and was conducted in accordance with applicable ethical standards.

Research contribution

This study provides local program-evaluation evidence that a single school-based educational session can improve adolescents' short-term knowledge about early marriage, parenting readiness, and child health consequences. Adelgrit Trisia contributed to study design, Ira Jayanti contributed to data analysis, and Dian Mutiasari contributed to interpretation of the results.

References

- [1] World Health Organization. Adolescent pregnancy: evidence brief. No. WHO/RHR/19.15. World Health Organization, 2019.
- [2] Neal, Sarah, et al. "Childbearing in adolescents aged 12–15 years in low resource countries: a neglected issue. New estimates from demographic and household surveys in 42 countries." *Acta Obstetrica et Gynecologica Scandinavica* 91.9 (2012): 1114-1118.
- [3] Fall, Caroline HD, et al. "Association between maternal age at childbirth and child and adult outcomes in the offspring: a prospective study in five low-income and middle-income countries (COHORTS collaboration)." *The Lancet Global Health* 3.7 (2015): e366-e377.
- [4] UNICEF. Global databases: Child marriage. New York: UNICEF; 2024.
- [5] UNICEF. Child marriage in East Asia and the Pacific. New York: UNICEF; 2025.
- [6] Chandra-Mouli, Venkatraman, Alma Virginia Camacho, and Pierre-André Michaud. "WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries." *Journal of Adolescent Health* 52.5 (2013): 517-522.

- [7] Panjaitan, Gabrielle Angelique, et al. "Perbedaan tingkat pengetahuan tentang kesehatan reproduksi pada mahasiswa Fakultas Kedokteran, Fakultas Hukum dan Fakultas Ekonomi Universitas Palangka Raya." *Barigas: Jurnal Riset Mahasiswa* 1.2 (2023): 1–10.
- [8] Arifin, S., and D. M. Sari. "Public health science theory map (Health Policy Administration and Health Behavior)." *Banjarmasin: Mitra Wacana Media* (2020).
- [9] Fan, Suiqiong, and Alissa Koski. "The health consequences of child marriage: a systematic review of the evidence." *BMC Public Health* 22.1 (2022): 309.
- [10] World Health Organization. *Global accelerated action for the health of adolescents (AA-HA!): Guidance to support country implementation*. World Health Organization, 2023.
- [11] Sawyer, Susan M., et al. "The age of adolescence." *The Lancet Child & Adolescent Health* 2.3 (2018): 223-228.
- [12] Patton, George C., et al. "Adolescence and the next generation." *Nature* 554.7693 (2018): 458-466.
- [13] Glanz, Karen, Barbara K. Rimer, and Kasisomayaajula Viswanath, eds. *Health Behavior: Theory, Research, and Practice*. John Wiley & Sons, 2015.
- [14] Ajzen, Icek. "The theory of planned behavior: Frequently asked questions." *Human Behavior and Emerging Technologies* 2.4 (2020): 314-324.
- [15] Salam, Rehana A., et al. "Improving adolescent sexual and reproductive health: a systematic review of potential interventions." *Journal of Adolescent Health* 59.4 (2016): S11-S28.
- [16] Chandra-Mouli, Venkatraman, et al. "A never-before opportunity to strengthen investment and action on adolescent contraception, and what we must do to make full use of it." *Reproductive Health* 14.1 (2017): 85.
- [17] Kalamar, Amanda M., Susan Lee-Rife, and Michelle J. Hindin. "Interventions to Prevent Child Marriage Among Young People in Low- and Middle-Income Countries: A Systematic Review of the Published and Gray Literature." *Journal of Adolescent Health* 59.3 (2016): S16-S21.
- [18] Samosir, Angelika, et al. "The relationship between the level of knowledge and attitudes with personal hygiene behavior during menstruation in adolescent." *Barigas: Jurnal Riset Mahasiswa* 3.2 (2025).
- [19] Coren, Esther, Jane Barlow, and Sarah Stewart-Brown. "The effectiveness of individual and group-based parenting programmes in improving outcomes for teenage mothers and their children: a systematic review." *Journal of Adolescence* 26.1 (2003): 79-103.
- [20] Putra, Ravenalla Abdurrahman Al Hakim Sampurna, et al. "Pemberian Edukasi Kesehatan Kepada Masyarakat Di Wilayah Kerja BLUD Puskesmas Pahandut Palangka Raya." *Majalah Cendekia Mengabdi* 1.3 (2023): 146-152.
- [21] Loaiza, Edilberto, and Sylvia Wong. "Marrying too young. End child marriage." *New York: United Nations Population Fund* (2012).
- [22] Viner, Russell M., et al. "Adolescence and the social determinants of health." *The Lancet* 379.9826 (2012): 1641-1652.