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Child Marriage and Teenage Pregnancy: Reproductive Health Challenges in the Community

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Abstrak

Background: Child marriage and adolescent pregnancy pose risks to the reproductive health of young women and their infants. Comprehensive provincial data on child marriage are not publicly available; therefore, this article examines national trends and available provincial evidence. **Objectives:** To describe trends in adolescent birth rates and child marriage in Indonesia, compare them with four other Southeast Asian countries, and assess the association between the two. **Methods:** A time-series ecological study using secondary data. Adolescent birth rates (births per 1,000 females aged 15–19 years) from 1990 to 2023 were obtained from the World Bank's World Development Indicators for Indonesia, the Philippines, Thailand, Vietnam, and Malaysia. The percentage of women aged 20–24 who were married before age 18 (2008–2024) was obtained from reports by the Central Statistics Agency (BPS) and UNICEF, as well as publications derived from BPS data. Annual rates of change were calculated using log-linear regression across three periods; trends in child marriage were analyzed using linear regression; and the relationship between the two was assessed using Spearman's and Pearson's correlations. **Results:** Indonesia's adolescent birth rate declined from 74.8 to 26.4 per 1,000 (−64.7%) between 1990 and 2023. The annual rate of decline was −2.96% from 1990 to 2004, slowed to −1.07% from 2005 to 2012, and increased to −5.08% from 2013 to 2023. Child marriage declined from 14.67% (2008) to 5.9% (2024), with a decrease of approximately 0.71 percentage points per year from 2016 to 2024 (R^2 = 0.89). The two time series were correlated from 2016 to 2023 (ρ = 0.93; 95% CI 0.53–0.99; n = 8), but both declined over time, so the correlation does not indicate causation. In 2018, the percentage of child marriages in provinces with available data ranged from 4.68% (Riau Islands) to 19.43% (West Sulawesi). **Conclusion:** Significant progress has been made, but the rate of decline has slowed, and disparities among provinces remain substantial. Analysis of adolescent pregnancies by province requires the publication of complete provincial data.
Keywords: child marriage; adolescent pregnancy; adolescent birth rate; adolescent reproductive health; Indonesia

Introduction

Adolescence is a period when reproductive health is established, and marriage and pregnancy during childhood increase risks for young women. A review of child marriage indicates that marriage before adulthood is associated with early pregnancy, barriers to continuing education, and limited control young women have over their reproductive decisions (Raj, 2010). An analysis of data from 144 countries shows that the risk of maternal mortality among adolescents varies across age groups, with very young adolescents facing a higher risk than adult women (Nove et al., 2014). Accessible, high-

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quality maternal health services are viewed as one way to improve the health of mothers and newborns, including among vulnerable groups (Renfrew et al., 2014; ten Hoope-Bender et al., 2014).

In Indonesia, child marriage and adolescent pregnancy are discussed as interrelated public health and reproductive health issues (Aladin, 2023). The percentage of women aged 20–24 who were married before the age of 18 decreased from 14.67% in 2008 to 11.21% in 2018 (Central Statistics Agency et al., 2020), and a publication derived from BPS data reported a figure of 5.9% in 2024 (GoodStats, 2025b). Although the rate has declined, reports from the BPS, Bappenas, UNICEF, and PUSKAPA (2020) indicate significant interprovincial variation, with some provinces exceeding 15% in 2018. The average age at first marriage in 2024 was also lowest in West Nusa Tenggara and Central Papua, at 20.34 years (GoodStats, 2025a).

Trends in adolescent birth rates further illustrate this picture. According to World Bank data, the birth rate among girls aged 15–19 in Indonesia fell from 74.8 per 1,000 in 1990 to 26.4 in 2023 (World Bank, 2026). However, this decline has not been uniform over time, and it remains unclear whether Indonesia's rate of decline is comparable to that of neighboring countries or whether progress in reducing child marriage aligns with progress in reducing adolescent births. Furthermore, comprehensive provincial-level data on child marriage and adolescent pregnancy are not available as open-access, downloadable tables, making it impossible to conduct province-based research using verifiable data.

This article therefore uses open national and international data. Its objectives are (1) to describe trends in Indonesia's adolescent birth rates from 1990 to 2023 and compare them with those of the Philippines, Thailand, Vietnam, and Malaysia; (2) to measure trends in child marriage from 2008 to 2024; (3) to assess the relationship between these two trends; and (4) to present available provincial evidence for 2018 and 2024 to illustrate existing gaps. The findings are expected to help midwives and community health workers prioritize targets for adolescent reproductive health services.

Methods

Design. This study is an ecological time-series study using open-access secondary aggregate data. No individual data were used, so no ethical approval was required. Since the units of analysis are years and countries, the findings cannot be interpreted as relationships at the individual level.

Data Sources. *Adolescent fertility rates* (births per 1,000 females aged 15–19 years) from 1990 to 2023 for Indonesia, the Philippines, Thailand, Vietnam, and Malaysia were obtained from the World Development Indicators (indicator SP.ADO.TFRT) via the World Bank's application programming interface (World Bank, 2026). This indicator is a model estimate and not the result of an annual census. The percentage of women aged 20–24 who were married or living with a partner before age 18 was obtained from reports by BPS, Bappenas, UNICEF, and PUSKAPA (2020) for 2008 and 2018, as well as from the GoodStats publication (2025b), which cites BPS as the source for 2016–2024. The 2018 figure (11.21%) is the same in both sources. Provincial data for 2018 were taken from the text of the BPS et al. (2020) report, and the average age at first

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marriage in 2024 was taken from GoodStats (2025a). A summary of the sources is presented in Table 1.

Table 1. Research Data Sources

Indicator	Coverage	Period	Source
Adolescent birth rate (per 1,000 females aged 15–19)	5 countries	1990–2023	World Bank (2026)
Women Aged 20–24 Who Married Before Age 18 (%)	National	2008, 2016–2024	BPS et al. (2020); GoodStats (2025b)
Child marriage by province (%)	The 10 provinces mentioned in the report text	2018 (and 2015 for three provinces)	BPS et al. (2020)
Average age at first marriage (years)	The 10 provinces with the lowest rates	2024	GoodStats (2025a)

Operational definitions. Child marriage is defined as marriage or cohabitation before the age of 18, as reported by women aged 20–24. Adolescent births are the number of live births per 1,000 women aged 15–19 in a given year. *The annual percent change* (APC) is the relative annual change on a logarithmic scale.

Statistical analysis. The rate of change in the adolescent birth rate is calculated as APC = (e^b − 1) × 100%, where b is the slope of the linear regression of the natural logarithm of the birth rate against year, along with the 95% confidence interval (CI) for the standard error of the slope. The three periods (1990–2004, 2005–2012, and 2013–2023) were defined by examining time-series graphs; thus, the period boundaries are descriptive and were not formally tested as points of change. Cross-country comparisons used relative changes from 1990 to 2023 and APCs from 2013 to 2023. Trends in child marriage from 2016 to 2024 were assessed using simple linear regression against the year. The relationship between child marriage and adolescent birth rates in the same years (2016–2023, n = 8) was assessed using Spearman's correlation with 95% Fisher-z confidence intervals and Bonett–Wright standard error, calculated as the square root of $(1 + \rho^2/2)/(n - 3)$, as well as Pearson's correlation for comparison. The significance level was set at a two-sided $p < 0.05$. The analysis was performed using Python 3 and SciPy.

Design limitations. First, both series decline over time, so the correlation may arise from a common trend rather than a direct relationship. Second, only eight annual data points can be correlated. Third, provincial data are only partially available and were selected based on the report text, so they do not represent all provinces and were not

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analyzed using inferential statistics. Fourth, the child marriage figures for 2016–2024 were taken from secondary publications citing BPS, not directly from BPS tables.

Results

Trends in Indonesia's adolescent birth rates. The birth rate among females aged 15–19 years declined from 74.8 per 1,000 in 1990 to 26.4 in 2023, representing a 64.7% decrease (Figure 1). This decline was not uniform. From 1990 to 2004, the Annual Percentage Change (APC) was −2.96% per year (95% CI −3.14 to −2.77). From 2005 to 2012, the APC was only −1.07% (95% CI −1.38 to −0.75), and the rate remained nearly flat from 2008 to 2011 (46.3; 45.6; 45.7; 45.6). From 2013 to 2023, the APC increased to −5.08% (95% CI −5.92 to −4.23). The decline slowed again after 2020, from 27.2 to 26.4 in 2023.

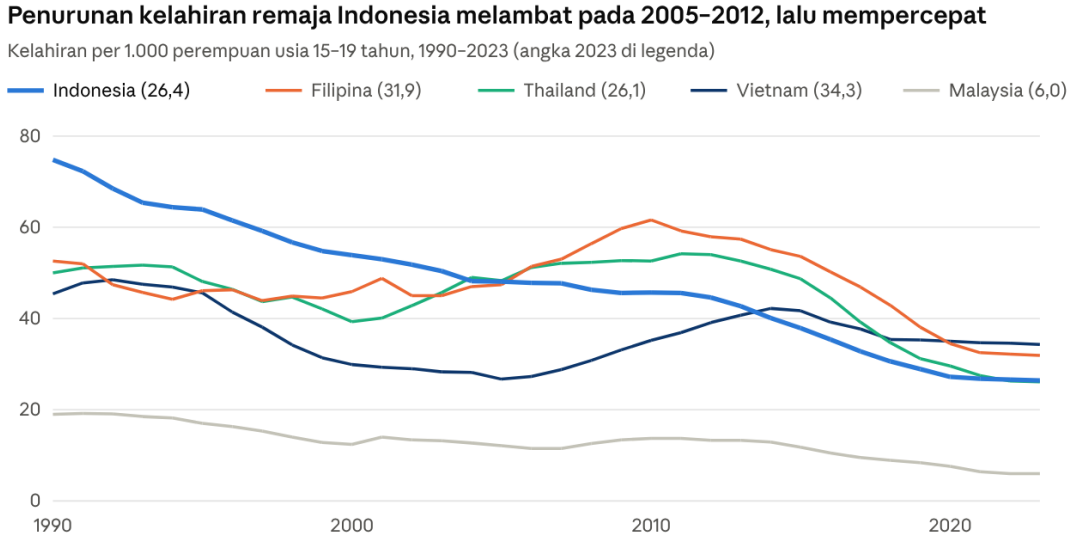


Figure 1. The decline in adolescent births in Indonesia slowed from 2005 to 2012, then accelerated. Source: World Bank (2026)

Comparison with other countries. In 1990, Indonesia had the highest rate among five countries (Table 2). In 2023, Indonesia's rate (26.4) was on par with Thailand's (26.1), lower than the Philippines' (31.9) and Vietnam's (34.3), and far higher than Malaysia's (6.0). Indonesia's relative decline since 1990 (−64.7%) was the second-largest after Malaysia's (−68.6%). However, from 2013 to 2023, Indonesia's rate of decline (−5.08% per year) was slower than that of the Philippines (−6.64%), Thailand (−7.77%), and Malaysia (−8.43%), and was only faster than Vietnam's (−2.25%). Vietnam's rate rose from 26.7 (2005) to 42.2 (2014) before declining, and the Philippines' rate peaked at 61.6 in 2010.

Table 2. Comparison of Adolescent Birth Rates in Five Countries

Country	1990	2023	Change 1990–2023 (%)	APC 2013–2023 (%)

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Country	1990	2023	Change 1990–2023 (%)	APC 2013–2023 (%)
Indonesia	74.8	26.4	−64.7	−5.08
Philippines	52.6	31.9	−39.4	−6.64
Thailand	50.0	26.1	−47.7	−7.77
Vietnam	45.4	34.3	−24.5	−2.25
Malaysia	19.0	6.0	−68.6	−8.43

Trends in child marriage. The percentage of women aged 20–24 who were married before age 18 fell from 14.67% in 2008 to 11.21% in 2018 (a relative decrease of 23.6%) and to 5.9% in 2024 (a relative decrease of 47.4% compared to 2018). From 2016 to 2024, there was an average decline of 0.71 percentage points per year (R^2 = 0.89; $p < 0.001$), with a temporary increase in 2017 (11.54%). An acceleration was evident after 2020, when the rate fell from 10.35% to 6.92% in 2023 (Table 3).

Table 3. Child Marriage and Adolescent Birth Rates in Indonesia, 2016–2024

Year	Child Marriage (%)	Adolescent birth rate in Indonesia (per 1,000)
2016	11.11	35.4
2017	11.54	32.8
2018	11.21	30.6
2019	10.82	28.9
2020	10.35	27.2
2021	9.23	26.8
2022	8.06	26.6
2023	6.92	26.4
2024	5.90	–

The relationship between the two trends. From 2016 to 2023, child marriage was correlated with the adolescent birth rate (Spearman's $\rho = 0.93$; 95% CI 0.53–0.99; $p < 0.001$; Pearson's $r = 0.74$; $p = 0.037$; $n = 8$). After 2020, child marriage declined by 33% (from 10.35% to 6.92%), while the adolescent birth rate fell by only 3% (from 27.2 to 26.4). This pattern indicates that the decline in child marriage has not been accompanied by a decline in adolescent births at the same rate.

Provincial evidence. The report by BPS et al. (2020) includes 2018 figures for ten provinces (Table 4). The rates range from 4.68% (Riau Islands) to 19.43% (West Sulawesi), with West Sulawesi and Central Kalimantan exceeding 19%. Compared to 2015, South Kalimantan saw a decrease of 5.56 percentage points and West Sulawesi a decrease of 1.94 percentage points, while North Maluku saw an increase of 3.35 percentage points. In 2024, the average age at first marriage was lowest in West Nusa

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Tenggara and Central Papua (20.34 years), followed by Mountainous Papua (20.42), West Kalimantan (20.70), and South Kalimantan (20.72) (GoodStats, 2025a).

Table 4. Child marriage by province (data available)

Province	2015 (%)	2018 (%)	Change (percentage points)
West Sulawesi	21.37	19.43	−1.94
Central Kalimantan	–	19.13	–
South Kalimantan	23.19	17.63	−5.56
West Nusa Tenggara	–	15.48	–
Bengkulu	–	14.33	–
South Sulawesi	–	14.10	–
North Maluku	10.01	13.36	+3.35
East Kalimantan	–	11.54	–
Maluku	–	8.94	–
Riau Islands	–	4.68	–
National	–	11.21	–

Discussion

Real progress, but not without challenges. The 64.7% decline in the adolescent birth rate since 1990 indicates significant improvement, yet the annual rate of decline slowed to −1.07% between 2005 and 2012 before accelerating to −5.08% between 2013 and 2023. This pattern is not unique to Indonesia: the rate in the Philippines peaked at 61.6 in 2010, and Vietnam's rate rose from 26.7 in 2005 to 42.2 in 2014 before declining (World Bank, 2026). Both examples show that the decline in adolescent births can stall or reverse, so current gains must be sustained. The period boundaries in this analysis were determined based on the graph rather than a breakpoint test; therefore, the APC figures for each period should be interpreted as descriptive estimates. Additionally, the World Bank indicators are model estimates, and the causes of the slowdown during 2005–2012 cannot be determined from this data.

Child marriage has declined more rapidly than adolescent births in recent years. After 2020, child marriage fell by 33 percent, while the adolescent birth rate declined by only 3 percent. There are several possible explanations, though they are not tested here: births to women who married after age 18 are still counted in the 15–19 age group; child marriage is measured in the 20–24 age group, thus reflecting conditions from several years prior; and births outside of marriage are not covered by the marriage indicator. The high correlation between the two time series ($\rho = 0.93$) largely reflects the same downward trend and is based on only eight data points; therefore, it cannot be interpreted as a causal relationship. These results are consistent with the view that child

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marriage is associated with early pregnancy (Raj, 2010; Aladin, 2023), but do not prove it.

Disparities among provinces remain significant. In 2018, the child marriage rate in West Sulawesi (19.43%) was nearly four times that of the Riau Islands (4.68%), and the national rate (11.21%) masked this difference (Central Statistics Agency et al., 2020). Interprovincial trends also moved in opposite directions: South Kalimantan saw a decrease of 5.56 percentage points, while North Maluku saw an increase of 3.35 percentage points between 2015 and 2018. The lowest average age at first marriage in 2024—20.34 years—was observed in West Nusa Tenggara and Central Papua, indicating that the priority provinces are not identical to the 2018 list (GoodStats, 2025a). The provincial data used here are limited to the ten provinces mentioned in the report text; therefore, this list should not be considered a comprehensive ranking.

Implications for community health services. The risk of maternal mortality among adolescents is higher in the very young age group (Nove et al., 2014); therefore, women who marry or become pregnant at a very young age deserve special attention. Midwifery services integrated into the health system are associated with better outcomes for mothers and newborns (Renfrew et al., 2014; ten Hoope-Bender et al., 2014); therefore, midwives and community health workers can play a role in reproductive health counseling, early antenatal care, and referrals for adolescents. Since comprehensive provincial data is not yet publicly available, regional prioritization should utilize microdata from the SDKI or Susenas surveys, which can be analyzed by province and district.

Limitations. First, birth rates do not include adolescent pregnancies that end in miscarriage or termination, so the actual number of adolescent pregnancies is likely higher than the number of births. Second, data on child marriage from 2016–2024 are derived from secondary publications citing BPS, so they should be verified against BPS tables. Third, provincial data covers only ten provinces in 2018 and only the average age at first marriage in 2024. Fourth, the analysis uses a time series with few data points and does not account for confounding factors such as education, poverty, and access to services.

Conclusion

Indonesia’s adolescent birth rate fell by 64.7% between 1990 and 2023, but the decline slowed temporarily from 2005 to 2012 and slowed again after 2020. Child marriage fell from 14.67% (2008) to 5.9% (2024), and the two trends moved in the same direction, although after 2020, child marriage declined much more rapidly than adolescent births. The gap between provinces remains large, ranging from 4.68% to 19.43% in 2018 in provinces for which data is available. Regional prioritization requires complete provincial data from the SDKI or Susenas, and community midwives can play a role through counseling and early intervention services for adolescents.

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