

Role of Level of Education in Under-Age Marriage Prevention: A Study from Indonesia's Rural Areas

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Abstract. The prevalence of early marriage in Indonesia remains high. Adolescent pregnancy carries a significant risk of situations that may put the mother's and the foetus's health at risk, thus becoming a public health issue in the present and future. The aim is to analyse the education role in early marriage prevention in Indonesia's rural areas. We examined 4,360 adolescent girls. The study employed early marriage as an outcome variable, education as an exposure variable, and six control variables (age, employment, wealth, previous sexual intercourse experience, access to family planning (FP) information from print media, and access to FP from electronic media). The study employed binary logistics regression in the final test. The study showed that the average early marriage in Indonesia's rural areas was 11.9% nationally. Based on the education level, secondary education was 7.364 times more likely than primary education not to experience early marriage (AOR 7.364; 95% CI 4.614-11.755). Moreover, higher education was 21.679 times more likely than primary education (AOR 21.679; 95% CI 4.450-105.609). The study concluded that education had a role in early marriage prevention in Indonesia's rural areas. The higher the level of education, the higher the possibility of not experiencing early marriage.

1 Introduction

Globally, there were an estimated 640 million girls who practiced early marriage. Approximately one in five young women aged 20-24 has experienced early marriage [1]. Early marriage is still very common in Indonesia, with 16% of the population getting married before 18 and 2% marrying before 15. The National Social Economic Survey of 2018 indicates that around 1 in 9 girls aged 20-24 had their first marriage before reaching 18, while the percentage of men who married before 18 was notably lower, approximately 1.06%.

Additionally, rural areas have a higher likelihood of early marriage, where the likelihood of girls marrying before 18 is twice that in urban areas. In rural areas, the proportion of early marriages was around 16.87%, compared to only 7.15% in urban areas. The proportion of early marriage also varies by province, with West Sulawesi having the highest rate at 19.43% [2].

Adolescent pregnancy carries a significant risk of situations that could endanger the health of both the mother and the fetus, making it a current and future public health concern. From the standpoint of biology, some of the disadvantages of adolescent pregnancy include

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gestational diabetes, anaemia, Pregnancy-related hypertension, and difficulties giving birth could result in a rise in maternal and fetal mortality [3]. The risk of enduring physical, emotional, and sexual assault is increased by child marriage, and the first sexual encounter was coerced [4].

The reasons for child marriage are numerous, complicated, and interconnected, deeply rooted in many geographies and regions' social and cultural contexts [5]. Lower socioeconomic achievement, i.e., a lower educational degree⁶, and women who reside in rural regions are widely regarded as a strong predictor of adolescent motherhood [6,7]. The higher a person's education, the younger they are at acquiring knowledge, and consequently, the more knowledge they possess. This resilience factor will support girls in continuing their education and can act as a barrier against early marriage. In rural areas of Indonesia, where the average level of education is lower than in urban areas, the incidence of early marriage is higher (16.87%), so it is important to know how the level of education is related to the incidence of early marriage in rural areas of Indonesia.

The Indonesian government's effort to prevent early marriage while supporting the United Nations Children's Fund (UNICEF) to achieve the SDGs is the holding the Generation Planning Program (GenRe), which is to provide an understanding of the maturation of marriage age to be able to carry out a planned level of education, a career in a scheduled job, and get married with full planning according to the reproductive health cycle [8]. Early marriage can be prevented by empowering girls and providing them with an education. Given the context, the study intends to examine education's impact in preventing early marriage in rural Indonesia.

2 Methods

2.1 Data source and Study Design

We used secondary data from the 2019 Government Performance and Accountability Survey (GPAS)/*Survei Kinerja dan Akuntabilitas Program* (SKAP) in the cross-sectional study, which took place between July and September of 2019 by a collaboration between the National Population and Family Planning Board and the Central Agency of Statistics, with national and regional levels of representative sample coverage. The survey's target population included families, unmarried teenage girls aged 10 to 24, households, and women of childbearing age 15 to 49. As an enumeration region, the study used a clustering technique. According to the study, A cluster comprises one or more census blocks situated on a single length, are close to one another, and contain about 200 dwellings. The sample design for this survey was stratified multistage random sampling.

2.2 Sample selection

The 2019 GPAS's objective was to establish guidelines at the provincial and national levels. The 2019 GPAS sample included 67,725 households from 34 provinces, 82,030 villages, 514 districts/cities, and 1,935 clusters. Household respondents participated in earlier GPAS surveys and long-term national plans, family respondents, and women between the ages of 15 and 49 who were childbearing age; however, the youth module (unmarried) in 2019 was for those aged 10 to 24.

This study's sampling was done in stages. Applying sampling with probability proportionate to size (PPS, the first step entails choosing villages according to the total number of households in the sample frame of all towns or in the list of each village. The village sample was randomly drawn from both rural and urban regions within a city or

district. Based on the number of families in the chosen cluster, the second step was using PPS sampling to select one cluster from each desired village. The third stage consists of picking 35 families through a methodical random selection process according to the outcomes of home listings provided by smartphone apps to enumerators in the selected cluster.

All of the ladies in the 35 chosen families who were between the ages of 15 and 49 made up the sample. This survey collected 4,360 teenage girls (15–19 years old) from 59,825 females aged 15–49, with a 99.7% response rate.

2.3 Outcome Variable

Early marriage was included as the study's outcome variable. This study defined early marriage as a marriage occurring before the age of 19 years. Early marriage consists of Yes and No.

2.4 Exposure Variable

Education level was included in the study as a variable of exposure. Primary, secondary, and higher education are the three educational levels examined in this study.

2.5 Control Variables

The research employed six control variables: age, employment status, wealth status, previous sexual intercourse experience, access to information about family planning (FP) through print, and access to information about FP by electronic media.

The study used the last birthday to calculate age (in years). The age group consists of ≤ 16 , 17, 18, and 19. Employment status was separated into employed and unemployed categories in the study. The wealth index computation was utilized to ascertain wealth status in the 2019 GPAS. The index of wealth, on the other hand, determined a weighted average of the total expenditures of a household. Meanwhile, primary data on household health insurance spending, food, accommodation, and other commodities were used to build the wealth index. Furthermore, the 2017 GPAS classified wealth as poor, moderate, and rich.

In the meantime, the research split previous sexual intercourse experiences into two categories: Never and Ever. However, the availability of family planning (FP) information through print media refers to getting FP information from a variety of print media, including periodicals, newspapers, billboards, flipcharts, posters, banners, pamphlets, leaflets, and brochures. The variables in the study were classified as No (never getting access) and Yes (getting access). FP access, as well as information obtained by radio, television, and the Internet, is referred to as electronic media. The factors in the study were classified as No (never getting access) or Yes (getting access).

2.6 Data Analysis

In the first phase, we used the Chi-Square test for bivariate analysis. In the second phase of the study, the collinearity test was used to find no significant correlation among the independent variables. In the last stage, we employed a binary logistic regression test (entrance method). The researchers published adjusted odds ratios (AOR) with 95% confidence intervals (95% CI). All statistical analyses were performed using the SPSS 26 edition of the program.

2.7 Ethical Consideration

The Family Planning and Reproductive Health Committee of Research Ethics approved the survey (454/LB.02 /H4/2019). We carried out the study following the regulations of the head of Family Planning and Reproductive Health.

3 **Results And Discussion**

According to the findings, the national average for early marriage in the rural regions of Indonesia was 11.9%. Additionally, Table 1 summarizes the statistics of early marriage in rural Indonesia.

Table 1. Descriptive statistics of early marriage in Indonesia (n=4,360)

Variables	p-value	Education Level		
		Primary (n=1,374)	Secondary (n=2,777)	Higher (n=209)
Early Marriage	*<0.001			
- Yes		28.1%	4.7%	0.6%
- No		71.9%	95.3%	99.4%
Age	*<0.001			
- ≤16		52.3%	40.2%	1.3%
- 17		11.6%	24.6%	5.8%
- 18		15.0%	20.1%	31.2%
- 19		21.2%	15.1%	61.7%
Employment status	**0.001			
- Unemployed		89.2%	92.4%	96.1%
- Employed		10.8%	7.6%	3.9%
Wealth status	*<0.001			
- Poor		52.1%	30.8%	18.8%
- Middle		40.3%	55.9%	53.2%
- Rich		7.6%	13.4%	27.9%
Previous sexual intercourse experience	*<0.001			
- Never		70.1%	93.3%	96.8%
- Ever		29.9%	6.7%	3.2%
Access to FP information from print media	**0.001			
- No		86.2%	83.3%	75.3%
- Yes		13.8%	16.7%	24.7%
Access to FP information from electronic media	*<0.001			
- No		51.2%	46.7%	32.5%
- Yes		48.8%	53.3%	67.5%

*p-value<0.001; **p-value<0.010

Table 1 shows the highest proportion of early marriage in the primary education group compared to other levels. Regarding age, ≤16 dominated primary education. Meanwhile, according to employment status, the unemployed dominated all education categories. Moreover, the middle class dominated all education levels based on wealth status. Regarding previous sexual intercourse experience, never had sexual intercourse dominated all education levels. Based on the availability of FP data through print media, no access leads all education groups. Furthermore, depending on the availability of FP data via electronic media, no access dominated primary education; meanwhile, those with access dominated secondary and higher education.

A collinearity test was the next step. The findings demonstrated that the independent factors did not significantly relate to one another. Additionally, the variance inflation factor (VIF) value was less than 10.00, and the tolerance value for all variables was more than 0.10. The study discovered that the regression model showed no multicollinearity, indicating that the test's foundation for decision-making.

The findings of the binary logistic regression test on underage marriage in rural Indonesia are shown in Table 2. According to the education level, the likelihood of avoiding an early marriage is 7.364 times higher for secondary education than for primary school (AOR 7.364; 95% CI 4.614-11.755). Moreover, compared to primary school, higher education is 21.679 times more probable to prevent early marriage (AOR 21.679; 95% CI 4.450-1).

Table 2. Results of Binary Logistic Regression (n=4,360)

Predictors	p-value	Not Experiencing Early Marriage		
		AOR	95% CI	
			Lower Bound	Upper Bound
Education: Primary (ref.)	-	-	-	-
Education: Secondary	*<0.001	7.364	4.614	11.755
Education: Higher	*<0.001	21.679	4.450	105.609
Age: ≤16	*<0.001	16.068	8.701	29.672
Age: 17	*<0.001	5.926	3.081	11.398
Age: 18	**0.004	2.400	1.328	4.336
Age: 19 (ref.)	-	-	-	-
Employment: Unemployed (ref.)	-	-	-	-
Employment: Employed	0.428	1.323	.662	2.642
Socio economic: Poor (ref.)	-	-	-	-
Socio economic: Middle	0.476	1.180	.748	1.862
Socio economic: Rich	0.642	1.225	.521	2.884
Previous sexual intercourse experience: Never	*<0.001	748.028	429.136	1303.892
Previous sexual intercourse experience: Ever (ref.)	-	-	-	-
Access to FP information from print media: No (ref.)	-	-	-	-
Access to FP information from print media: Yes	0.601	0.858	0.483	1.523
Access to FP information from electronic media: No (ref.)	-	-	-	-
Access to FP information from electronic media: Yes	0.221	1.333	.841	2.112

CI: confidence interval of 95%; *p-value < 0.001; **p-value < 0.010

The findings of the binary logistic regression test on early marriage in rural Indonesia are shown in Table 2. Based on the education level, the likelihood of avoiding an early marriage is 7.364 times higher for secondary education than for primary school (AOR 7.364; 95% CI 4.614-11.755). Moreover, higher education is 21.679 times more likely not to experience early marriage than primary education (AOR 21.679; 95% CI 4.450-105.609).

Furthermore, the results also discovered two control variables pertaining to early marriage in Indonesian rural areas. The two are age groups and previous sexual intercourse experience.

In terms of age group, the likelihood of avoiding an early marriage increases with younger age. Meanwhile, according to the last sexual intercourse experience, girls who have never had sexual intercourse are 748.028 times more likely than those who ever have sexual intercourse not to get married young (AOR 748.028; 95% CI 429.136-1,303.892).

The result indicated that education level pertaining to preventing early marriage in rural Indonesia. In lower and middle-income nations, the primary causes of the prevalence of child marriage are poverty and low educational achievement. The early involvement of boys and girls in working processes to support the family economy is joint in rural communities. This undoubtedly impacts the continuation of rural children's education. Rural areas typically have low levels of education, which affects how they think [9]. It was discovered that girls with more excellent education were more inclined to choose their spouses than girls without formal education. Numerous studies have identified the elements that influence child marriage arrangements, and education is among the greatest protective factors when it comes to early marriage. The timing of girls' marriages is significantly delayed by secondary or higher schooling [10].

The likelihood of avoiding an early marriage increases with education level. Education has been identified as one of the protective factors that prevent early marriage. The likelihood of an early marriage decreases with increasing educational attainment. According to research conducted in Bangladesh, women who complete secondary school have a 45% lower chance of being married young than those who only complete basic school. In contrast to women who have only completed primary school or not at all, women with more than a secondary education had a 9% lower chance of getting married young [11]. The role of parents also influences the sustainability of early marriage, which is related to education.

Early marriage is commonly linked to negative consequences for women and girls. Many countries have implemented a minimum age for marriage to prevent early marriage. Changes to the marriage law have been made in Indonesia. Law Number 1 of 1974 stipulates 16 years of age as the limit for marriage for women. The Marriage Law number 16 of 2019 amended this regulation, stating that both men and women must be at least 19 years old to get married. This revision was implemented to stop child marriage in Indonesia. Another effort is the Government's formulation of a National Strategy for the Prevention of Child Marriage, which is developed through five strategies. They include maximizing children's potential, fostering an atmosphere discouraging child marriage, expanding and improving service accessibility, fortifying laws and institutions, and fostering stakeholder collaboration [12].

In terms of age group, the likelihood of an early marriage increases with younger age. Furthermore, according to previous sexual intercourse experience, girls who never had sexual intercourse were likelier than those who had sexual intercourse not to experience early marriage. Furthermore, girls who never had sexual intercourse were more reasonable than those who had sexual intercourse not experiencing early marriage. This shows that early marriage tends to occur among young women who have had sexual intercourse before marriage. The impact of sexual intercourse is that young women are married by accident. According to research from Nepal, Pakistan, and India, underage marriage raises the risk of an unintended pregnancy [13]. This can happen because these young couples are not physically, mentally, or economically ready.

However, in many countries globally, including the Asia-Pacific, early marriage is often seen as a protection against premarital sex. Parents may force their daughters to marry to protect them from sexual harassment and sexual violence, avoiding sexual behavior that may be considered immoral or inappropriate before marriage [14]. According to a study conducted across 34 African nations, child marriage prevents unintended pregnancies [15].

Study Limitation

One of the study's strengths was its use of big data as analytical material to demonstrate generalized work up to the national level. However, we are unable to look into the causes of the underage marriage phenomenon found in previous studies, such as family, child, and religious values, because the author employed a quantitative methodology.

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Conflict of interest

The authors have declared that they have no competing interests.

4 Conclusion

The study has concluded that in Indonesia's rural areas, education had a part in preventing early marriage. The likelihood of avoiding an early marriage increases with education level. Girls in remote communities cannot battle for themselves to be seen as males in public. Patriarchal solid culture, which refers to the attitudes and behaviours in a society that values men more than women, is the root of the predicament. By revitalizing existing social institutions in rural communities, the first step is to re-create public understanding that women also play a significant role in family and community development.

References

1. UNICEF. *Is an End to Child Marriage Within Reach?* (UNICEF, 2023). https://data.unicef.org/wp-content/uploads/2023/05/Is_an_End_to_Child_Marriage_Within_Reach-3.pdf
2. Statistics Indonesia (BPS), PUSKAPA, UNICEF & Ministry of National Development Planning (Bappenas). *Prevention of Child Marriage: Acceleration That Cannot Wait*. (BPS, PUSKAPA, UNICEF & Bappenas, 2020). doi:10.13140/RG.2.2.30667.92968.
3. Islam, M. Z., Billah, A., Islam, M. M., Rahman, M. & Khan, N. Negative effects of short birth interval on child mortality in low and middle-income countries: A systematic review and meta-analysis. *J. Glob. Health* **12**, (2022).
4. Fan, S. & Koski, A. The health consequences of child marriage: a systematic review of the evidence. *BMC Public Health* **22**, 1–17 (2022).
5. Malhotra, A. & Elnakib, S. *Evolution in the evidence base on child marriage*. (UNFPA-UNICEF Global Programme to End Child Marriage, 2021).
6. Islam, M. M., Islam, M. K., Hasan, M. S. & Hossain, M. B. Adolescent motherhood in Bangladesh: Trends and determinants. *PLoS One* **12**, 1–14 (2017).
7. Berliana, S. M. *et al.* Determinants of early marriage among female adolescent in Indonesia. *Int. J. Adolesc. Med. Health* **33**, 1–6 (2021).
8. Rini, I. M. & Tjadikijanto, Y. D. Gambaran Program Generasi Berencana (GenRe) di Indonesia dan di Provinsi Jawa Timur Tahun 2017. *J. Biometrika dan Kependud.* **7**, 168 (2019).
9. Sudarso, Mas, S. & Budirahayu, T. Early Marriage and Women 's Empowerment in Rural Areas. *Int. J. Innov. Creat. Chang.* **13**, 896–912 (2020).
10. Kumari, N. & Shekhar, C. Trend and determinants of early marriage in Rajasthan: Evidence from the national family health survey. *Child. Youth Serv. Rev.* **145**, 0–2

- (2023).
11. Talukder, A., Hasan, M. M., Razu, S. R. & Hossain, M. Z. Early marriage in Bangladesh: A cross-sectional study exploring the associated factors. *J. Int. Womens. Stud.* **21**, 68–78 (2020).
12. Kementerian PPN & Bappenas. *Strategi Nasional Pencegahan Perkawinan Anak*. vol. 53 (2020).
13. Nasrullah, M., Muazzam, S., Bhutta, Z. A. & Raj, A. Girl child marriage and its effect on fertility in Pakistan: Findings from Pakistan Demographic and Health Survey, 2006-2007. *Matern. Child Health J.* **18**, 534–543 (2014).
14. World Health Organization. *Child, early and forced marriage legislation in 37 Asia-Pacific countries*. WHO (2016).
15. Yaya, S., Odusina, E. K. & Bishwajit, G. Prevalence of child marriage and its impact on fertility outcomes in 34 sub-Saharan African countries. *BMC Int. Health Hum. Rights* **19**, 1–11 (2019).