Determinants of Adolescent First Births in Indonesia

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ABSTRACT

Adolescent childbirth remains a central issue for lower-middle-income countries such as Indonesia. The available literature suggests that this is associated with several adverse outcomes, including health and socioeconomic factors. This study aimed to evaluate determinants that correlate with mothers in Indonesia who first gave birth when they were adolescents. This study is a cross-sectional and examined data collected by Indonesia Demographic and Health Survey (IDHS) in 2017. We investigated the variables of educational level, wealth index, residence, and access to media (frequency of reading newspaper or magazine, listening to the radio, watching television, using the internet) and their correlation with a weighted sample of women who had their first live birth when they were younger than 19 years old. We used multivariate logistic regression to adjust for confounding factors and to analyze the determinants of adolescent first birth. Education (AOR=15.39; 95% CI=11.13-21.26), wealth index (AOR=1.22; 95% CI=1.08-1.39), place of residence (AOR=1.23; 95% CI=1.13-1.34), frequency of reading newspaper or magazine (AOR=1.31; 95% CI=1.11-1.55), and frequency of using internet (AOR=1.30; 95% CI=1.02-1.65) were significant determinants of.adolescent first births in Indonesia. This study recommends better access to education for poor and lower educated young women to be prioritized. Policies and programs that support the wellbeing of adolescents to achieve the best outcome of health reproduction are needed

Keywords: adolescents, birth, demographic and health survey (DHS)

INTRODUCTION

Delivering babies from a very young age remains a global issue. Approximately 16 million young girls between the ages of 15 and 19 years old give birth each year (1). Pregnancy and childbirth complications in teenage-mothers have been reported to cause maternal death worldwide (2,3). Teenage mothers (aged between 10 and 19 years old) are contributing 11% of total births globally, whereby 90-95% of the cases occur in low and middle-income countries (4).

Particularly in Indonesia, the 2017 Indonesia Demographic and Health Survey (IDHS) data reported the fertility rate of the 15-19 years old age group was as high as 36 births per 1000, indicating that 7% of the teenagers have become mothers (5% have given birth and 2% were expecting their first child) (5). The negative consequences of adolescent childbirth have been widely reported (6,7), including increased risks for low birth weight, pre-term delivery, and neonatal mortality and low Appearance, Pulse, Grimace, Activity, Respiration (APGAR) score (8,9). Different studies also associated pregnancy in adolescents with higher risks for maternal and neonatal death (10,11) as well as adverse event with their social developmental growth (12).

There are several factors related to adolescent first birth, such as education, financial poverty, living in a rural area, and low access to information. Education has been significantly associated with adolescent childbirth (13–17). In another study, better access to education, higher knowledge, and agency have been proven as significant contributors to delayed onset of sexual relations (7). Secondly, poverty was assumed correlated with a higher prevalence of early marriage among young girls in Indonesia (18), and it is associated with adolescent motherhood (14). In different studies, the area of residence was also associated with adolescent childbirth in Africa (13,16). Living in a rural area could correlate with lower education opportunities, poverty, and limited access to reproductive health services (16). Additionally, access to media was significantly correlated with early motherhood (7,14). Better exposure to media was promoted in creating awareness of the negative consequences of youth pregnancy and family planning (14). Earlier studies indicate that early marriage is associated with the time of first birth (15,16,19) and female adolescents are more likely to be pregnant when they get married (15,16,19), despite the National Population and Family Planning Agency (BKKBN), a government agency, having a program to increase the legal age for marriage to 20 years old for females and 25 years old for males (20), the Government of the Republic of Indonesia allows females to marry at the age of 16 years old and 19 for males with parental consent (21). Thus, there is an indication to revisit the existing policy by providing grounded evidence, particularly when concerning the legal age of marriage for female adults. An earlier study indicates that a significant decline in the numbers of early motherhood in Ethiopia was largely informed by policy in place to reduce early marriage (19). This study aimed to identify determinants that contributed to adolescent childbirth, particularly in understanding the predictors for mothers who gave birth at younger than 19 years old. In the long run, this study will provide grounded evidence for future national policy that aims to delay legal age of marriage for females. The significance of this study was driven by the notion that investment for the future generation should be started from adolescents.

METHODS

Data collection

The data used in this study were extracted from the IDHS in 2017 provided by the Central Statistics Agency (BPS), in collaboration with National Population and Family Planning Agency (BKKBN) and the Ministry of Health (Ministry of Health) with fees provided by the Indonesian government and g technical assistance from the Inner City Fund (ICF) internationally through the Demographic and

Health Surveys (DHS) Program, which is a United States Agency for International Development (USAID) program that provides funding and technical assistance in conducting population and health surveys in many countries. IDHS uses two-stage stratified cluster sampling, whereas our study used purposive sampling from individual recoded DHS dataset in 2017.

Variables
The dependent variable in this study was the age at first birth, whether it was before 19 years old or not. Our data are only current or previous live birth and do not include pregnancies that end in miscarriage, abortion, or stillbirth. Education, wealth index, residence, and access through media (frequency of reading newspaper/magazine, listening to the radio, watching television, and using the internet) are as independent variables. Education was recorded into four categories (no education, primary school, secondary school, and higher education). Meanwhile, the household wealth index was coded into five categories in the DHS from the poorest to the richest. The residence was also divided as urban and rural area. Similarly, access to media, including frequency of reading newspaper/magazine, listening to the radio, and watching television, were coded into three categories (at least once a week, less than once a week, and not accessing media in a week), while the using the internet variable was coded into four categories (almost everyday access to the internet, at least once a month, less than once a month, and not accessing the internet at all).

Ethical review and consent
The 2017 IDHS obtained ethical permits from the Board of Research and Health Development (Balitbangkes) and the Indonesian Ministry of Health. All respondent identifiers were deleted from the data, and participants gave their consent. Interviews for the 2017 IDHS were then carried out after obtaining approval from each participant. Permission for data usage in this study was obtained from ICF International, part of the DHS program.

Data analysis
The data were analyzed using STATA statistical software version 14. Univariate analysis of the characteristics in this study population was conducted initially before bivariate and multivariate logistic regression. We carried out bivariate analysis using the chi-square test to examine the correlation between each explanatory variable and age at first birth. We conducted a multivariate logistic regression to identify the main determinant for an adolescent first birth.

RESULTS
All variables were identified to have significant associations with adolescent first birth on the bivariate level, as shown in Table 1. The highest proportion for mothers who first delivered at younger than 19 years old are graduated from elementary school (n=5,275), come from poorer wealth quintile (n=2,465), living in a rural area (n=6,225), not reading newspaper or magazine (n=7,522), not listening to the radio (n=6,816), watching television at least once a week (n=8388), and not using the internet at all (n=7,831).

Table 1: Univariate and bivariate analysis

Variable	Age at First Birth ≤19 Years				X^2
	No		Yes		
	n	%	n	%	
Education					1743.10***
Higher education	1,153	5.05	138	0.61	
Secondary school	7,736	33.91	4,258	18.66	
Primary school	3,768	16.52	5,275	23.13	
No education	136	0.6	348	1.52	
Wealth Index					496.24***
Richest	2,481	10.88	1,121	4.91	
Richer	2,969	13.02	1,844	8.08	
Middle	2,753	12.07	2,197	9.63	
Poorer	2,458	10.77	2,465	10.81	
Poorest	2,133	9.35	2,391	10.48	
Residence					273.55***
Urban	6,285	27.55	3,793	16.63	
Rural	6,509	28.53	6,225	27.29	
Frequency of Reading Newspaper or Magazine					348.59***
At least once a week	938	4.11	336	1.48	
Less than once a week	3,663	16.05	2,160	9.47	
Not at all	8,193	35.92	7,522	32.97	
Frequency of Listening to Radio					82.01***
At least once a week	1,570	6.88	1,034	4.54	
Less than once a week	3,279	14.37	2,168	9.50	
No at all	7,945	34.83	6,816	29.88	

Frequency of Watching Television					42.71***
At least once a week	11,078	48.56	8,388	36.77	
Less than once a week	1,307	5.73	1,171	5.13	
Not at all	409	1.79	459	2.02	
Frequency of Using Internet					553.52***
Almost every day	3,431	15.04	1,469	6.44	
At least once a month	926	4.06	531	2.33	
Less than once a month	267	1.17	187	0.82	
Not at all	8,170	35.81	7,831	34.33	

*$p<0.05$; **$p<0.01$; ***$p<0.001$

Table 2 shows that education, wealth, residence, frequency of reading newspaper or magazine, and frequency of using the internet are significantly associated with age at first birth. Based on education level, uneducated mothers have 15.39 greater odds of giving birth at age ≤ 19 years compared to women who have a higher education level. Mothers in poorer quintiles have 1.22 greater odds of giving birth at age ≤ 19 years than mothers in the richest quintile.

Mothers in rural areas have 1.23 greater odds of giving birth at age ≤ 19 years compared to mothers in urban areas. Mothers who do not read newspapers or magazines have 1.31 greater odds of giving birth at ≤ 19 years compared to women who read newspapers or magazines at least once a week. Mothers who use the internet less than once a month have 1.30 greater odds of giving birth at age ≤ 19 years compared to mothers who use the internet almost every day.

Table 2: Multivariate analysis

Variable	AOR	95% CI	
		Lower	Upper
Education			
Higher education	Ref		
Secondary school	3.97***	3.23	4.87
Primary school	9.03***	7.27	11.21
No education	15.39***	11.13	21.26
Wealth Index			
Richest	Ref		
Richer	1.02	0.90	1.15
Middle	1.12	0.99	1.27
Poorer	1.22**	1.08	1.39
Poorest	1.14	0.99	1.31
Residence			
Urban	Ref		
Rural	1.23***	1.13	1.34
Frequency of Reading Newspaper or Magazine			
At least once a week	Ref		
Less than once a week	1.14	0.97	1.35
No at all	1.31**	1.11	1.55
Frequency of Using Internet			
Almost every day	Ref		
At least once a month	1.11	0.95	1.30
Less than once a month	1.30*	1.02	1.65
No at all	1.10	0.99	1.22

*$p<0.05$; **$p<0.01$; ***$p<0.001$

DISCUSSION

The study found that education was associated with adolescent childbirth, suggesting that uneducated adolescents have a higher risk to deliver at an early age. This supports the previous studies conducted in Africa (7,13,15,19), Latin America (22), and Bangladesh (14). These studies confirmed the level of education as a contributor to the tendency of childbirth in adolescence. In addition, several studies state that higher education protects the adolescent occurrence of early and unwanted pregnancy (23–25). Adolescents who have good access to education are associated with good knowledge of unwanted pregnancies and family planning and increase the opportunity to avoid early childbearing (7,26,27). The findings in this study support the idea that access to education is significant in promoting safe pregnancy for women (26,28,29). Moreover, lower educated women have a consequence of lower autonomy on a family and community level (30). Therefore, it is essential to provide better access to education,

particularly to recommend a policy that supports compulsory formal education for women.

This study also assessed the correlation of wealth index and the age of mothers when first delivering babies in their teens. This study found that a high proportion of women who first gave birth at 19 years or younger were coming from poorer quintiles compared with the richest index. This result was in line with earlier research in Africa, Latin American, and the Caribbean that indicated the higher proportion of young mothers as those who lived in the lowest wealth index of the countries (4,7,13,31). This finding indicates that poverty is closely related to giving birth at a younger age of adolescence (7,13–15). The possible explanation about wealth index to first birth is that poverty decreases access to health services, sexual and reproductive health information, which, in turn, can predict the birth of adolescents (32). In addition, poor adolescents maybe engage in relations with older and/ or richer men to meet the necessities of life. This has an impact on adolescent first birth (33). This fact shows the need for the right approach in dealing with the adolescent first birth problem. Providing education on sexual and reproductive health services with better economic conditions needs to be done in reducing the higher proportion of young mothers.

This current study indicates that those who live in a rural area have a higher risk of becoming mothers at the age of 19 years or younger. Similar results were found in studies conducted in Africa (7,13,15), Colombia (4), Bangladesh (34), Latin America, and Caribbean countries (31). Living in a rural area is often associated with limited access to information and productive health services, which affects maternal behavior (15). In the context of Indonesia, mothers in a rural area have lack of support for education infrastructure, hence, access to education and health support is limited. This highlights the need for equitable education support from health workers to be accessible for women living in rural areas.

Another factor evaluated in this study was access to media for women. This study found that the lower frequency of reading newspaper or magazine and using the internet is significantly associated with becoming mothers at a younger age. The lower the access to the media, the greater odds of giving birth at the age of 19 years or younger. This finding also lends support to earlier research conducted in Kenya and Zambia (7). The low access to information media contributes to the low awareness of teenagers on safe sexual behavior and preventing unplanned pregnancies (35). The tendency of adolescents to engage in sexual behavior contributes to unsafe pregnancy and motherhood (35–37). This is in line with earlier research on Cook Island, which found that low exposure to safe sexual information contributes to low contraceptive use among adolescents (37). Access to information through media has an important role in developing knowledge and awareness of giving birth and family planning (14,35). Therefore, it is significant to ensure that adequate sexual health education is more accessible for female adolescents who live in the country.

CONCLUSION

Education, wealth index, area of residence, and access to information are significant determinants of adolescent first birth in Indonesia. Thus, we recommend the need for better equalities for women in Indonesia, including access to formal education and media as the source of information, as well as having financial support to access a higher level of education. Likewise, health campaigns through media also need to be optimized.

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