R E S E A R C H   **Open Access**

Determinants of Contraceptive Use at The First Sexual Intercourse among Unmarried Adolescents in Indonesia: 2017 IDHS Analysis

Restya Sri Sugiarti[1a], Helda[1b*], Kholisotul Hikmah[1c]

[1] Department of Epidemiology, Faculty of Public Health, Universitas Indonesia, Depok, West Java, Indonesia

[a] Email address: restya.sri@gmail.com
[b] Email address: heldanazar1@gmail.com
[c] Email address: kholisotul.hikmah@ui.ac.id

Abstract
Adolescents confront boundaries in obtaining contraception counting prohibitive policies and adolescents possess failure to obtain contraceptives since of information, transportation, and monetary limitations. The objective of this study is to assign the variables which impact on the use of contraception for the first sexual intercourse among unmarried adolescents. Quantitative research employing cross sectional analysis was implemented in this study, by processing 2017 Indonesian Health Demographic Survey (IDHS) data. Cox regression was utilized to examine the association between sociodemographic, peer and social influences, contraceptive knowledge and contraceptive use. The study populace encompassed 705 single young people; 15 to 24 years old. The study resulted that contraceptive use at the primary sexual intercourse by single young people in Indonesia was approximately 50.35%. After bivariate analysis was applied, it was revealed that there is a significant relationship between education with the contraceptive use at the first sexual intercourse among unmarried adolescents in Indonesia (p-value = 0.049). In the final model, we discovered that the level of education and contraceptive use was statistically significant, and the contraceptive use was higher in adolescents with high education than adolescents with middle and primary education (PR 1.51, 95% CI 1.09 – 2.07, p = 0.012). Therefore, this finding provides information that education is a prominent variable for understanding contraceptive use in adolescents.

Keywords: Adolescent, Contraceptive, Unmarried.

1. INTRODUCTION

Adolescents require and possess a human right to comprehensive sexuality learning and health reproduction. Greater admission to contraceptive information and services could decrease the number of young adolescents for being pregnant and give birth very young age (World Health Organization, 2021). However in developing countries, around 12 million adolescent girl aged 15-19 years and 777,000 young female under 15 give birth each year (World Health Organization, 2020). In Indonesia, according to the 2017 IDHDS, 7 percent of the young woman aged 15-19 years old have given birth or presently pregnant for their first child (Kementerian Kesehatan Republik Indonesia, 2018).

The occurrence of pregnancy and childbirth in young women could be affected by several factors, particularly as girls experience pressure from their social environment to marry and give birth at a young age, it is exacerbated by the limited knowledge of girls (World Health Organization, 2020). The limited knowledge and lack of understanding of the contraception application, resulted in those who are willing to prevent pregnancy were unable to do so (Prendergast et al, 2017). There are difficulties in obtaining contraceptives, which encompasses limited knowledge about birth control methods, laws and policies governing the provision of contraceptives and the weak ability of adolescents to observe contraceptives due to lack of knowledge and economic capacity (World Health Organization, 2020).

On the other hand, the Government of Indonesia has not implemented regulations which is able to guarantee the occurrence of comprehensive contraceptive information and services for premarital sexually active adolescent. The government is frequently influenced by the traditional norm, that family planning services are merely for married couples (Budiharsana, 2017). Family planning services that are available for adolescents in Indonesia are currently limited to information, education, and counseling services. The provision of family planning tools for adolescents is not part of the Population, Family Planning and Family Development Program policies (Badan Kependudukan dan Keluarga Berencana Nasional, 2017). Hence, the application of contraception among sexually active youth creates an ethical quandary in Indonesia, particularly in scrutinizing reproductive health rights as primary rights (Budiharsana, 2017). As a result, the sexual and reproductive health requires unmarried young people and adolescents to continue to be left out and unmet (Durojaye, 2011).

Based on the 2017 IDHS, 81% of adolescents assumed that they demand family planning services and 37% of them stated that they desire family planning tools. The percentage of male adolescents who reported experiencing premarital sexual intercourse was 8% higher than female adolescents (1%). However, overall, merely 43% of adolescents used contraception at the first time they had sexual initiation. The most common contraceptive methods employed by adolescents in Indonesia are withdrawal (51%) and condoms (45%), while the rest applied other contraceptive methods (Badan Kependudukan dan Keluarga Berencana Nasional, 2017).

Adolescent contraceptive needs which have been fulfilled is a requirement to comply Sustainable Development Goals (SDGs) 3.7 on reproductive health, which targets that by 2030, a widespread approach or use of contraceptive for all ages should be implemented to family planning (Oppong et al., 2021). Evaluating determinants in young adult contraceptive use is crucial for determining the fulfillment of preceding intervention efforts, monitoring progress on the target 3.7 of the SDGs, as well as for prioritizing destiny moves (Adedini et al., 2021). Although contraceptives might not postpone the onset of their sexual action, it is still able to anticipate the undesired pregnancy and different undesirable results (Budiharsana, 2017). Therefore, this study examined

determinants of contraceptive use at the first sexual intercourse among unmarried adolescents in Indonesia: 2017 IDHS analysis.

2. RESEARCH METHOD

This study employed cross-sectional survey datasets from the IDHS 2017. The sample framework applied is the Master Sample Census Block from the results of the 2010 Population Census with a stratified two-stage sampling design. The analysis of this study concerned on the unmarried but sexually active adolescent male and female aged 15–24. The sexually active was unmarried boys and girls who revealed to have ever engaged in sexual activity. Prior to the interview, all respondents had given their consent to be involved in the survey.

The survey sampled 49,261 households, of which 47,963 (99.5%) were interviewed. Among the eligible respondents, 10,691 unmarried women and 13,079 unmarried men aged between 15-24 years were successfully interviewed. From 23,770 male and female adolescents who had been interviewed, 1,559 (6.6%) adolescents had performed sexual intercourse before marriage and 705 of them filled out the questions completely according to the variables required for this study.

Univariate and bivariate analyzes were conducted by applying SPSS 23 software to determine the factors influencing the use of contraceptives for adolescents 15-24 years old who had sexual intercourse before marriage. The assessed outcomes were adolescents using contraception during their first sexual intercourse, encompassing condoms, pills, emergency contraception, withdrawal, and periodic abstinence or calendar. Determined 3 groups in the independent variables, incorporating: (1) sociodemographic (sex, age at the date of interview, educational level, working status, type of residence, and age at first sexual intercourse); (2) peer and social influence (having a talk about sexual matters with a friends, teacher, and health service provider, the frequency use of the internet, watching TV about family planning (FP), dating status, having friends had sex before marriage, and agree with premarital sex); and (3) contraceptive knowledge (knowledge of the fertile period and ever learning about FP at school). Analysis with Cox logistic regression was implemented obtain the prevalence ratio (PR) and 95% confidence interval (CI) to calculate the determinants of contraceptive use in first sexual intercourse in unmarried adolescents.

3. RESULTS AND DISCUSSION

Table 1. Frequency distribution of respondent.

Variable	Frequency (N= 705)	Percentage (%)
Sociodemographic		
Gender		
Male	605	85.82
Female	100	14.18
Age at the date of interview		
<18	83	11.77
≥18	622	88.23
Educational level		
Primary (Primary, Junior High School)	147	20.85
Middle (Senior High School)	348	49.36
High (Academic, University)	210	29.79
Working status		
Yes	429	60.85

Variable	Frequency (N= 705)	Percentage (%)
No	276	39.15
Type of residence		
Urban	417	59.15
Rural	288	40.85
Age at first sexual intercourse		
<18	361	51.21
≥18	344	48.79
Peer and social influence		
Having a talk about sexual matters with friends		
Yes	508	72.06
No	197	27.94
Having a talk about sexual matters with teacher		
Yes	291	41.28
No	414	58.72
Having a talk about sexual matters with health service provider		
Yes	242	34.33
No	463	65.67
Frequency used internet		
Daily	486	68.94
≥ 1/ week	169	23.97
< 1/ week	31	4.40
Never	19	2.70
Watching TV about FP		
Yes	262	37.16
No	443	62.84
Dating status		
Have partner	551	78.16
No partner	154	21.84
Having friends had sex before marriage		
Yes	681	96.60
No	24	3.40
Agree with premarital sex		
Yes	371	52.62
No	334	47.38
Contraceptive knowledge		
Knowledge of fertile period		
Yes	574	81.42
No	131	18.58
Ever learned about FP at school		
Yes	237	33.62
No	468	66.38
Using contraception during first sexual intercourse		
Yes	355	50.35
No	350	49.65

Table 1 illustrates univariate analysis which reveals that 705 male and female adolescents aged 15–24 years have ever done premarital intercourse. The sociodemographic of the respondents was distributed between male and female (86% and 14%). Most of the respondents were more than 18 years old when interviewed (88%). About 49% were at middle educational level (Senior High School), 60% were working and living in rural areas. Based on peer and social influence variables, 72% were having a talk about reproductive health with friends, 70% almost used internet every day, only 37% were watching TV about FP, 78% had partner, 53% agreed with premarital sex, and most have friends had sex before marriage (97%). Based on contraceptive knowledge, 81% respondents had knowledge of fertile period and only 34% had ever learned about FP at school. Univariate analysis discovered that only 355 (50.35%) of 705 unmarried male and female adolescents aged 15-24 years in Indonesia, reported using contraception during first sexual intercourse.

Table 2. Bivariate Analysis Factors Correlated with Contraceptive Use at the First Sexual Intercourse among Unmarried Adolescents in Indonesia.

Variable	Used contraceptive during first sexual intercourse (N=705)		p-value	Unadjusted PR (95% CI)
	Yes	No		
Sociodemographic				
Gender			0.334	0.86
Male	311 (87.61%)	294 (84.0%)		(0.62 – 1.17)
Female	44 (12.39%)	56 (16.0%)		
Age at the date of interview			0.307	1.17 (0.86 – 1.59)
<18	48 (13.52%)	35 (10.0%)		
≥18	307 (86.48%)	315 (90.0%)		
Educational level			0.034*	1.18
Primary (Primary, Junior High School)	61 (17.18%)	86 (24.57%)		(1.01 – 1.36)
Middle (Senior High School)	173 (48.73%)	175 (50.0%)		
High (Academic, University)	121 (34.08%)	89 (25.43%)		
Working status			0.513	1.07
Yes	210 (59.15%)	219 (62.57%)		(0.87 – 1.33)
No	145 (40.85%)	131 (37.43%)		
Type of residence			0.916	1.01
Urban	209 (58.87%)	208 (59.43%)		(0.82 – 1.25)
Rural	146 (41.13%)	142 (40.57%)		
Age at first sexual intercourse			0.981	0.99 (0.81 – 1.23)
<18	182 (51.27)	179 (51.14)		
≥18	173 (48.73)	171 (48.86)		
Peer and social influence				
Having a talk about sexual matters with friends			0.277	0.88 (0.69 – 1.11)
Yes	265 (74.65)	243 (69.43)		

Variable	Used contraceptive during first sexual intercourse (N=705)		p-value	Unadjusted PR (95% CI)
	Yes	**No**		
No	90 (25.35)	107 (30.57)		
Having a talk about sexual matters with teacher			0.486	0.93 (0.75 – 1.14)
Yes	153 (43.10)	138 (39.43)		
No	202 (56.90)	212 (60.57)		
Having a talk about sexual matters with health service provider			0.114	0.84 (0.68 – 1.04)
Yes	136 (38.31)	106 (30.29)		
No	219 (61.69)	244 (69.71)		
Frequency used internet			0.406	1.06 (0.92 – 1.23)
Daily	240 (67.61)	246 (70.29)		
≥ 1/ week	88 (24.79)	81 (23.14)		
< 1/ week	13 (3.66)	18 (5.14)		
Never	14 (3.94)	5 (1.43)		
Watching TV about FP			0.319	0.90 (0.73 – 1.11)
Yes	141 (39.72)	121 (34.57)		
No	214 (60.28)	229 (65.43)		
Dating status			0.176	0.83 (0.64 – 1.09)
Have partner	288 (81.13)	263 (75.14)		
No partner	67 (18.87)	87 (24.86)		
Having friends had sex before marriage			0.235	0.65 (0.32 – 1.32)
Yes	347 (97.75)	334 (95.43)		
No	8 (2.25)	16 (4.57)		
Agree with premarital sex			0.068	0.82 (0.67 – 1.01)
Yes	204 (57.46)	167 (47.71)		
No	151 (42.54)	183 (52.29)		
Contraceptive knowledge				
Knowledge of fertile period			0.278	0.86 (0.65 – 1.13)
Yes	297 (83.66)	277 (79.14)		
No	58 (16.34)	73 (20.86)		
Ever learned about FP at school			0.525	0.93 (0.75 – 1.16)
Yes	125 (35.21)	112 (32.00)		
No	230 (64.79)	238 (68.00)		

The bivariate analysis presented in table 2 displays the relationship between sociodemographic, peer and social influences with contraceptive knowledge and contraceptive use. Education level (p=0.034) was independently associated with contraceptive use, at a 5% significant level. However, other sociodemographic (sex, age at the date of interview, working status, type of residence, and age at first sexual intercourse), peer and social influence and contraceptive knowledge were not statistically independent associations with contraceptive use.

Table 3. Multivariate Analysis and Final Model of Factors Related to Contraceptive Use at the First Sexual Intercourse among Unmarried Adolescents Aged 15–24 Years in Indonesia.

Variable	B	Wald	p-value	PR	95% CI
Educational level		6.523	0.038		
Primary (Primary, Junior High School)					
Middle (Senior High School)	0.217	2.080	0.149	1.24	0.93 – 1.67
High (Academic, University)	0.410	6.327	0.012	1.51	1.09 – 2.07
Agree with premarital sex					
Yes	-0.165	2.202	0.138	0.848	0.68 – 1.05
No					
Age at the date of interview					
<18	0.238	2.185	0.139	1.27	0.92 – 1.74
≥18					
Dating status					
Have partner	-0.171	1.569	0.210	0.84	0.65 – 1.10
No partner					
Gender					
Male	-0.136	0.674	0.412	0.87	0.63 – 1.21
Female					
Frequency used internet		2.892	0.409		
Daily	-0.434	2.457	0.117	0.65	0.38 – 1.11
≥ 1/ week	-0.368	1.624	0.203	0.69	0.39 – 1.22
< 1/ week	-0.561	2.107	0.147	0.57	0.27 – 1.22
Never					
Having friends had sex before marriage					
Yes	-0.310	0.735	0.391	0.733	0.36 – 1.49
No					

By using Cox logistic regression, the final model of the multivariate analysis (table 3) revealed that the factors associated with contraceptive use among unmarried adolescents in Indonesia were at education level. PR value is employed to calculate the strength of the relationship between factors influencing contraceptive use; the greater the PR value, the greater the effect on contraceptive use. Education level after adjusting with other variables (agree with premarital sex, age, dating status, sex, the frequency used the internet, and having friends had sex before marriage), compared to that primary and middle education, adolescents with high education were more likely to use contraception (PR = 1.51, 95% CI = 1.09 – 2.07, p-value = 0.012). In other words, the influence of other variables may increase the contraception uses in adolescents who are pursuing higher education.

According to this study, the correlation between sociodemographic factors, which are gender and contraceptive use in adolescents, is not statistically significant (p-value 0.412). The finding is not in accordance with research conducted by Linberg et. al. which

revealed that the use of contraceptives is higher in male adolescent (Lindberg et al., 2021). Misconceptions about gender roles frequently place adolescents at risk of unsafe health. Adolescent boys generally discover it imperative sexually active. Meanwhile, girls are mostly calm, guiltless and do not understand sexual issues. It definitely can reduce their capacity to deny undesirable sexual acts, to offer contraceptive utilize, and more secure sexual practices (World Health Organization, 2004). The different results in this study is affected by data distribution which presents that the majority of the respondents were male (86%) and 14% were female. This unequal number of male and female respondents was because fewer female adolescents reported a history of sexual relations before marriage, in which 8% of male adolescents informed having had premarital sex, while only 2% of female adolescents reported having had premarital sex (Badan Kependudukan dan Keluarga Berencana Nasional, 2017). Therefore, there is a possibility of potential underreporting which influences the strength of the association.

Although this study displays no relationship between age and contraceptive use (p-value 0.139), based on Young research, condom utilize was associated with older age (Young et al., 2018). Adolescents 20-24 years tend to report more consistent condom use than those aged 15-19 (Adedini et al., 2021). Other study discovered more specific results that older girls (18-19 years) were three times more potentially to practice contraception than younger girls. It is probably because older girls possess more mature way of thinking and understand better about the various contraceptives and the urgency of applying contraception (Nyarko, 2015).

The bivariate analysis indicates that there was a statistically significant relationship between education and the use of contraceptive use at the first sexual intercourse by unmarried adolescents in Indonesia (p-value=0.049). In the final model after adjusting with other variables, contraceptive use was higher among respondents with high education compared to respondents with middle and primary education (PR 1.51, 95% CI 1.09 – 2.07, p=0.012). This finding is in accordance with another study which revealed that respondents with secondary education (Senior High School) possessed higher contraceptive use compared to those with basic education (Oppong et al., 2021). Another finding also discovered that women were less likely to use inconsistent condoms compared to primary, secondary and tertiary education. Furthermore, education can also be a protective factor for early sexual initiation among young male and female (Adedini et al., 2021).

Similarly, Nyarko revealed that adolescent contraceptive utilizes expanded significantly with the increasing education level. It is probably because the educated ladies more motivate to apply contraception and value the positive impact of contraception on their lives (Nyarko, 2015). The significant use of contraceptives among adolescents with higher education is due to the fact that they obtain correct information about the benefits of the usage of contraceptives. Education also encourages young women to determine greater consideration about their sexual and reproductive health (Oppong et al., 2021).

This study indicates that there is no statistically significant relationship other sociodemographic variable (work status, area of residence, age and at first having sex) with contraceptive use (p-value>0.05). Meanwhile, Nyarko's research unveiled that young girls who are working are three times tend to use contraceptives than girls who are not (Nyarko, 2015). It is in accordance with Mandiwa's research in Malawi which revealed that working woman are more likely to use contraception than those who do not (Mandiwa et al., 2018). It is because working young women tend to be educated and exposed to contraceptive information, is willing to preserve their jobs, spend more time

on work and can afford contraception than those who are not working (Mandiwa et al., 2018; Nyarko, 2015).

The area of residence describes the availability of health care facilities and personnel in which facilities in urban county are more adequate than in rural county (Adilah et al., 2017). Other study presented that adolescents in rural areas were more likely to report inconsistent condom use but lower using modern contraception than those in urban areas (Adedini et al., 2021; Ahinkorah, 2020). It indicates that family planning and reproductive health services for rural communities are still inadequate due to the lack of access for adolescents to the advice and sexual health services they (Adedini et al., 2021; Young et al., 2018).

A study in Sub-Saharan Africa identified higher use of modern contraceptives among young girls who experienced their first intercourse between the ages of 15-19 and those who had never been married compared to those who had the first intercourse between the ages of 20-24 (Ahinkorah, 2020). However, research in South Korea revealed that there is a tendency to decrease contraceptive uses in young women who have early sexual activity and are affected by alcohol consumption (Lee, 2017). In general, these findings are in accordance with the theoretical basis of the Health Belief Model which asserts that adolescent girls who are aware that they consider themselves at risk for pregnancy may be more likely to utilize contraception (Ahinkorah, 2020).

In summary, the result of this study unveiled that there is no relationship between peers and social influence and contraceptive use in adolescents (p-value>0.05). However, Young uncovered that the presence of support, communication, and peer pressure influences the timing of sexual activity and sexual acts (Young et al., 2018).

Mothers and fathers, health care workers, and teachers are believed by adolescents to be reliable sources of information, but adolescents frequently receive information from friends and relatives (Munakampe et al., 2018). A study in Nicaragua states that feeling comfortable when discussing sexuality matters with friends is correlated with escalate condom use (Decat et al., 2015). Peers are significantly influential for young adult, and they empathize with each other because they possess the same experiences and challenges. Hence, they are expected to have a great influence one another in terms of the use of modern contraception. Schools also share information about contraceptives, as well as places in which peers interact and share information about contraception (Mulubwa et al., 2021). Obtaining information about contraception from teachers is less favorable because the explanation from them is considered incomplete and not exhaustive (Munakampe et al., 2018). Health workers are admitted as a source of information expert, but sometimes, health workers own a negative perspective of contraceptive use among adolescents, which makes them feel uncomfortable in applying contraceptives (Mulubwa et al., 2021). The existence of regulations refusing adolescent contraceptive services because they are not married can also be an obstacle to contraceptive use (Oppong et al., 2021).

Adolescents also receive other information which is easier to obtain from peers, television, mass media, and the internet. However, there are firm indications that they receive inaccurate information due to the ease of obtaining the information. However, low knowledge due to incorrect or incomplete information may possess a direct effect on behavior (Munakampe et al., 2018). Another study revealed that adolescent exposed to access the information had a greater chance of utilizing condoms than respondents who were not exposed to information at the time they had sexual intercourse at the first time. Mass media, both print and electronic, which display good messages may influence teenagers to follow them (Adilah et al., 2017).

Another study unveiled that it easier for the adolescents to share information about sexual matters with their partners in terms of the contraceptive use between boys and girls because (Decat et al., 2015). Women without a partner are less likely to use contraceptive since they feel that the relationship is not serious (Upadhyay et al., 2016). Recognizing the existence of friends involved in harmful sexual behavior including premarital sex can be an influential factor for contraceptive use. Having friends who have positive experiences on using contraception also motivates other adolescents to use contraception (Chernick et al., 2015).

The relationship of agree with premarital sex in this study is correlated to the common norms in society. Having sex before marriage is considered taboo, even though this traditional norm is rapidly shifting nowadays (Adedini et al., 2021). The Agha study revealed that social norms which prohibit contraception can decrease the rate of contraceptive use. The existence of social norms can make young women ashamed and not confident to discuss about the use of contraception with their partners (Agha et al., 2021).

This study discovered that the relationship between contraceptive knowledge and contraceptive use was not statistically significant (p-value>0.05). However, other studies have uncovered that adolescent girls who understand their ovulation cycle are more feasible to use contraception compared to girls who are unaware of their ovulation cycle (Mandiwa et al., 2018; Nyarko, 2015). It is probably young women who well understand their ovulation cycle are likely to use some of the available contraceptive methods encompassing calendar or rhythm contraceptive methods (Nyarko, 2015). This way is utilized in order to protect them from unwanted pregnancies during ovulation compared to women who are unaware of their ovulation cycle (Mandiwa et al., 2018).

Randomized controlled trials (RCT) in senior secondary school provide a brief educational intervention to increase contraceptive use. After the two-year program, the intervention group presented more contraceptive use and condoms during the last intercourse than the standard class group (Lopez et al., 2016). The presence of contraceptive learning organized in schools is a critical enabler to pursue reproductive health education. Adolescents who receive sexual education in schools own better awareness of contraceptive options (Chernick et al., 2015).

Despite this study employs a survey that reflects a national sample, it possesses the advantage of providing an opportunity to investigate further analysis of cross-sectional data on contraceptives and sexual behavior (Adedini et al., 2021). We acknowledge the limitations of the study, which encompasses insufficient data on adolescent girls, difficulties in defining variables, and information bias during interviews (Habito et al., 2019). This study implements several specific variables, particularly regarding social influence on adolescents, but not all related variables are discovered in the adolescent IDHS questionnaire (Budiharsana, 2017). Furthermore, some of the variables employed are self-reported data by respondents. Hence, there is a possibility of memory bias and underreporting. Thus, these variables need to be verified in future surveys (Adedini et al., 2021; Budiharsana, 2017). Incomplete respondent data were not examined in this study. As a result, the sample became smaller, thus, it may affect the power study. Therefore, the estimated association obtained can be underestimated as well as overestimated (Young et al., 2018).

In general, this study possesses strength because it applies a fairly large sample of respondents obtained from a national survey with an even sample selection based on the Census Block. Thus, it can be indicated that this study represents Indonesian youth in general, particularly in the association of education with contraceptive use. However,

factors correlated with more specific variables, which are peer and social influences, were self-reported by respondents with less specific questions in the questionnaire. Hence, there was a possibility of memory bias and underreporting.

4. CONCLUSION

Based on this research, it can be implied that there is a relationship between the level of education and the use of contraception in the first sexual intercourse among unmarried adolescents in Indonesia, that is likely to escalate due to the increasing education level. However, these findings present that peer and social influences and contraceptive knowledge are not related to contraceptive use in adolescents. This study can be utilized as a reference for further studies to administer standardized questionnaires in order to explore more information about peers and social influences and contraceptive knowledge. This evidence also provides suggestions for enhancing health promotion strategies and actions to increase contraceptive use among adolescents based on education level.

REFERENCES

Adedini, S. A., Mobolaji, J. W., Alabi, M., & Fatusi, A. O. (2021). Changes in contraceptive and sexual behaviours among unmarried young people in Nigeria: Evidence from nationally representative surveys. *PLoS ONE*, *16*(2): e0246309. https://doi.org/10.1371/journal.pone.0246309

Adilah, Y., Mutahar, R., & Sari, I. P. (2017). Determinan Penggunaan Kondom Pada Hubungan Seksual Pertama Kali Oleh Remaja Belum Menikah Di Indonesia (Analisis Data SDKI KRR 2012). *Jurnal Ilmu Kesehatan Masyarakat*, *8*(2), 91–99. https://doi.org/10.26553/jikm.2016.8.2.91-99

Agha, S., Morgan, B., Archer, H., Paul, S., Babigumira, J. B., & Guthrie, B. L. (2021). Understanding how social norms affect modern contraceptive use. *BMC Public Health*, *21*(1), 1–11. https://doi.org/10.1186/s12889-021-11110-2

Ahinkorah, B. O. (2020). Predictors of unmet need for contraception among adolescent girls and young women in selected high fertility countries in sub-Saharan Africa: a multilevel mixed effects analysis. PloS one, 15(8), e0236352. https://doi.org/10.1371/journal.pone.0236352

Badan Kependudukan dan Keluarga Berencana Nasional. (2017). S*urvei Demografi Dan Kesehatan: Kesehatan Reproduksi Remaja 2017*. Badan Kependudukan Dan Keluarga Berencana Nasional.

Budiharsana, M. (2017). Contraceptive Services Available to Unmarried Sexually Active Adolescents. *Makara Journal of Health Research*, *21*(2), 68–74. https://doi.org/10.7454/msk.v21i2.7231

Chernick, L. S., Schnall, R., Higgins, T., Stockwell, M. S., Castaño, P. M., Santelli, J., & Dayan, P. S. (2015). Barriers to and enablers of contraceptive use among adolescent females and their interest in an emergency department based intervention. Contraception, 91(3), 217-225. https://doi.org/10.1016/j.contraception.2014.12.003

Decat, P., De Meyer, S., Jaruseviciene, L., Orozco, M., Ibarra, M., Segura, Z., Medina, J., Vega, B., Michielsen, K., Temmerman, M., & Degomme, O. (2015). Sexual onset and contraceptive use among adolescents from poor neighbourhoods in Managua, Nicaragua. *European Journal of Contraception and Reproductive Health Care*, *20*(2), 88–100. https://doi.org/10.3109/13625187.2014.955846

Durojaye, E. (2011). Access to contraception for adolescents in Africa: a human rights challenge. *The Comparative and International Law Journal of Southern Africa*,

44(1), 1–29. Retrieved from https://journals.co.za/doi/10.10520/EJC24722

Habito, C. M., Vaughan, C., & Morgan, A. (2019). Adolescent sexual initiation and pregnancy: what more can be learned through further analysis of the demographic and health surveys in the Philippines?. BMC public health, 19, 1142. https://doi.org/10.1186/s12889-019-7451-4

Kementerian Kesehatan Republik Indonesia. (2018). *Survei Demografi dan Kesehatan Indonesia Tahun 2017*. Jakarta: Kementerian Kesehatan Republik Indonesia.

Lee, J. (2017). Factors Affecting Contraceptive Use among Adolescent Girls in South Korea. *Child Health Nursing Research*, *23*(3), 259–267. https://doi.org/10.4094/chnr.2017.23.3.259

Lindberg, L. D., Firestein, L., & Beavin, C. (2021). Trends in U.S. adolescent sexual behavior and contraceptive use, 2006-2019. *Contraception: X*, *3*, 100064. https://doi.org/10.1016/j.conx.2021.100064

Lopez, L. M., Grey, T. W., Tolley, E. E., & Chen, M. (2016). Brief educational strategies for improving contraception use in young people. In *Cochrane Database of Systematic Reviews*, 3. https://doi.org/10.1002/14651858.CD012025.pub2

Mandiwa, C., Namondwe, B., Makwinja, A., & Zamawe, C. (2018). Factors associated with contraceptive use among young women in Malawi: analysis of the 2015–16 Malawi demographic and health survey data. *Contraception and Reproductive Medicine*, *3*(1), 1–8. https://doi.org/10.1186/s40834-018-0065-x

Mulubwa, C., Munakampe, M. N., Namakula, H., Hernandez, A., Ssekamatte, T.,… & Tetui, M. (2021). Framing Contraceptive Use Motivations Among Adolescents and Young Adults Living in Informal Settlements in Kira Municipality, Wakiso District, Uganda. *Frontiers in Global Women's Health*, 2:658515. https://doi.org/10.3389/fgwh.2021.658515

Munakampe, M. N., Zulu, J. M., & Michelo, C. (2018). Contraception and abortion knowledge, attitudes and practices among adolescents from low and middle-income countries: a systematic review. BMC health services research, 18(1), 1-13. https://doi.org/10.1186/s12913-018-3722-5

Nyarko, S. H. (2015). Prevalence and correlates of contraceptive use among female adolescents in Ghana. *BMC women's health*, *15*(60), 1-6. https://doi.org/10.1186/s12905-015-0221-2

Oppong, F. B., Logo, D. D., Agbedra, S. Y., Adomah, A. A., Amenyaglo, S., Arhin-Wiredu, K., ... & Ae-Ngibise, K. A. (2021). Determinants of contraceptive use among sexually active unmarried adolescent girls and young women aged 15–24 years in Ghana: a nationally representative cross-sectional study. BMJ open, 11(2), e043890. https://doi.org/10.1136/bmjopen-2020-043890

Prendergast, L. E., Leung, R., Toumbourou, J. W., Taft, A., McMorris, B. J., & Catalano, R. F. (2017). Sexual behaviour in early adolescence: a cross-national comparison of Australian and United States youth. *Australian journal of psychology*, *69*(1), 3–11. https://doi.org/10.1111/ajpy.12118

Upadhyay, U. D., Raifman, S., & Raine-Bennett, T. (2016). Effects of relationship context on contraceptive use among young women. *Contraception*, *94*(1), 68–73. https://doi.org/10.1016/j.contraception.2016.02.025

World Health Organization. (2004). *Contraception Issues in Adolescent Health and Development*. Geneva: World Health Organization.

World Health Organization. (2020). *Adolescent Pregnancy*. Geneva: World Health Organization.

World Health Organization. (2021). *Adolescent and young adult health*. Geneva: World

Health Organization.

Young, H., Burke, L., & Nic Gabhainn, S. (2018). Sexual intercourse, age of initiation and contraception among adolescents in Ireland: Findings from the Health Behaviour in School-aged Children (HBSC) Ireland study. *BMC Public Health*, *18*(1), 1–17. https://doi.org/10.1186/s12889-018-5217-z