

Beyond Sexual Debut: Exploring Key Predictors of Modern Contraceptive Use Among Indonesian Young Women

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BEYOND SEXUAL DEBUT: EXPLORING KEY PREDICTORS OF MODERN CONTRACEPTIVE USE AMONG INDONESIAN YOUNG WOMEN

Sexual debut among young women is a key factor influencing future reproductive health. Individuals with early sexual debut (before age 15) are at a higher risk of not using contraception, HIV, STIs, and unwanted pregnancies. Those who initiate sexual activity at an age younger than 15 tend to have lower contraceptive knowledge and usage patterns, making them more likely to be inconsistent in using contraception or not at all. This research aims to determine the association between sexual debut and modern contraceptive use among Indonesian young women using nationally representative data. A cross-sectional observational design was applied using the most recent dataset of IDHS-2017. The study included 3,459 young Indonesian women (aged 15-24), both married and unmarried. Data were analysed using multiple logistic regression to examine sexual debut and contraceptive use adjusted for the effects of demographic, socioeconomic, and informational factors. Out of 3,459 young women, 65% reported using modern contraceptives and 91% of them had their first sexual intercourse at 15 years and older. Sexual debut did not significantly predict contraceptive use in either bivariable [OR=0.9; 95%CI=0.73–1.18] or multivariable [AOR=0.8; 95%CI=0.63–1.11] analyses. Instead, high school education, being married, and access to contraceptive information from health workers were significantly associated with higher contraceptive use, while internet access and information from teachers showed negative associations. These findings suggest that demographic, socioeconomic, and informational factors, rather than age at sexual debut, play a more critical role in shaping contraceptive behavior among young women. A potential limitation lies in the bias of self-reported data. Future studies should incorporate longitudinal designs or qualitative approaches to better understand contraceptive decision-making among young women.

Keywords: sexual debut, contraceptive use, young women, IDHS-2017

Introduction

The pattern of sexual debut in Indonesia has shifted, occurring at a younger age (Hasanah *et al.*, 2020). Based on the 2017 Indonesian Demographic Health Survey (IDHS), 72.39% of adolescents had first sexual intercourse at 16-20 years old. The phenomenon holds particular significance for young women, because it can affect reproductive health in the future. Individuals who had sexual debut before 15 years old are at higher risk of engaging risky sexual behaviors, such as not using contraception, having sex with multiple partners, HIV and sexually transmitted infections (STIs), unsafe abortions, and experiencing unwanted and complicated pregnancies (Magnusson *et al.*, 2012; Makola *et al.*, 2019; Kiiru *et al.*, 2024). One of the factors that contributes to sexual debut behavior is a lack of comprehensive sexual education, which can lead to lower contraceptive use and access (Forste and Heaton, 1988).

Previous study has shown that young women who had sexual debut at 15 years old or older were 2.5 times more likely to use contraception than those with earlier sexual debut, because they have more knowledge and access to use contraception (Makola *et al.*, 2019). Conversely, young women with earlier sexual debut often have limited contraceptive knowledge and are stigmatized as delinquent for accessing it. They also have limited knowledge about contraceptive preferences, leading to nonuse or inconsistent use later (Magnusson *et al.*, 2012; Makola *et al.*, 2019). The concern is critical since low modern contraceptive prevalence rate (mCPR) among young people significantly increases unintended pregnancies and sexually transmitted infections (STIs). This issue can lead to long-term

consequences, including disruption of education, reduced economic opportunities, and poor physical and mental health outcomes (Boohene *et al.*, 1991). Despite these known risks, there is limited research directly examining the association between sexual debut and contraceptive use, particularly in young women populations. In the context of Indonesia, sexual debut remains an understudied behavioral factor in relation to contraceptive use because it is often considered a socially and culturally sensitive topic.

The use of contraception among young women is emphasized in the Sustainable Development Goals (SDGs) 3.7, which aims to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education (World Health Organization, 2025). Besides being influenced by the timing of sexual debut, several sociodemographic and socioeconomic factors also influence the contraceptive use among young women (Makola *et al.*, 2019; Mola *et al.*, 2020; Listyaningsih and Satiti, 2021).

Despite the known risks of early sexual debut, there is limited evidence examining whether early sexual debut is associated with lower of modern contraceptive use among young women in Indonesia. Understanding this association is crucial for developing targeted interventions to reduce reproductive health risks. Therefore, this study aims to analyze the relationship between sexual debut and contraceptive use, as well as other factors influencing contraceptive use among young women. It is hypothesized that young women who had sexual debut at earlier age are less likely to use modern contraceptive methods compared to those who had sexual debut at older age.

Methods

The research employed a cross-sectional design using the 2017 Indonesian Demographic and Health Survey (IDHS) conducted by the Central Statistics Agency in collaboration with the National Population and Family Planning Agency and the Ministry of Health. This survey was supported by ICF International through the Demographic and Health Survey (DHS) program (ICF, 2018). Data were obtained after receiving approval from the Measure DHS Organization and subsequently accessed by downloading them from DHS Program website. The population of the study was young women in Indonesia. Inclusion criteria consisted of young women aged 15-24 years, both married and unmarried, who participated in the 2017 IDHS and had complete information on sexual debut, contraceptive use, and all covariate variables. Respondents who used modern contraceptive methods or did not use any method were included. Exclusion criteria were respondents using traditional contraceptive methods, those with missing or “don’t know” responses, and respondents who had never engaged in sexual debut. The sample size was 3,459 young women after data cleaning and weighting.

Sexual debut as the independent variable were created from variable v531 (age at first sex). The variable was recoded into two categories, respondents who had sexual debut before 15 years old and those who had it at 15 years old or older. Contraceptive use as dependent variable was derived from variable v312, which captures respondent’s current contraceptive method. Only respondents using modern methods were included in the analysis. Traditional methods including periodic abstinence, withdrawal, other traditional methods, and lactational amenorrhea were excluded. Subsequently, contraceptive method variable was categorized into no (not using any contraceptive method) and yes (using a modern contraceptive method).

Covariate variables were included based on prior studies that identified their association with contraceptive use among women in Indonesia. These factors represent demographic (age, residence, marital status), socioeconomic (education, occupation, wealth), and informational (internet access, having knowledge about Sexually Transmitted Infections (STIs), contraceptive information from health workers, teachers, community, and media) aspects that may influence women's contraceptive use behavior. Age was derived from variable v013 which classifies respondents' age into 5-year groups. The variable was recoded into two categories, 15-19 years and 20-24 years. Residence was created from variable v025, the respondent's type of place of residence, which was categorized into urban and rural. Marital status was derived from the question on respondent's current marital status (v501). The variable consisted of six categories including never in union, married, living with partner, widowed, divorced, and no longer living together/separated. For analytical purposes, these variables were recoded into two categories, unmarried (including never in union, living with partner, widowed, divorced, and separated) and married.

Education level was derived from variable v106, which measures the respondent's highest level of education attained. The variable was categorized into four categories, uneducated, primary school, junior school, and high school. Occupation was derived from variable v716 which represents the respondent's type of occupation. Subsequently, the variable was recoded into two categories, unemployed for respondents who were not working and employed for respondents who had any kind of job. Wealth index was derived from the question on household economic status (v190). The data consisted of five categories, that was poorest, poorer, middle, richer, and richest. Then, the variable was grouped into two categories, poor (including poorest and poorer) and not poor (including middle, richer, and richest).

The internet access variable was created from the question on internet use (v171a), which was had three categories (never; yes, last 12 months; and yes, before last 12 months). Furthermore, the variable categorized into two categories, no (those who never used the internet) and yes (yes, last 12 months and yes, before last 12 months). Having knowledge about Sexually Transmitted Infections (STIs) was derived from several questions asking whether respondents had heard of specific STIs, including syphilis, gonorrhea, condyloma, chancroid, chlamydia, candida, genital herpes, and cervical cancer. Respondents who answered yes to at least one of these infections were classified as having knowledge about STIs (yes), while those who answered no to all were classified as having no knowledge about STIs (no). The sources of contraceptive information were categorized into "yes" and "no" based on where respondents obtained family planning (FP) information within the last six months. Information from health workers (FP officers, doctors, nurses or midwives, and pharmacists) were coded yes if they received information from any of those sources. Information from teachers coded yes if respondents obtained FP information from teachers. While information from community coded yes if respondent obtained FP information from religious leaders, village leaders, or women's group. Information from media was coded as yes if respondents had obtained FP information through mobile information or art-based media.

Data were analyzed using univariable, bivariable, and multivariable analysis. Univariable analysis was conducted to determine the distribution and characteristics of young women based on research variables. Furthermore, bivariable analysis aimed to determine the association between the dependent variable, the main independent variable, and the covariate variables through a logistic regression in the form of Odds Ratio (OR) which describes the strength of the association with a level of

significance explained by the Confidence Interval (CI) 95% and a significance level (alpha) 0.05. Subsequently, multivariable analysis aimed to test the closeness of the association between sexual debut and contraceptive use in young women by considering the covariate variables. The statistical test in this analysis is multiple logistic regression. The strength of the association is expressed in the form of an adjusted-Odds Ratio (AOR) with a level of significance explained by the Confidence Interval (CI) 95% and a significance level (alpha) 0.05. Multivariable analysis was conducted to control covariate variables that have a significance level (*p-value*) of less than 0.25.

Results

A total of 3,459 young women aged 15–24 years were included in the analysis. Overall, 64.7% reported using modern contraceptive methods, while 35.3% were non-users. The most commonly used method was 3-month injectables (39.6%), followed by pills (9.4%), 1-month injection (5.96%), and implants (5.81%). Use of IUDs remained low (3.1%), and sterilization or male condom use was minimal (<1%) (**Figure 1**).

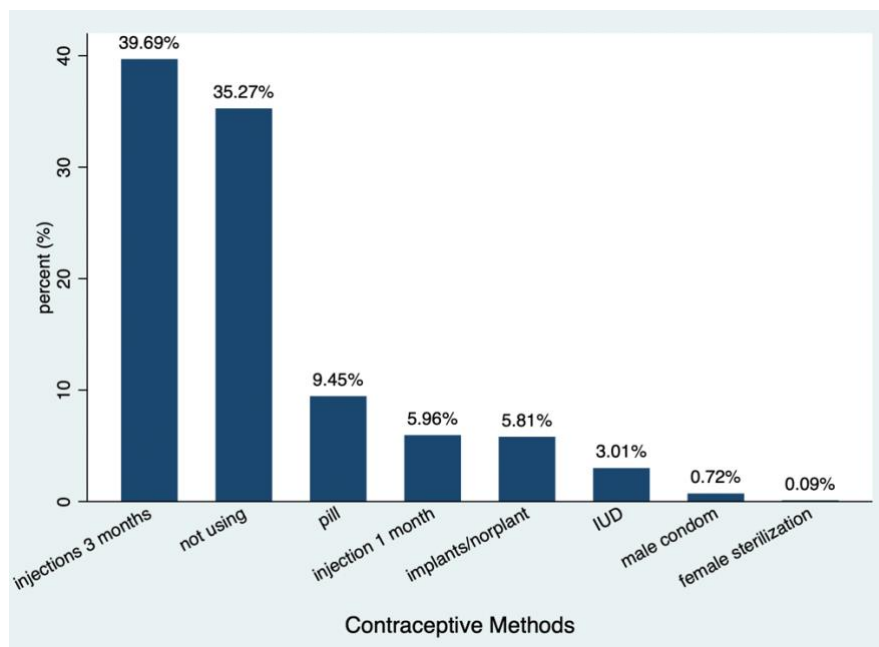


Figure 1. Distribution of Respondents by Contraceptive Methods Used

Most contraceptive users were aged 20–24 years, had junior high school education, were unemployed, and lived in rural areas. A majority also belonged to the poorest wealth quintile and lacked knowledge of STIs (**Table 1**). Marital status showed a clear distinction, among married women as many as 96.5% were contraceptive users and 77.9% were non-users. About half reported having internet access.

Bivariable logistic regression showed that education level, occupation, marital status, internet access, and receiving contraceptive information from health workers or the community were significantly associated with contraceptive use ($p < 0.05$) (**Table 1**). Sexual debut did not show a statistically significant association with contraceptive use (OR = 0.90; 95% CI: 0.73–1.18).

Furthermore, multivariable analysis was conducted to control covariate variables that had a significance level (*p-value*) of less than 0.25. After adjusting for covariates (age, education, occupation, marital status, internet access, and information sources), several predictors remained significantly associated with contraceptive use (**Table 2**). Marital status demonstrated the strongest association, it showed that married young women were 7.62 times more likely to use contraception than unmarried women (AOR = 7.62; 95% CI: 5.83–9.96). Education remained a strong predictor, with those having primary education 3.18 times more likely to use contraception than women with no education (AOR = 3.18; 95% CI: 1.67–6.06). Higher educational (junior and senior high school) also showed increased odds of contraceptive use.

Interestingly, internet access was negatively associated with contraceptive use (AOR = 0.80; 95% CI: 0.69–0.95), indicating women with internet access were less likely to use contraception. Receiving information from health workers increased the likelihood of contraceptive use (AOR = 1.61; 95% CI: 1.37–1.92), while information from teachers decreased it (AOR = 0.32; 95% CI: 0.14–0.74). Occupation and information from the community, which were initially significant in the bivariable analysis, became non-significant after adjustment. Sexual debut remained non-significant in the adjusted model (AOR = 0.80; 95% CI: 0.63–1.11).

Table 1. Chi-square Analysis of Factors Associated with Contraceptive Use among Young Women in Indonesia

Variable	Contraceptive Use		Chi-square	<i>p-value</i>
	No	Yes		
	n (%)	n (%)		
Sexual debut			0.31	0.572
Younger than 15	110 (9.02)	215 (9.60)		
15 years and older	1,110 (90.98)	2,024 (90.40)		
Demographic				
Age (years)			2.85	0.091
15-19	164 (13.44)	257 (11.48)		
20-24	1,056 (86.56)	1,982 (88.52)		
Residence			1.14	0.285
Urban	511 (41.89)	896 (40.02)		
Rural	709 (58.11)	1,343 (59.98)		
Marital Status			303.47	0.000
Unmarried	270 (22.13)	78 (3.48)		
Married	950 (77.87)	2,161 (96.52)		
Socioeconomic				
Education			14.38	0.002
Uneducated	24 (1.97)	19 (0.85)		
Primary School	256 (20.98)	529 (23.63)		
Junior School	849 (69.59)	1,564 (69.85)		
High School	91 (7.46)	127 (5.67)		
Occupation			9.68	0.002
Unemployed	684 (56.07)	1,377 (61.50)		
Employed	536 (43.93)	862 (38.50)		
Wealth			0.03	0.861
Poor	723 (59.26)	1,320 (58.95)		
Not Poor	497 (40.74)	919 (41.05)		
Informational				
Internet Access			8.67	0.003
Yes	705 (57.79)	1,177 (52.57)		
No	515 (42.21)	1,062 (47.43)		
Having Knowledge About STIs			0.15	0.692
Yes	268 (21.97)	505 (22.55)		

No	952 (78.03)	1,734 (77.45)		
Contraceptive Information from Health Workers			55.11	0.000
Yes	342 (28.03)	912 (40.73)		
No	878 (71.97)	1,327 (59.27)		
Contraceptive Information from Teacher			1.78	0.181
Yes	12 (0.98)	13 (0.58)		
No	1,208 (99.02)	2,226 (99.42)		
Contraceptive Information from Community			12.30	0.000
Yes	89 (7.30)	246 (10.99)		
No	1,131 (92.70)	1,993 (89.01)		
Contraceptive Information from Media			1.97	0.159
Yes	16 (1.31)	44 (1.97)		
No	1,204 (98.69)	2,195 (98.03)		

Table 2. Logistic Regression of Factors Associated with Contraceptive Use among Young Women in Indonesia

Variable	Unadjusted OR (95%CI)	Adjusted OR (95%CI)
Sexual debut		
Younger than 15	1	1
15 years and older	0.93 (0.733-1.187)	0.84 (0.638-1.118)
Demographic		
Age (years)		
15-19	1	1
20-24	1.19 (0.971-1.477)	1.09 (0.865-1.377)
Residence		
Urban	1	
Rural	0.92 (0.803-1.066)	
Marital Status		
Unmarried	1	1
Married	7.87 (6.051-10.245)***	7.62 (5.830-9.962)***
Socioeconomic		
Education		
Uneducated	1	1
Primary School	2.61 (1.404-4.852)**	3.18 (1.674-6.064)***
Junior School	2.32 (1.267-4.272)**	2.79 (1.471-5.327)**
High School	1.76 (0.911-3.408)	2.11 (1.043-4.288)*
Occupation		
Unemployed	1	1
Employed	0.79 (0.693-0.920)**	0.91 (0.783-1.062)
Wealth		
Poor	1	
Not Poor	0.98 (0.856-1.137)	
Informational		
Internet Access		
No	1	1
Yes	0.80 (0.703-0.931)**	0.80 (0.689-0.949)**
Having Knowledge About STIs		
No	1	
Yes	1.03 (0.874-1.223)	
Contraceptive Information from Health Workers		
No	1	1
Yes	1.76 (1.517-2.051)***	1.61 (1.368-1.916)***
Contraceptive Information from Teacher		
No	1	1
Yes	0.58 (0.267-1.292)	0.32 (0.140-0.735)**
Contraceptive Information from Community		
No	1	1

Yes	1.56 (1.217-2.020)***	1.26 (0.945-1.683)
Contraceptive Information from Media		
No	1	1
Yes	1.50 (0.847-2.684)	1.08 (0.594-1.980)

Notes: *p-value <0.05, **p-value <0.01, ***p-value <0.001; OR, Odds Ratio; CI, Confidence Interval

Discussion

The findings indicate that sexual debut was not significantly associated with contraceptive use among young women, suggesting that demographic, socioeconomic, and informational factors play a stronger role than sexual debut. In Indonesia, sexual activity before marriage was taboo and access to reproductive health services was restricted for unmarried young women. Moreover, there is the possibility of confounding variables that influence the relationship between sexual debut and contraceptive use. Therefore, the association between sexual debut and contraceptive use was not significant. This finding differs from previous studies in other contexts that showed sexual debut was significantly associated with contraceptive use because young women who have sex at a younger age were worried of the risk of unwanted pregnancy (Christofides *et al.*, 2014; Finer and Philbin, 2013; Young *et al.*, 2018). The discussion below highlights how demographic, socioeconomic, and informational factors contribute to contraceptive use among young women in Indonesia.

Within the demographic aspect, marital status demonstrated a significant association with contraceptive use. This result aligned with previous studies, showing that married young women have higher chance of using modern contraception compared to unmarried women (Hailegebreal *et al.*, 2021; Chola *et al.*, 2020). In Indonesia, there were cultural and religious aspects that aligned with sexual activity acceptance within marriage. Hence, unmarried young women had limitation to obtain reproductive health information and services (Ngome and Odimegwu, 2014; Bitzer *et al.*, 2016; Alomair *et al.*, 2020).

Regarding socioeconomic aspect, education level was significantly associated with contraceptive use, consistent with studies from Zambia and Ghana that indicated young women with formal education were more likely to use contraception (Chola *et al.*, 2020; Nyarko, 2015). However, the analysis found that women with primary school had higher contraceptive use than women with secondary or higher school. Education enhances knowledge, decision-making, and autonomy (Titaley and Sallatalohy, 2020; Agus *et al.*, 2019), but contextual factors such as family control, religious beliefs, and family planning information may shape how that knowledge translates into contraceptive behavior.

Interestingly, within informational aspects, internet access showed a negative association with contraceptive use. Young women with internet access were less likely to use contraception compared with women without internet access. This may indicate that access alone was not guarantee young women accessed health knowledge. Furthermore, misinformation, limited digital health literacy, and excessive content could create confusion among them (Harzif *et al.*, 2023; Jiang and Beaudoin, 2016; Baker and Watson, 2020). Accordingly, these findings highlight the need for credible online sexual health education and guidance to ensure that the internet becomes a supportive tool rather than a misleading one. Contraceptive information from health workers was positively associated with contraceptive use, this finding supported the evidence that information by professionals improved understanding and uptake of contraception among young women (Pazol *et al.*, 2015; Stacey *et al.*,

2017; Pandey *et al.*, 2019). Health workers remain the most trusted and accessible source of reproductive health information among young women (Ott *et al.*, 2014). Conversely, contraceptive information from teachers showed a negative association with contraceptive use. This could be due to the sensitive nature of sexuality topics, teachers' limited training, and cultural discomfort in discussing sexual health openly (Shibuya *et al.*, 2023). Currently, several countries have implemented comprehensive sexual education (CSE) including contraception education as strategic step in increasing young women knowledge about reproductive health (Gbagbo *et al.*, 2023). Therefore, teacher capacity and communication approaches must be strengthened to ensure effective message delivery.

Overall, the findings highlight that contraceptive use among young women is influenced not merely by sexual debut but by a complex interplay of marital status, education, internet access, contraceptive information from health workers and teachers. Programs aiming to increase contraceptive use should focus on improving comprehensive sexual education, strengthening the role of health professionals, and promoting credible digital health literacy for young women.

Strengths and Limitations

The relationship between sexual debut and contraceptive use among young women remains underexplored. So it can provide a picture of sexual behaviour in women as early as possible. However, there are limitations in the study, namely it does not reflect the frequency of sexual activity, the effectiveness of contraceptive methods, or the consistency of contraceptive use over time. In addition, the association between sexual debut and contraceptive use can be mediated by access to information on contraception which has not been analysed in the present analysis.

Conclusion

In conclusion, the study revealed no significant association between sexual debut and contraceptive use among young women in Indonesia. Instead, demographic, socioeconomic, and informational aspects particularly marital status, education, internet access and contraceptive information from health workers and teachers were more influential determinants. These findings highlight that contraceptive use among young women is primarily driven by contextual and informational factors rather than sexual behavior itself. Future studies should incorporate longitudinal designs or qualitative approaches to better understand contraceptive decision-making among young women.

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