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Differentials in Reproductive Health Knowledge among Adolescents in Indonesia

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ABSTRACT
Due to societal taboos, traditional and religious norms, Indonesia's Z-generation, who account for a large population, is frequently underinformed about reproductive health. The objectives of this study are to determine whether there are any differences in the knowledge of Indonesian young adults on reproductive health issues, modern contraceptive methods, and sources of information for reproductive health by selected sociodemographic characteristics. From the 2019 Performance and Accountability Survey, 41.582 never-married adolescents between the ages of 10 to 24 years were selected for the analysis. In this study, descriptive and bivariate analyses were performed. The means of the two groups were compared using t-tests. The results show that adolescents still lack information about reproductive health. The overall means for knowledge of reproductive health, modern methods of contraception, and sources of information about reproductive health were 1.97, 2.54, and 3.07, respectively. Adolescents were highly exposed to message about reproductive health on television and the internet. Adolescents that are older, reside in urban areas, are more educated, and are wealthier are reported to have significantly higher knowledge than their counterparts. With enough concern and increased attention being provided to younger adolescents, who reside in rural areas, who have lesser education, and are from the lowest wealth index, emphasis should be placed on increasing information to promote reproductive health literacy among adolescents. Television and digital media are crucial communication channels for educating with young people about reproductive health. Policies and programs should be designed to involve peers, relatives, and teachers in providing information about reproductive health.

INTRODUCTION

Adolescence is the healthiest age group in the population. However, this period is a transitional and critical stage in an individual's life, the beginning of the onset of puberty, the change of physical, emotional, psychological, social, and mental growth.[1,2] Youth constitute a sizable proportion of the Indonesian population. There are 67 million adolescents in Indonesia, with young people aged 10-24 years accounting for about 25% of the total population.[3]

Due to the high proportion of the young population in Indonesia, the reproductive behavior of adolescents is likely to have an important impact on overall reproductive health, demographic, and social outcome. Entering the reproductive phase of life, adolescents are exploring their sexual interests and desires. Because of their incapability to make an informed judgment or make the right decision in life, adolescents are often exposed to high-risk sexual behavior such as premarital sex.[4] Sexual initiation among youth was primarily associated with the risk of adverse reproductive health outcomes, for example, unplanned or unwanted pregnancy, unsafe abortion, maternal health complications, and sexually transmitted infections (STIs) including HIV/AIDS.[2,4] In Indonesia, around 9% of girls got married under the age of 20 years and 7% of them have begun childbearing.[5] Premarital sex is not culturally accepted in Indonesia, but in the country, most females and males had their sexual debut at the age of 17.[6] The 2017 Indonesian Demographic and Health Survey (IDHS) reported 8% of males and 1% of females aged 15-24 years who had never been married has had premarital sex.[6] Comparing these results with those of the 2012 IDHS suggest that sexual initiation has slightly increased from 1% in 2012 for young women and remained constant for young men.[6]

To lead healthy, responsible, and protect themselves from reproductive health problems, adolescents must have adequate information about reproductive health as well as contraceptive method choices. Adolescents in developing countries, including Indonesia often lack basic reproductive health information, whereas reproductive health knowledge is considered one of the keys that enable adolescents to be aware of their rights, and to be able to make meaningful choices and decisions concerning their future.[1] Traditional, norms, and religious values could be one of the factors contributing to the difficulty of sexuality discussion in Indonesia's society, and the topic remains marginal in the health and education program, thus young people have limited knowledge of the nature of sexuality and safe sexual activity.[7,8] At the same time, due to greater exposure to digital media, societal behavior shifted from conservatism to liberal interaction between both sexes, with more permissive attitudes.[8] A wide range of risky sexual activities is occurring every day in different parts of Indonesia, putting the health of young Indonesian in jeopardy.[7] The social environment of young Indonesian is sandwiched between a liberal Western perspective and a strict conservatism at home.[7]

Other than the value barriers of reproductive health-related discussions, the source of reproductive health information obtained by adolescents is also a crucial issue that requires special attention since they need proper and quality information. Inadequate and inaccurate information on reproductive health has some implications for adolescents' health and future.[9] Previous studies suggested that adolescents prefer receiving information from personal sources and mass media, which are their peers or parents.[9–12] Given the unique information challenges and that young people are being squeezed between modernization and traditionalism, exploring knowledge about reproductive health among adolescents is particularly timely. Therefore, the objective of the study was to examine the knowledge of Indonesian adolescents on reproductive health issues, modern contraceptive methods, and sources of information for reproductive health; and whether the knowledge differs by selected sociodemographic characteristics.

MATERIAL AND METHOD

This study was a quantitative analysis based on the 2019 Performance and Accountability Survey (*Survei Kinerja dan Akuntabilitas Program Kependudukan, Keluarga Berencana, dan Pembangunan Keluarga*, or SKAP) data. The survey used a cross-sectional design and was conducted in 34 provinces by the National Population and Family Planning Board (*Badan Kependudukan dan Keluarga Berencana*

Nasional, or BKKBN), aiming to provide population and reproductive health indicator estimates at the national and provincial levels in Indonesia.

The probability proportional to size method was used in the survey to generate a sample of proportional household sizes, which was the survey's sampling frame. Every family member and non-family member (e.g., stay overnight guests) was identified in each selected household and then listed in the family roster. Adolescents who were family members were interviewed using an adolescent questionnaire consisting of reproductive health and family development knowledge issues. As many as 41,582 never married adolescents aged 10 – 24 years completed the interview and were the unit of analysis of this current study.

Data analysis was conducted using SPSS v.23, and both descriptive and bivariate analyses were used. Descriptive analysis was used to understand sample characteristics. Bivariate analysis using t-tests was conducted to examine mean measures of adolescents' knowledge about reproductive health, modern contraceptive methods, and source of information about reproductive health and find significant differences between two groups of each selected socio-demographic characteristic. The criterion for statistical significance was set at a *p*-value of 0.05.

Knowledge of modern contraceptive methods was assessed through familiarity with 11 contraceptive methods. Adolescents were asked whether they had ever heard/read/seen eight contraceptive methods such as female sterilization, male sterilization, Intra Uterine Device (IUD), implant, injectables, pills, emergency contraception, male and female condoms, diaphragm (intravag), and Lactation Amenorrhea Method (LAM). The summary index, ranging from 0 to 11, assigned one point for each method known and 0 otherwise.

Knowledge about reproductive health was assessed through five questions, namely knowledge about a woman's fertile period; the risk of pregnancy (that a woman can become pregnant after having one sexual intercourse); HIV/AIDS; STIs (other than HIV/AIDS); and early marriage consequences. This study devised a summary index that assigned a score of 1 for each 'yes and correct' response and 0 for each incorrect or "don't know" response, yielding a total score ranging from 0 to 5.

The adolescents were asked whether they had heard information about reproductive health through nine sources of information such as radio, television, newspaper, poster, internet, health professionals, religious leader, teacher, and friends/relatives. Responses were scored 1 point for each source of information and 0 if not. In total, therefore, scores on the source of information on reproductive health range from 0 to 9.

The social and demographic variables cover several characteristics, those were age, sex, education, place of residence, wealth index, and region. These variables were selected based on the previous study about adolescents' reproductive health.

As a secondary analysis, this study referred to the ethical clearance of the 2019 Performance and Accountability Survey which was approved by the ethics committee of the Family Planning and Reproductive Health of the National Population and Family Planning Board (No. 434/LB.02/H4/2019).

RESULTS

Table 1 shows the description of 41,582 never married adolescents aged 10-24 years included in this study. Those of younger ages (10-19 years) were the majority of respondents (83%). Slightly more than half of the respondents were male and resided in urban areas (53%). Most of the adolescents had secondary or higher education, and 27% had a primary or less level of education. The majority (77%) belonged to the middle to highest-wealth household index. Most adolescents lived in the Java and Bali regions.

Table 2 also shows the knowledge of modern contraceptive methods among adolescents. A total of 11 questions were asked on methods of contraception. In general, more than half of the adolescents could identify injectables (60%), pills (56%), and male condoms (54%). Long-acting and permanent contraception methods were mentioned by a few adolescents: 26% knew about implants, 17% were aware of IUDs, and 14% were about female sterilization.

Familiarity was low for other methods; only 4% of adolescents mentioned emergency contraception and diaphragm (intravag).

Table 2 summarizes the percentage of adolescents answering yes and correctly to the five knowledge items. The proportions of adolescents who knew and had correct responses to the reproductive health knowledge items ranged from 5% to 60%. Most of the adolescents had heard about HIV/AIDS, but only three out of ten knew about STIs other than HIV/AIDS. Almost half of the adolescents knew that a woman who has gone through puberty may become pregnant after one sexual intercourse, however, only 5% of them were aware of women's fertile period likely to occur in midcycle. Among 41,582 adolescents, less than half of them were aware of the consequences of early marriage.

Table 1. Percentage Distribution of Never Married Adolescents (10-24 Years) by Selected Sociodemographic Characteristics in Indonesia

Characteristics	n = 41,582	%
Age		
10–19	34,438	82.82
20-24	7,144	17.18
Sex		
Male	22,124	53.21
Female	19,458	46.79
Education		
Primary and less	11,309	27.20
Secondary +	30,273	72.80
Place of Residence		
Urban	21,910	52.69
Rural	19,672	47.31
Wealth Index		
Lowest	9,456	22.74
Middle to highest	32,126	77.26
Region		
Java-Bali	25,746	61.92
Non Java-Bali	15,836	38.08

Source: Performance and Accountability Survey, 2019

Table 2. Knowledge of Modern Contraceptive Methods, Reproductive Health, and Source of Information for Reproductive Health in Indonesia

Characteristics	n = 41,582	%
Knowledge About Modern Contraceptive Methods		
Female sterilization	5,704	13.72
Male sterilization	2,855	6.87
Implant	10,666	25.65
IUD	7,102	17.08
Injectables	24,982	60.08
Pill	23,471	56.45
Emergency contraception	1,511	3.63
Male condom	22,642	54.45
Female condom	2,604	6.26
Diaphragm (intravag)	1,509	3.63
LAM	2,724	6.55
Knowledge About Reproductive Health		
Knowledge of women's fertile period	2,062	4.96
Knowledge of the risk of pregnancy	20,079	48.29
Knowledge of HIV/AIDS	25,121	60.41
Knowledge of other STIs	14,293	34.37
Knowledge about early marriage consequences	20,177	48.52
Source of Information for Reproductive Health		
Radio	1,647	3.96
Television	31,231	75.10
Newspaper	4,707	11.32
Poster	10,191	24.51
Internet	17,324	41.66
Health professional	9,754	23.46
Religious leader	3,651	8.78
Teacher	28,876	69.44
Friends/relatives	20,184	48.54

Source: Performance and Accountability Survey, 2019

Table 3 summarizes scores on the various knowledge items and sources of information for reproductive health. The three mean scores of the variables fell below the midpoint of the index, which is 5.5, 2.5, and 4.5 for indices of contraception knowledge, reproductive health knowledge, and source of information for reproductive health, respectively, suggesting inadequate knowledge and exposure to reproductive health. The adolescents' knowledge of modern contraceptive methods was poor. The overall mean score of knowledge about modern contraceptive methods on the 11-point modern methods was 2.54 (SD=2.26). Of the 5 measures, adolescents' knowledge about reproductive health was less favorable, the mean score was 1.97 (SD=1.50). Mean scores were also less than moderate, 3.07 (SD=1.78), for the 9 points of information sources for reproductive health.

A t-test was conducted to find significant differences across selected sociodemographic characteristics related to knowledge of modern contraceptive methods, knowledge of reproductive health, and source of reproductive health information. The mean score index showed statistically significant differences for all socioeconomic factors, including age, sex, education, place of residence, wealth index, and region; for knowledge of modern contraceptive methods; knowledge of reproductive health; and sources of information for reproductive health (p<0.05).

It showed that younger adolescents were poorer in knowledge about modern contraceptive methods, knowledge about reproductive health, and lower exposure to information about reproductive health. It was two times higher for knowledge about modern contraceptive methods among older adolescents than younger ones. Females were found to have higher knowledge of both modern contraceptive methods and reproductive health than males. However, males had slightly higher exposure to reproductive health information compared to females. The higher adolescents' educational level, the higher their knowledge about modern contraceptive methods and reproductive health, and the more they obtained information from various sources.

Furthermore, adolescent who live in rural areas demonstrated lower level of modern contraceptive methods and reproductive health knowledge, also lower exposure to information on reproductive health. As expected, a higher mean of knowledge and exposure to reproductive health information among adolescents comes from the middle to highest household wealth index. Modern contraceptive knowledge and reproductive health knowledge were higher among adolescents who live in Java and Bali region, and they tend to have more exposure from various sources. However, adolescents from regions other than Java and Bali slightly had higher knowledge of modern contraceptive methods.

Table 3. Mean Score of Knowledge About Modern Contraceptive Methods, Reproductive Health, and Source of Information for Reproductive Health by Selected Socioeconomic Characteristics in Indonesia

Characteristics	Knowledge About Modern Contraceptive Methods		Knowledge About Reproductive Health		Source of Information for Reproductive Health	
	mean	*p-value*	mean	*p-value*	mean	*p-value*
Overall score	**2.54**		**1.97**		**3.07**	
Age						
10-19	2.19	0.000	1.73	0.000	2.92	0.000
20-24	4.26		3.12		3.76	
Sex						
Male	2.23	0.000	1.88	0.000	3.08	0.045
Female	2.90		2.06		3.05	
Education						
Primary and less	1.13	0.000	0.75	0.000	2.23	0.000
Secondary +	2.07		2.42		3.38	
Place of Residence						
Urban	2.65	0.000	2.11	0.000	3.27	0.000
Rural	2.42		1.8		2.84	
Wealth Index						
Lowest	2.34	0.000	1.71	0.000	2.78	0.000
Middle to highest	2.60		2.04		3.15	
Region						
Java-Bali	2.52	0.028	2.01	0.000	3.14	0.000
Non-Java-Bali	2.57		1.90		2.95	

Source: Performance and Accountability Survey, 2019

DISCUSSION

Using the SKAP conducted in 2019, this study examined knowledge of modern contraceptive methods, reproductive health, and media exposure among never-married adolescents. Furthermore, it examined the differentials of reproductive health knowledge by selected sociodemographic characteristics. This study indicated that adolescents' knowledge about modern contraceptive methods and reproductive health information is still far from satisfactory. The three mean scores of the variables fell below the midpoint of the index. This suggests that there are areas of concern and adequate knowledge regarding reproductive health, which is important for adolescents, as they are vulnerable to adopting risky behavior.

Inadequate reproductive health knowledge is associated with a lack of information access. Limited access to reproductive health services and young age, which is commonly underserviced due to age stigmatization, are the factors for adolescents of lack of information.[13] In addition, feeling uncomfortable and embarrassed when talking about reproductive health also leads adolescents to be less informed regarding reproductive health knowledge as well as behavior.[14] In fact, receiving comprehensive and accurate information about reproductive health is everyone including adolescents' right to health.[15]

Concerning knowledge of modern contraceptive methods, adolescents performed poorly regarding familiarity with methods of contraception. Open discussion about contraceptive methods among adolescents or the unmarried population is still considered too sensitive and there is a belief that providing this information will encourage sexual activity. Moreover, in many developing countries premarital sex is socially and religiously prohibited, so information about sexual and reproductive health including contraceptive knowledge is rarely provided for adolescents.[16]

However, in Indonesia, contraceptive services in the family planning program are only targeted at married couples. Previous studies have shown poor contraceptive knowledge in the young people population as well. [8,16] However, it was found that many adolescents were most familiar with three common modern methods of contraception (injectables, pills, and male condoms). Studies in Botswana and India also reported similar knowledge.[19,20] In line with a study's finding in Riyadh, this current study disclosed the scarcity of knowledge about long-term contraceptive methods as well.[14] Besides serving as a birth control strategy, providing information about contraception is important for adolescents in the prevention of sexually transmitted infections, such as condoms and HIV/AIDS protection.[15,16] It suggests that there is a need to improve contraceptive literacy.

Overall, Indonesian's adolescents had poor reproductive health knowledge. The finding is similar to the results reported in Malaysia, the Lao People's Democratic Republic, and some areas in sub-Saharan countries.[2,28,29] The main barriers to reproductive health knowledge were possibly the availability, accessibility, acceptability, confidentiality, and even lack of publicity and visibility of available information services.

This current finding confirmed the previous studies' results, disclosing that knowledge of sexual and reproductive health is generally low among adolescents in Indonesia.[21–26] A study in Yogyakarta, where numerous adolescents live there, found that most of the adolescents had poor knowledge regarding reproductive organs, puberty, conception and pregnancy, contraception and abortion, and sexually transmitted diseases.[27]

Most of the respondents had heard about HIV/AIDS, but very few heard of STIs. This finding is consistent with previous studies conducted in several developing countries where most of the adolescents had heard about HIV/AIDS.[14,29–31] Similarly, for the question regarding females' fertile period, the majority of adolescents incorrectly answered the questions.[2,32] This finding shows that there are issues related to understanding the female reproductive system. Considering fertility awareness, knowledge of females' fertile period is important to improve the perception of pregnancy risk and lower the incidence of unintended pregnancy.[33] If adequate information is not provided, the impact can be adverse and may lead to risky sexual behavior.

The findings show that the overall mean score of sources of information was 3.07, which is less favorable. In this study, television, teachers, the internet, and friends/relatives were listed as

common sources of reproductive health information. A similar finding was reflected in some previous studies in Ghana[9] and sub-Saharan African countries[34] found that television is the major source of information for reproductive facts. No different than prior studies, the internet was pointed as one of the common sources for reproductive health information as well.[10] The preference for using the internet as the source of reproductive health information could be due to the unsatisfied nature of the information adolescents previously received.[35] Other studies in India[30] and Botswana[15] found that teachers play an important role in delivering information. Friends were reported as the next common source of reproductive health information after television and teachers as found in Ethiopia.[36] This result contradicts finding from elsewhere that adolescents talk about reproductive health information with their parents[11,12] or health professionals.[37] Information received from the mass media, however, tends to be incomplete and biased in religious and cultural issues, whereas information acquired from peers or parents is often misleading because they may be less exposed to quality information causing the adolescents more vulnerable.[9] Thus, the enhancement of reproductive health knowledge is important to not only target adolescents solely but also the community and their parents in particular.

The findings clearly showed that adolescents who were older, female, had higher education, lived in urban areas, and were wealthier reported significantly having higher knowledge than their counterparts. It reveals the consistent findings of the study from Malaysia[1] that reproductive health knowledge was higher among older adolescents. This can be attributed to the experience, as age increases exposure to reproductive health issues also increases. Similarly, the mean knowledge scores were significantly higher among adolescents with higher education. This finding is supported by a study in Malaysia where higher educational status is positively associated with reproductive health knowledge.[2] It may be due to more disclosure of reproductive health information.

This study highlights higher knowledge of modern contraceptive methods and reproductive health among females than males, which is in line with earlier studies' results.[38–40] The fear of the sexual behavior consequences appears to encourage female adolescents to have more information on reproductive health as well as contraception.[40,41] A study in Kenya found that female adolescents were more likely to find more information about contraceptive methods and reproductive health to avoid the risks of an unwanted pregnancy.[37] Another study in Italy stated that the differences related to sex differences are possibly due to adverse effects of the prevention services design and health promotion which has been traditionally more focused on women.[39] From an optimistic point of view, this finding implies a good sign that adolescents, particularly females, will act and behave positively regarding contraception and reproductive health. Perceived knowledge during adolescence determines the attitude and behavior toward reproductive health in the future.[42] Providing access to quality reproductive health services for both female and male adolescents, however, will ensure that adolescents obtain adequate and comprehensive reproductive health-related information.

In the present study, urban adolescents had higher reproductive health knowledge as compared to rural adolescents. Similar findings were reported by Kumar et al[20] and Awang et al.[1] This could be due to better information access in urban areas. Meanwhile, due to cultural values, having discussions or questions related to reproductive health may be seen as more sensitive in rural areas.[43] Moreover, adolescents from rich households had more knowledge than poor ones. It is consistent with a previous study conducted in India.[44] The higher knowledge among the rich might be due to more exposure to issues through media, as they had greater access to this media.

Although findings offer several insights, they need to be interpreted cautiously considering a few limitations. First, the study used cross-sectional survey data, which no causal effects could be confirmed. Second, there were no in-depth questions about contraceptive methods hence adolescents may have been over-reporting the knowledge. Third, the measurement for reproductive health knowledge is only from five basic pieces of information. Finally, there may be important

variables, which were not captured in the dataset used in this study.

CONCLUSION AND RECOMMENDATION

This study has indicated that knowledge about modern contraceptive methods and knowledge about reproductive health amongst adolescents in Indonesia remained low as the mean score fell below the midpoint of the index, both by overall mean score and selected socio-economic characteristics. The finding highlights that adolescents need to be given information on modern contraceptive methods other than three common methods (injectables, pill, and male condom) and education about women's fertile period, STIs other than HIV/AIDS, the risk of pregnancy, and the consequences of early marriage, particularly to younger adolescents, having lower education, living in a rural area, and from the lower income family.

The findings of this study offer important policy and research implications in the context of the ongoing adolescent reproductive health programs and initiatives in Indonesia. First, there is a need to increase the involvement of teachers, peers, and relatives in the provision of adequate reproductive health information. This could be achieved by providing training to teachers, peers, and the community, emphasizing the importance of the right information, and thus encouraging them to disseminate such information. Furthermore, this could also be attained through using digital media such as the internet, text messaging, social networking sites (SNS), and shareable video sites to provide correct and complete reproductive health promotion. Second, youth programs should be encouraged to reach younger adolescents who have lower education, live in a rural area, and are from the lowest wealth. Third, the lower knowledge among male adolescents could be a confirmation that attention to male-reproductive health knowledge should be considered when planning educational intervention. Consider health promotion programs that target males apart from general sexuality education which includes both sexes. Males have higher risks of premarital sexual behavior, which can create other sexuality-related issues including sexually transmitted diseases.

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AUTHOR CONTRIBUTIONS

SK and DNF conceptualized and designed the study. SK drafted the manuscript, DNF conducted the data analysis, and SL provided additional analysis and discussions. All authors have read and approved the manuscript. All authors equally contributed to this study. SK = Sari Kistiana; DNF = Desy Nuri Fajarningtiyas; SL = Syauqy Lukman.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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