



Original research article

# The effect of comprehensive sexual education on improving knowledge, attitudes, and skills in preventing premarital sexual behavior in adolescents

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## Abstract

**Aim:** This study aims to determine the effect of comprehensive sexual education on improving knowledge, attitudes, and skills in preventing premarital sexual behavior.

**Design:** Quasi-experimental pre-post-test design with a control group.

**Methods:** The participants in this study were SMKN 1 Cibadak students. 60 respondents were divided into two groups (intervention group = 30 and control group = 30). The purposive sampling technique selected participants with the following inclusion criteria: grade 9 students who are already dating. In the intervention group, comprehensive sexual education was conducted for six sessions, consisting of six main topics. The research instrument was a knowledge, attitudes, and skills questionnaire which had previously been tested for validity and reliability using the Shapiro–Wilk and Levene test. The collected data were processed using SPSS version 25.0 and analyzed by univariate (frequency and percentage), bivariate (paired *t*-test and independent *t*-test), and multivariate (linear regression test).

**Results:** Comprehensive sexual education significantly improved knowledge, attitudes, and skills in preventing premarital sexual behavior with a *p*-value = 0.000. The difference in each variable's mean and standard deviation significantly occurred between the intervention and control group with the results of knowledge (17.60 ± 3.86 vs. 11.33 ± 5.96), attitude (53.93 ± 13.92 vs. 28.53 ± 13.13), and skill (34.93 ± 3.78 vs. 16.87 ± 8.13).

**Conclusions:** Comprehensive sexual education has proven to be effective in increasing knowledge, attitudes, and skills to prevent premarital sexual behavior. Therefore, it can be used as a special intervention in public health centers for adolescents. This intervention approach can be achieved by a collaboration between health services and formal institutions, such as schools and communities (e.g., youth organizations).

**Keywords:** Attitude; Comprehensive sexual education; Knowledge; Premarital sexual behavior; Skill

## Introduction

According to a World Health Organization (WHO) study in 2010, there are 210 million pregnant adolescents worldwide every year (Yazdkhasti et al., 2015). Based on this figure, 128 million have abortions due to premarital sexual behavior. This results in 70,000 adolescent deaths due to unsafe abortions, with another 4 million suffering from illness and disability (Singh, 2010). A survey by Committee of Indonesian Child Protection and the Ministry of Health of the Republic of Indonesia in 2013 illustrate that the condition of adolescents in Indonesia is quite deplorable due to premarital sex, abortion and HIV/AIDS. The survey results stated that 62.7% of adolescents in Indonesia had premarital sex, 20% of 94,270 adolescents

experienced pregnancies outside of marriage, and 21% of adolescents who experienced pregnancy outside of marriage had abortions (Badan Kependudukan..., 2017).

There are several reasons for premarital sex such as their love for each other, curiosity, for just happening, and being forced by a partner. As many as 62% of adolescents received information about premarital sex from school friends, 42% from teachers, 8.7% from health workers, and 6.8% from parents (InfoDATIN, 2015). 15–19 year-old male adolescents preferred reproductive health information obtained from peers (26%) and teachers (25%). Female adolescents preferred to get this information information from mothers (43%), friends (45%), health workers (10%), and religious leaders (2%) (Badan Kependudukan..., 2017). The surge in sexual desire forces youths to seek information, but too few receive education on

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sexual and reproductive health from teachers and parents. As a result, many teenagers have negative behavior such as having sexual intercourse before marriage (Irmawaty, 2013). Abusive sexual behavior is caused by a lack of adolescent knowledge about reproduction, and occurs due to the influence of mass media and the internet, which provide inaccurate and misinformation (Hagg et al., 2018).

Currently, school curriculums on reproductive health do not meet the needs of adolescents' understanding of premarital sex, which results in adolescents seeking knowledge from the internet – and sometimes this information is unsuitable for their age. Besides this, teenagers' curiosity causes them to carry out sexual experiments that carry a risk of health problems (Sari et al., 2018). Therefore, it is necessary to add insight into sexual education to meet the needs of sexual information for adolescents. This information can be achieved by providing a comprehensive sex education curriculum learning model.

The provision of lots of detailed information is the hallmark of a comprehensive sexual education curriculum learning model, making it different from the current sexual education (United Nations Fund..., 2014). Comprehensive sexual education covers sexuality and sexual behavior holistically, not only focusing on preventing pregnancy and sexually transmitted infections (STIs). Moreover, it is not solely based on the discourse of prohibition, which has been the basis of sexual education in schools (Pakasi and Kartikawati, 2013). Sex education focuses on conveying facts about sexual and reproductive health. However, the content, message, and approach to how sex education is delivered differs from country to country (Horanieh et al., 2020).

Comprehensive sex education programs have a significant effect on knowledge of sexual health and sexual attitudes (Chi et al., 2015). Comprehensive sex education can address the reduction and prevention of sexual violence among students (Hubach et al., 2019). Groups that receive comprehensive sexuality education have a higher chance of using contraception in the first relationship than those who haven't received comprehensive sexuality education (Hersh et al., 2019). Comprehensive sexual education is a curriculum-based education that aims to equip children and youth with the knowledge, skills, attitudes, and values that will enable them to develop a positive view of sexuality in the context of their emotional and social development (United Nations Fund..., 2014). This study aims to determine the effect of comprehensive sexual education on improving knowledge, attitudes, and skills in preventing premarital sexual behavior.

## Materials and methods

### Study design

This is quantitative analytical research with a quasi-experimental pre-post-test design with a control group. The study measured the effect of intervention in the form of comprehensive sexual education on knowledge, attitudes and skills in preventing premarital sexual behavior.

### Participants in the study

The participants of this study were SMKN 1 Cibadak students. The number of samples was calculated by a purposive sampling technique. 60 people were divided into 2 groups, namely the intervention group and the control group. Randomization was achieved by simple random sampling; student ID numbers were entered into a closed box then taken one-by-one to be classified. A total of 30 participants were assigned to each

intervention group and control group. Included participants were grade 9 students who were already dating. The grouping process of respondents can be seen in Fig. 1.

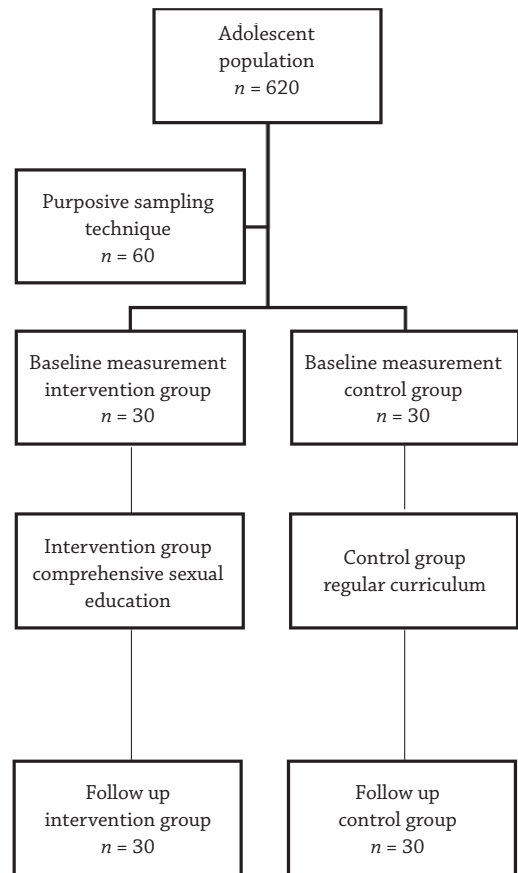


Fig. 1. Quasi-experimental research design

The study was conducted in Indonesia and met the necessary ethical requirements, *i.e.*, the purpose of the study was explained to respondents – namely to determine the effect of comprehensive sexual education on increasing knowledge, attitudes, and skills in preventing premarital sexual behavior. The benefits to be obtained by participants were also explained – namely increasing knowledge, attitudes, and skills in preventing premarital sexual behavior. After that, the respondent provided written consent to participate in the study. Their identities, as well as the results of the study, were kept secret. Respondents were treated fairly, without discrimination due to sex or religion. After the research ended, the respondents from the control group had the opportunity to participate in comprehensive sexual education according to that received by the intervention group.

### Intervention

The intervention group received comprehensive sexual education which was conducted over six meetings with different topics those were comprehensively designed, compiled, combined and discussed by all members of research team. The presented topics, methods used, and the media can be seen in Table 1. The explanation of the schedule and activities for each session can be seen in Table 2. The intervention was carried out every month (60-minute per/session) so that the total measurement time from baseline to follow-up was six months.

The control group received general intervention in the form of sexual education from the 2013 curriculum set by the government of the Republic of Indonesia through the Minis-

try of Education and Culture (Rahmawati, 2013). The topic is about reproductive health which is delivered through 90-minute learning session.

**Table 1. Comprehensive sexual education subject**

Meeting session	Topic	Delivery method	Lecturer/Media
1	Comprehensive sexual education for adolescents	Lecturing	SB*/PowerPoint
2	Anatomy and function of male and female sexual reproductive organs	Lecturing	SB*/PowerPoint
3	Reproductive health and the impact of premarital sexual behavior	Lecturing	SB*/PowerPoint
4	Dating and sexual violence	Lecturing	SB*/PowerPoint
5	Unwanted pregnancy	Lecturing	SB*/PowerPoint
6	Equal gender relations and human rights principles	Lecturing	SB*/PowerPoint

Note: \* Initials of first author.

**Table 2. Lecturing session**

Lecturing session	Explanation
Opening	In the opening session, the moderator greets and guides education activities by introducing themselves and reading the lecturer's curriculum vitae for a maximum of 10 minutes.
Contract	Time contracts are carried out to organize activities so that they are in accordance with the achievement targets. The moderator conveys the purpose of the activity to the respondents for 5 minutes.
Brainstorming	The moderator conducts a 5-minute pre-briefing by exploring participants' knowledge of the material or topic that will be delivered by the speakers. This interaction aims to build two-way communication so that respondents are proactive during the activity.
Main lecturing	For 30 minutes, the speaker uses PowerPoint to deliver the planned topics from the educational agenda.
Question and answer	The moderator gives participants the opportunity to provide responses; both questions and criticisms of the material presented. In some sessions, discussions take place between participants and speakers, or between participants. The duration is set to 5 minutes, but can be extended by 2 minutes as needed.
Closing	The moderator concludes the discussion and closes the activity.

### Measurements

The questionnaire was used to measure the effect of intervention (comprehensive sexual education) on the outcomes (knowledge, attitudes and skills). This consisted of four parts, namely demographic data (including gender, religion, age at first dating), knowledge, attitudes, and skills. The results of the validity and reliability test of the questionnaire using the Shapiro–Wilk test showed  $r_{\text{results}} > r_{\text{table}} = 0.444$  with  $p$ -value  $> 0.05$ , and Levene test with  $p$ -value  $> 0.05$ .

### Data collection

Data collection was carried out from baseline (March 2nd, 2021) to follow up (August 2nd, 2021). Data screening was conducted to ensure the questionnaire was filled out in its entirety so that it could be entered into the computer. The data was coded for analysis using SPSS version 25.0. As a result, all questionnaires were filled out completely and no participants dropped out of the study.

### Statistical analysis

Statistical tests were performed to display univariate, bivariate and multivariate data. Characteristics of participants were displayed by calculating the frequency and percentage of independent variables, such as gender, peer influence, and age at first-time dating. Bivariate analysis was performed using paired  $t$ -test and independent  $t$ -test to compare the outcomes of the two groups, before and after the intervention. Multivariate analysis was conducted to measure the effect of the intervention on the outcome by using a linear regression test.

## Results

### Characteristics of participants

Table 3 describes the sex in the intervention group, 73.30% of them are females with the influence of friends in the good category of 93.3%, and the average age at first-time dating is 14.53. In the control group, 66.7% of them are females, with the influence of friends in the good category of 60.00%, and the average age at first-time dating is 14.40.

**Table 3. Frequency distribution of participants' characteristics**

Variable	Intervention group		Control group	
	f	(%)	f	(%)
Gender				
Male	8	26.70	10	33.30
Female	22	73.30	20	66.70
Peer influence				
Not good	26	6.70	16	40.00
Good	4	93.30	14	60.00
Age at first-time dating				
Mean	14.53		14.40	
Median	15.00		15.00	
Std. deviation	1.25		1.18	
Min	–		–	
Max	13–16		13–16	

### Bivariate analysis

Table 4 shows that in the majority of participants in the intervention group, the post-test mean scores of knowledge, attitudes, and skills to prevent risky sexual behavior were higher

than the pre-test scores. While in the control group, most of the post-test average scores for knowledge and attitude are lower than the pre-test score.

**Table 4. Distribution of the frequency of knowledge, attitudes, and skills**

Variable	Intervention group				Control group			
	Mean	Median	Std. dev.	Min–Max	Mean	Median	Std. dev.	Min–Max
Knowledge								
Pre-test	8.60	6.00	6.00	2–20	10.27	8.00	5.93	3–19
Post-test	17.60	19.00	3.80	7–20	11.33	10.00	5.96	3–19
Attitudes								
Pre-test	39.07	26.00	18.59	21–67	35.27	25.00	15.37	21–56
Post-test	53.93	58.00	13.92	23–68	28.53	24.00	13.12	18–55
Skills								
Pre-test	20.20	14.00	11.06	11–39	20.33	16.00	9.48	12–37
Post-test	34.93	34.00	3.788	29–40	16.87	13.00	8.13	11–36

### Multivariate analysis

Table 5 indicates a significant difference between intervention and control groups in each variables with a  $p$ -value < 0.000.

**Table 5. Analysis of the average difference in knowledge and attitudes**

Variables	Intervention group	Control group	$p$ -value
Knowledge			
Mean	17.60	11.33	0.000
Std. deviation	3.86	5.96	
Attitude			
Mean	53.93	28.53	0.000
Std. deviation	13.92	13.13	
Skills			
Mean	34.93	16.87	0.000
Std. deviation	3.78	8.13	

## Discussion

### Knowledge

The results showed a significant difference between knowledge, attitudes, and skills in preventing premarital sexual behavior between the intervention and control groups upon receiving comprehensive sexual education. This result is in line with Boti Negussie's study, which stated a significant difference between the intervention group and control group after receiving a comprehensive sexual education intervention (Boti et al., 2019). Merry Fridha's research concludes that comprehensive sexuality education prevents sexual violence in SMP 8 Surabaya students (Fridha and Haryanti, 2020). In line with Rima's research, there is a difference in knowledge before and after comprehensive sexual education is provided to adolescents at SMA N 1 Abepura Jayapura (Banurea and Abidjulu, 2020). Based on these results, the improvement of knowledge among the intervention group shows the effectiveness of comprehensive sexual education provided through communication, information, and comprehensive education. It is advantageous as a preventive effort against pregnancy, abortion, and other reproductive disorders in adolescents.

Hall (2020) provided a retrospective survey in Niagara Falls with a secondary data analysis method. This showed that after implementing the comprehensive sexual education program for three years, it was proven to reduce levels of sexual activity, high-risk sexual relationships, sexually transmitted infections, and teenage pregnancy. In line with De Castro et al. (2018) which reported that comprehensive sexual education in public and private high school students showed a significant relationship between exposure to each component and sexual health outcomes. In addition, students who had a partner and were exposed to the comprehensive sexual education component, asserted they had a 20% higher chance of convincing their partner to use a condom. Based on this evidence, research with different methods resulted in the same conclusion that comprehensive sexual education is very important in controlling promiscuous sexual behavior in adolescents. So the better the knowledge about reproductive health, the better the sexual behavior. The higher the knowledge of reproductive health possessed by adolescents, the lower their premarital sexual behavior (Kumalasari et al., 2020).

### Attitude

Based on the obtained data, there are still many teenagers who do not know but should know the problems caused by premarital sex. This can occur due to the lack of information obtained by adolescents. Teenagers must obtain broad and in-depth information and insight regarding reproductive health, premarital sex, and the consequences of premarital sex. Adequate information can shape the attitude, commitment, and behavior of adolescents not to have premarital sex.

Knowledge is the basis for forming attitudes. This condition is consistent with findings in the field which show a change in attitude among adolescents not to engage in premarital sexual behavior after being given comprehensive sexual education (Setiawan et al., 2021a, b). Meanwhile, the attitude of adolescents with a tendency to have premarital sex was found in adolescents who did not receive comprehensive sexual education. Based on the findings, comprehensive sexual education is the basis for forming positive behavior in preventing premarital sexual behavior.

### Skills

Adolescents who have received sex education are less likely to have sex, while those who have never received sex education are more likely to experience unwanted pregnancies (Sarwono,

2019). Knowledge has an influence on premarital sexual attitudes. The higher adolescents' knowledge about reproductive health, the better their attitude toward premarital sex (Safitri and Mufdilah, 2018). Comprehensive sexual education is curriculum-based education that aims to equip teenagers with knowledge, skills, attitudes, and values that can prepare them for physical and social maturity (Venketsamy and Kinnear, 2020). This goal follows the Sustainable Development Goals (SDGs) program is to improve the quality of youth by preventing free sex, the spread of HIV/AIDS and sexually transmitted diseases (Hanemann, 2019). Therefore, one model of promotive and preventive efforts that can be applied to prevent premarital sexual behavior in adolescents is comprehensive sexual education.

Adolescents who have knowledge of good reproductive health, mature attitudes and emotions, and good social skills are the basis for good behavior, not having free sex. This phenomenon shows that good behavior is greatly influenced by good knowledge. The increase in knowledge and understanding received by respondents shows that comprehensive sexual education is very quickly accepted and understood by adolescents. This condition is evidenced by changes in knowledge, attitudes, and behavior regarding preventing premarital sexual behavior in adolescents for the better after being given comprehensive sexual education materials. This finding is under the theory that cognitive development reaches its peak in adolescence (Potter and Perry, 2011). These results align with Chi et al. (2015), who concluded that comprehensive sex education programs significantly affect knowledge of sexual health and sexual attitudes.

Overall, these findings indicate that the respondents' knowledge, attitudes, and skills regarding preventing premarital sexual behavior increased significantly when compared to the sexual education of the 2013 curriculum set by the government. Thus the comprehensive sexual education method in this study can become a scientific basis for reproductive health services for adolescents in Indonesia.

### **Limitations of the study**

This study was conducted during the Covid-19 period, so the interventions provided were conducted online. However, the

implementation of this research has limitations in the form of an unstable internet network for most respondents, so the method was changed to face-to-face in a class by complying with health protocols such as wearing masks and maintaining distance.

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## **Conclusions**

Comprehensive sexual education has proven to be effective in increasing knowledge, attitudes, and skills to prevent premarital sexual behavior. Therefore, it can be used as a special intervention in public health centers for adolescents. This intervention approach can be achieved by collaborations between health services and formal institutions, such as schools and communities (e.g., youth organizations). The results of these studies can be used as input for the management of nursing care in adolescents for health services, especially in public health centers. In addition, it can be used as a consideration for the schools to improve religious understanding. We recommend further research that examines the effect of comprehensive sexual education on premarital sexual behavior in junior high school students who are already familiar with courtship.

### **Conflict of interests**

The authors have no conflict of interests to declare, financial or otherwise.

### **Ethical approval**

The Ethics Committee approved this study of the Faculty of Nursing, University of Muhammadiyah Jakarta, with the number 0444/F.9-UMJ/IV/2021.

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## Vliv komplexní sexuální výchovy na zlepšení znalostí, postojů a dovedností v prevenci předmanželského sexuálního chování u adolescentů

### Souhrn

**Cíl:** Tato studie si klade za cíl zjistit vliv komplexní sexuální výchovy na zlepšení znalostí, postojů a dovedností v prevenci předmanželského sexuálního chování.

**Design:** Kvazi-experimentální provedení pre-post testu s kontrolní skupinou.

**Metodika:** Účastníci této studie byli studenti SMKN 1 Cibadak. Celkem 60 respondentů bylo rozděleno do dvou skupin (intervenční skupina = 30 a kontrolní skupina = 30). Účelová technika vzorkování vybrala účastníky s následujícími kritérii pro zařazení: studenti devátého ročníku, kteří již mají partnery. V intervenční skupině probíhala komplexní sexuální výchova po dobu šesti sezení se šesti hlavními tématy. Výzkumným nástrojem byl dotazník znalostí, postojů a dovedností, který byl dříve testován na validitu a spolehlivost pomocí Shapiro–Wilkova a Leveneova testu. Shromážděná data byla zpracována pomocí SPSS verze 25.0 a analyzována jednorozměrně (frekvence a procento), dvourozměrně (párový *t*-test a nezávislý *t*-test) a vícerozměrně (lineární regresní test).

**Výsledky:** Komplexní sexuální výchova významně zlepšila znalosti, postoje a dovednosti v prevenci předmanželského sexuálního chování s *p*-hodnotou = 0,000. Rozdíl v průměru a směrodatné odchylce každé proměnné se signifikantně objevil mezi intervenční a kontrolní skupinou s výsledky znalostí (17,60 ± 3,86 vs. 11,33 ± 5,96), postoje (53,93 ± 13,92 vs. 28,53 ± 13,13) a dovedností (34,93 ± 3,78 vs. 16,87 ± 8,13).

**Závěr:** Komplexní sexuální výchova se ukázala jako účinná při zvyšování znalostí, postojů a dovedností v oblasti prevence předmanželského sexuálního chování. Proto může být použita jako speciální intervence ve střediscích veřejného zdraví pro dospívající. Tohoto intervenčního přístupu lze dosáhnout spoluprací mezi zdravotnickými službami a formálními institucemi, jako jsou školy a komunity (např. mládežnické organizace).

**Klíčová slova:** dovednost; komplexní sexuální výchova; postoj; předmanželské sexuální chování; vědomosti

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