



# The Role of Health Education: Changing Knowledge and Attitude of Adolescents in Providing Reproductive Health

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**Abstract:** Adolescence is a transitional phase towards adulthood, marked by sexual maturation and identity exploration. Reproductive health encompasses physical, mental, and social well-being. Sexual education, provided by both parents and schools, is crucial for preventing unwanted pregnancies, abortions, and sexually transmitted infections (STIs). This study examines the impact of sexual education on adolescents' knowledge and attitudes about reproductive health, focusing on high school students in Jakarta, Bekasi, and Pekalongan. Using an experimental method (one group pretest-posttest design) over three months (April-June 2024), the study involved 120 respondents who completed questionnaires. Data analysis included univariate health promotion analysis and bivariate analysis using the Wilcoxon Signed Rank Test. The results showed a significant influence of sexual education on changes in knowledge and attitudes, with a p-value of 0.000 ( $p < 0.05$ ). These findings suggest that health education interventions effectively enhance students' understanding and attitudes, providing valuable insights for schools in preventing unwanted pregnancies, abortions, and STIs.

**Keywords:** Adolescents; Attitudes; Health education; Knowledge; Reproductive health

## Introduction

Adolescents, according to the World Health Organization (WHO), are defined as individuals aged 10-19 years, while the Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014 specifies the age range as 10-18 years. The Population and Family Planning Agency (BKKBN) extends this definition to those up to 24 years of age if they are unmarried (Fatkhayah et al., 2020). Adolescence is a crucial transition phase from childhood to adulthood, involving sexual and physical maturation, socio-economic independence, personal identity exploration, and the development of skills and negotiation abilities (Sholichah et al., 2020).

Reproductive health encompasses complete physical, mental, and social well-being, extending beyond the mere absence of diseases or disorders related

to the reproductive system. This includes the individual's capability to engage in satisfying and safe sexual relationships, as well as the autonomy to decide when and how often to reproduce (Nurafriani et al., 2022). Sexual education, provided both informally by parents and formally through educational institutions, is essential for imparting knowledge on the physiological, psychological, and sociological aspects of reproduction and sexual response (Hermawinda et al., 2020).

The WHO estimates that there are 1.2 billion teenagers globally, making up 18% of the world's population. A significant portion of these adolescents face reproductive health risks such as sexually transmitted diseases (STDs), unwanted pregnancies, and abortions. In Indonesia, teenagers aged 10-19 years constitute about 46 million or 17% of the total population, underscoring the need for comprehensive reproductive health education to prevent gender-based

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sexual violence and deviant behaviors (Fatkhiah et al., 2020).

A survey by the Indonesian Ministry of Health reveals that many adolescents start dating and engaging in sexual activities before the age of 15, with a notable prevalence of risky sexual behaviors (Ministry of Health, 2022). Adequate reproductive health education from schools and healthcare providers is critical to ensure the dissemination of appropriate information. Currently, adolescent knowledge about reproductive health in Indonesia is limited, with only about 7.1% of adolescent girls and 10.4% of adolescent boys being aware of pregnancy risks and the fertile period (Sulastri & Astuti, 2020).

The advent of information technology has transformed the way teenagers access sexual information, with many resorting to pornographic websites, which can distort their understanding of sexuality. Parents must recognize the importance of delivering accurate sex education to their children through both formal and informal channels (Sayekti & Sayekti, 2024). The Indonesian government has implemented regulations that promote comprehensive sexual education in schools, as outlined in the National Action Plan for Indonesian Youth 2020-2024 (Fitriani & Setiana, 2023).

Reproductive health issues stemming from inadequate knowledge include unwanted pregnancies, abortions, sexually transmitted diseases, and HIV/AIDS. Various surveys indicate an increasing prevalence of these issues among Indonesian teenagers (Ministry of Health, 2022; Diana & Rusmariana, 2023). Consequently, health education is deemed vital in providing adolescents with the appropriate knowledge and attitudes towards reproductive health, thereby mitigating risky sexual behaviors (Putri & Ratnawati, 2020).

According to data from PKBI Central Java, 863 teenagers have engaged in premarital sexual activities, 452 experienced premarital pregnancies, 283 contracted sexually transmitted infections, 337 engaged in masturbation, and 244 underwent abortions (Ministry of Health, 2022). DKI Jakarta reports the highest number of HIV/AIDS cases in Indonesia, alongside a rising trend in teenage pregnancies. Approximately 18.3% of junior and senior high school students in Jakarta are at risk of contracting sexually transmitted diseases (Pangestu et al., 2021). In Bekasi City, there was a significant rise in HIV cases, with 335 new infections reported in 2019 due to unprotected sex (Aina et al., 2020). In Pekalongan, 97% of teenagers obtain sexual information from pornographic videos, and in 2022, 120 HIV cases were documented, including 14 among teenagers aged 15-19 years (Diana & Rusmariana, 2023).

## Method

This research was conducted to determine the influence of sexual education on the knowledge and attitudes of adolescents regarding reproductive health in the Jakarta, Bekasi, and Pekalongan areas. The study spanned three months, from April to June 2024, and employed an experimental method using a one-group pretest and posttest design. The data was collected through questionnaires filled out by 120 respondents, selected to represent the adolescent population in these regions. The study aimed to assess the baseline knowledge and attitudes of adolescents before the intervention of sexual education and to measure any changes following the educational program. The questionnaire covered various aspects of reproductive health, including understanding of sexual development, safe sexual practices, awareness of sexually transmitted diseases, and attitudes towards reproductive health and sexual behavior (Borjigen et al., 2019; Nguyen et al., 2019).

Data analysis was conducted using both univariate and bivariate statistical tests. Univariate analysis was employed to describe the distribution and central tendencies of the data, focusing on the health promotion aspects of the sexual education program. This analysis provided a clear picture of the initial knowledge and attitudes of the respondents and the overall impact of the intervention. For the bivariate analysis, the dependent t-test (Wilcoxon Signed Rank Test) was used to compare the pretest and posttest results. This test was chosen to evaluate the statistical significance of changes in knowledge and attitudes after the sexual education intervention. The dependent t-test is suitable for this type of study as it accounts for the paired nature of the pretest and posttest data, allowing for an accurate assessment of the intervention's effectiveness (Morris & Rushwan, 2015; Susanto et al., 2016).

The findings from this study are expected to provide valuable insights into the effectiveness of sexual education programs in improving adolescent reproductive health knowledge and attitudes. By analyzing the changes observed in the respondents from Jakarta, Bekasi, and Pekalongan, the research aims to highlight the critical role of sexual education in fostering informed and responsible sexual behaviors among adolescents (Mason-Jones et al., 2023; Pivatti et al., 2019). This study also seeks to offer evidence-based recommendations for policymakers and educators to enhance the design and implementation of sexual education curricula in Indonesia.

Result and Discussion

Result  
Univariate Analysis Results

**Table 1.** Frequency distribution of respondents based on age among students in the Jakarta, Bekasi and Pekalongan areas

Age (Years)	F	%
16	12	10.0
17	70	53.8
18	38	31.7
Total	120	100

Based on Table 1, the results show that the majority of respondents were 17 years old, 70 respondents (53.8%) and the minority of respondents were 16 years old, 12 respondents (10.0%).

**Table 2.** Frequency distribution of respondents based on gender for students in the Jakarta, Bekasi and Pekalongan areas

Gender	F	%
Man	46	38.3
Woman	74	61.7
Total	120	100

Based on Table 2, the results show that the majority of respondents were female as many as 74 respondents (61.7%) and the minority of respondents were male as many as 46 respondents (38.3%).

Bivariate Analysis Results

**Table 3.** The influence of sexual education on knowledge regarding reproductive health in high school students in the Jakarta, Bekasi and Pekalongan areas before and after treatment

Knowledge	N	Mean	Sig (2- tailed)
Knowledge Pretest	120	49.67	0.000
Knowledge Posttest	120	86.67	

Based on Table 3, it shows the analysis of hypothesis testing for good knowledge in the group pretest and posttest by using the test Wilcoxon Signed Rank The results obtained were that the average knowledge of respondents pretest 49.67 and posttest 86.67. This has increased the respondents' knowledge of pretest the posttest for all respondents studied. The statistical test results show  $p\text{ value} = 0.000$  ( $p\text{ value} < \alpha\text{ }0.05$ ), meaning  $H_0$  is rejected and  $H_a$  is accepted. The conclusion is that there is an influence of health education interventions on

changes in knowledge before and after the intervention in students in the Jakarta, Bekasi and Pekalongan areas.

**Table 4.** The influence of sexual education on attitudes regarding reproductive health in high school students in the Jakarta, Bekasi and Pekalongan areas before and after treatment

Attitude	N	Mean	Sig (2- tailed)
Pretest Attitude	120	15.64	0.000
Posttest Attitude	120	29.58	

Based on Table 4, it shows the analysis of attitude hypothesis testing in the group pretest and posttest by using the test Wilcoxon Signed Rank The results obtained were that the average attitude of respondents pretest 15.64 and posttest 29.58. The statistical test results show  $p\text{ value} = 0.000$  ( $p\text{ value} < \alpha\text{ }0.05$ ), meaning  $H_0$  is rejected and  $H_a$  is accepted. The conclusion is that health education about sexual health has a significant effect on changes in adolescent attitudes before and after the intervention among high school students in the Jakarta, Bekasi and Pekalongan areas.

Discussion  
The influence of sexual education on knowledge regarding reproductive health in high school students in the Jakarta, Bekasi and Pekalongan areas before and after treatment

Based on testing the hypothesis of good knowledge in the group pretest and posttest by using the test Wilcoxon Signed Rank The results obtained were that the average knowledge of respondents pretest 49.67 and posttest 86.67. This has increased the respondents' knowledge of pretest the posttest on all respondents. Statistical tests were obtained  $p\text{ value} = 0.000$  which means  $p\text{ value} < \alpha\text{ }0.05$ , meaning that there is an effect of health education intervention on changes in knowledge before and after the intervention in high school students in the Jakarta, Bekasi and Pekalongan areas. The results of this research analysis show that there was an increase in knowledge before and after being given health education about reproductive health. This proves that in responding to the respondents' ability to receive and understand the different adolescent reproductive health material provided, health education is an effective method for increasing adolescent knowledge (Adelekan, 2017; Elden et al., 2019; Nurachmah et al., 2019; Hatini et al., 2022). The delivery of information is influenced by the methods and media used, where the methods and media for delivering information can have a significant effect on increasing knowledge.

The results of this research are consistent with Sutjiato (2022) which found that knowledge before the intervention was 63.11% and after the intervention it increased to 79.00%. The paired t-test shows a  $p\text{ value} =$

0.000, smaller than  $\alpha$  0.05, which shows that there is a significant influence of reproductive health education on adolescent knowledge at SMA Negeri 7 Manado. Passe et al. (2021) shows that after counseling, of the 30 respondents, 8 people had good knowledge (26.66%), 22 people had sufficient knowledge (73.33%), and no one had insufficient knowledge. The Paired Sample t-test shows  $p = 0.000$ , which is also smaller than 0.05, so that  $H_0$  is rejected and  $H_a$  is accepted, indicating the influence of reproductive health education on knowledge about adolescent sexual behavior (Ademuyiwa et al., 2023; Brunelli et al., 2022; Taylor et al., 2020).

According to researchers' assumptions, the level of knowledge possessed by teenagers influences two things, namely the source of information and age. The older a person gets, the better their pattern of receiving information will be (Denno et al., 2015; Kamangu & Mbago, 2024; Rajapaksa-Hewageegana et al., 2015). So, it is important for teenagers to get a lot of information about sexual education to increase teenagers' knowledge.

*The influence of sexual education on the attitudes of high school students in the Jakarta, Bekasi and Pekalongan areas before and after treatment*

Based on testing the attitude hypothesis in the group pretest and posttest by using the test Wilcoxon Signed Rank The results obtained were that the average attitude of respondents pretest 15.64 and posttest 29.58. The results of statistical tests show that  $p$  value = 0.000 ( $p$  value  $< \alpha$  0.05), meaning that  $H_0$  is rejected and  $H_a$  is accepted. The conclusion is that health education about sexual health has a significant effect on changes in adolescent attitudes before and after the intervention among high school students in the Jakarta, Bekasi and Pekalongan areas (Castro et al., 2024; Nisman et al., 2020; Salam et al., 2016).

This research is in line with research entitled The Effect of Health Education on Adolescents' Knowledge and Attitudes Regarding Casual Sex which shows that there is an increase in the number of respondents who have good knowledge between before and after health education, namely an average change of 7.131 ( $\pm$  3.229) of 98.8%. with  $p$  value 0.000. And there was an increase in the number of respondents who had good attitudes between before and after health education, namely an average change of 3.917 ( $\pm$  3.860) of 100% with  $p$  value 0.000. So there is an influence of health education on students' knowledge and attitudes about free sex (Fitriani et al., 2022).

Another study conducted by Sulastri & Astuti (2020) showed that the average attitude value before intervention was given was 4.61 with a standard deviation of 1.826 and a standard error of 0.244.

Supported by research conducted by Junita et al. (2018), the mean attitude in the pre-test for both groups was in the positive category and there was a significant difference between the mean of the pre-test and post-test in the treatment group, this was proven by the results of the statistical test with a value of  $p = 0.004$  ( $p$  0.05) which means there is no difference in the mean of the pre test and post test. Changes in attitudes are also shown with a  $p$  value = 0.004, so it can be concluded that reproductive health education can improve adolescent attitudes.

According to researchers' assumptions, one way to improve teenagers' attitudes towards reproductive health is through health education. Extension methods can be used to provide health education on this topic to adolescents. After the health education intervention, there was an increase in adolescent attitude scores towards reproductive health (Guzzo & Hayford, 2021; Yadav & Kumar, 2023; Mahayani, 2021; Herlia et al., 2023; Setiawati et al., 2022). This shows that health education conducted by researchers is effective in improving teenagers' attitudes regarding reproductive health. Apart from that, this attitude is influenced by formal education factors; for example, positive adolescent attitudes towards reproductive health can be obtained through biology lessons about human reproduction and religious lessons.

## Conclusion

Based on the results of the research and discussion, it can be concluded that teenagers' knowledge regarding reproductive health has increased significantly after being given sexual education counseling to high school students in the Jakarta, Bekasi and Pekalongan areas. The majority of respondents in the pretest group had poor knowledge about reproductive health, namely 78 respondents (65%), while in the posttest group the majority of respondents had good knowledge, namely 102 respondents (85%). Apart from that, teenagers' attitudes regarding reproductive health also showed positive changes after being given sexual education counseling. Before the counseling, the majority of respondents in the pretest group had a negative attitude regarding reproductive health, as many as 84 respondents (70%), but after the counseling, the majority of respondents in the posttest group had a positive attitude, as many as 105 respondents (85%). This research shows that there is a significant influence of sexual education on knowledge ( $p = 0.000$ ) and attitudes ( $p = 0.000$ ) regarding reproductive health among high school students in the Jakarta, Bekasi and Pekalongan areas.



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## Author Contributions

L.O., L.M., S.H., and O.D.R.T., assists in the data collection process, data processing and analysis, as well as writing the article.

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## Conflicts of Interest

The research has no conflicts of interest.

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