

# The Relationship between Knowledge of Reproductive System with Reproductive Health Care Attitudes in Senior High School Student in Indonesia

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## Abstract

Reproductive health is a primary concern among teenagers in Indonesia, especially those in high school. There are numerous cases of risky sexual behaviour are found in high schools. It occurs among them because of several factors, one of which is the lack of knowledge, which leads them to have a poor attitude towards their reproductive health. This study aims to determine the relationship between high school students' knowledge about the reproductive system and their reproductive health care attitudes. This study utilizes a quantitative approach and employs a correlational study. The sample are taken from a group of 35 students from class XI MIPA 1, that had not studied the reproductive system materials, and another 35 students from class XI MIPA 7, that had studied it, which is determined using the purposive sampling technique. The results of knowledge test for the reproductive system in XI MIPA 1 showed an average score of 51,29, while XI MIPA 7 scored an average of 81,71. Meanwhile, the results of the reproductive health care attitude survey for XI MIPA 1 showed an average score of 44,40, and for XI MIPA 7, it was 55. Based on the correlation test, XI MIPA 1 had a correlation coefficient of 0,677 with a significance score of 0,000 ( $< 0,05$ ). In Class XI MIPA 7, the correlation coefficient was 0,643 with a significance score of 0,000 ( $< 0,05$ ). As a result, this study shows that there is a strong positive relationship between students' knowledge about the reproductive system and their reproductive health care attitudes.

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## Introduction

Reproductive health refers to a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes (Drewniak et al. 2017; Rahayu et al., 2017). In this day and age, numerous reproductive health issues are raising a serious concern, not only do teenagers struggle with diseases like infertility, vaginal discharge, and cervical cancer, but also cancers specifically affecting reproductive organs, for instance, women may encounter cancers of the vulva, uterus, and ovaries, while men can be diagnosed with prostate cancer (Tsevat et al., 2017). Sexually transmitted diseases are a serious concern impacting a vast portion of the youth, in both developing and developed country (Mahmoud & Ahmed, 2018).

Sexually transmitted diseases that have no signs nor symptoms are also pose a significant risk to reproductive health. Sexual promiscuity and early marriage which can lead to complications in pregnancy and abortion are the primary causes of reproductive health issues among teenagers, leading them to face unhealthy reproductive organ conditions (Ramadani et al., 2022). The World Health Organization claims that adolescence represents the ages between 12 and 24 years, which is a phase transitioning from childhood to adulthood (Liang et al., 2019).

They often feel more hesitant than adults to seek reproductive health services due to embarrassment or discomfort in discussing sensitive topics with medical professionals (Gaferi et al., 2018). Parents play an important role in providing basic knowledge about reproductive health to their children (Ashcraft & Murray, 2017). Parental teaching at home is one of the most important external environments shaping a student's learning activities. Since parents often serve as role models for their children and they are deeply connected to their child's developmental stages, conversations between them about reproductive system are highly impactful, however, many parents find it challenging to talk about this topic with their children because reproductive topics are considered taboo (Shin et al., 2019). The lack of knowledge about reproductive health can influence teenagers' attitudes when they experience puberty, this aligns with the opinion stated by Herawati, et al. (2017), suggesting that a lack of awareness regarding reproductive health and its proper care can result in various illness and challenges for teenagers. Teenagers who are well-prepared will be more ready to face puberty, especially with the support of family and the surrounding environment that provides clear, safe, and comprehensive information about reproductive health.

Knowledge can be acquired through both structured and unstructured learning methods (Zhang et al., 2020). School is an instance of structured education. From an initial study conducted in a high school in Bogor, numerous students are dating around the school environment. The couple often spotted holding and hugging each other, 3 out of 5 teenagers

who were asked about reproductive health knowledge said that they did not know about reproductive health at all, even tended to avoid when asked further. Those who unfamiliar with reproductive health only stated that this reproductive problem is taboo to talk about. A lack of knowledge in this area can lead to unconventional behaviors. By providing knowledge about reproductive health, we can reduce infectious diseases, unplanned pregnancies, rising abortion rates, and early marriages. This aligns with Baron's perspective cited in Ramadani et al. (2022), suggesting that knowledge plays a crucial role in shaping an individual's attitude. The more informed someone is, the more positive their attitude becomes.

In high school, reproductive health is covered in the biology syllabus for Science Class XI, specifically in the section about the reproductive system. This content on the reproductive system delves into the anatomy and functionality of male and female reproductive organs, the processes of gametogenesis and oogenesis, sex hormones, conception, the menstrual cycle, reproductive system disorders, and methods to maintain reproductive health. Within the topic of the reproductive system, students' comprehension is crucial, as they grasp and understand the concepts, it will influence their thought processes as well. Individuals' actions and perspectives are shaped by their understanding and awareness. This aligns with Sudjono's viewpoint in 2016, which claims that students truly understand a concept if they can articulate it in their own words. Based on this premise, the researcher is motivated to explore the relationship between high school students' knowledge of the reproductive system and their attitudes about reproductive health care.

### Research Method

This study employs a correlational study to examine the relationship between students' knowledge on the reproductive system as the independent variable and their attitudes about reproductive health care as the dependent variable. This research utilizes a quantitative approach due to the numeric type of data collected. This data comes from tests on reproductive system knowledge and surveys evaluating attitudes about reproductive health care. The study took place at SMA Negeri 2 Bogor.

The sample that taken from a group of 35 students from class XI MIPA 1, who haven't studied the reproductive system materials, and another 35 students from class XI MIPA 7, who have studied it, serve as the data subjects for this study. They were selected using purposive sampling methods. The data of students' understanding regarding the reproductive system material was obtained through an objective written test (multiple choice) consisting of 20 questions, which had been tried out and evaluated for reliability, item validity, differentiation ability, and difficulty level. Arikunto (2013) classified an individual's level of knowledge into three levels based on percentage scores, as follows: "Good" knowledge, if the score is  $\geq 76 - 100\%$ , "Sufficient" knowledge, if the score is  $56 - 75\%$  and "Insufficient" knowledge, if the score is  $\leq 55\%$ .

The surveys about reproductive health care attitude based on ten indicators according to research conducted by Sri Ambar Wati and modified into twelve indicators. The statements in the survey have both positive and negative declarations for every indicator related to attitudes about reproductive health care. According to Sugiyono (2013) likert scale is used to measure attitudes, opinion, and perspective of and an individual or a group of people towards a phenomenon. Likert scale used five categories, namely Strongly Agree (SS), Agree (S), Doubtful (RG), Disagree (TS), and Strongly Disagree (STS). As mentioned by Hadi as cited in Tanjung et al., (2022) this method also known as likert scale modification, which refers to eliminating the middle answer category. As stated by Sugiyono (2013) with modifications by researchers the criteria for interpreting survey scores. The classification above is modified according to the survey scores used by the researcher, which 17 statements were obtained from the criteria below:

1. Lowest score, if all items got 1 score =  $1 \times 17 = 17$ .
2. Highest score, if all items got 4 score =  $4 \times 17 = 68$ .
3. Lowest score in percentage form becomes =  $\frac{17}{68} \times 100\% = 25\%$ .
4. Range =  $100\% - 25\% = 75\%$ .
5. Interval length =  $\frac{\text{range}}{\text{number of classes}} = \frac{75\%}{5} = 15\%$

Therefore, it modified into the criteria as follows:

**Table 1.** Survey percentage criteria.

No	Score (%) – Categories
1	25 – 39 - Very low
2	40 – 54 – Low
3	55 – 69 – Sufficient
4	70 – 84 – High
5	85 – 100 - Very high

This research employs a basic correlation test to evaluate the research hypothesis, preceded by a prerequisite test of the data, which includes a normality test, homogeneity test, and linearity test. The data analysis in this research was processed using The Statistical Program for Social Science (SPSS), version 26 for windows. The correlation categories

based on the correlation coefficient ( $r$ ) (Sugiyono, 2013), 0.80 – 1.00 (very strong correlation), 0.60 – 0.79 (strong correlation), 0.40 – 0.59 (moderate correlation), 0.00 – 0.199 (very weak correlation).

## Results and discussions

The data from both variables gathered in this research was analyzed and organized in the Table 2. In class XI MIPA 1, students achieved a minimum score of 30 and a maximum of 70. With an average score of 51.29 from 35 students, it's evident that Class XI MIPA 1, which has not studied the reproductive system material, has an average knowledge level that is categorized as insufficient. While in class XI MIPA 7, students achieved a minimum score of 70 and a maximum of 100. With an average score of 81.71 from 35 students, it proves that Class XI MIPA 7, which has already studied the reproductive system material, has an average knowledge level that is categorized as good.

Arikunto (2013) that categorized an individual's level of knowledge into three levels, namely good knowledge, sufficient knowledge, and insufficient knowledge. The diverse levels of knowledge between students in class XI MIPA 1, which has not studied the reproductive system material and XI MIPA 7 which has studied the reproductive system material, can be ascribed to various factors. Notoatmodjo (2014) highlighted a few determinants that affect students' depth of understanding, including education, experience, age, and environment. The higher a person's level of knowledge, the easier it is for them to receive information about an object or related to knowledge (Tonetti et al., 2019).

**Table 2.** Descriptive value of knowledge scores for class XI MIPA 1 and XI MIPA 7 on the reproductive system.

No	Description	Mean score $\pm$ Standard deviation	Minimum score	Maximum score
1	Class XI MIPA 1 (had not studied the reproductive system material)	51.29 $\pm$ 12.09	30	70
2	Class XI MIPA 7 (has already studied the reproductive system material)	81.71 $\pm$ 8.91	70	100

Knowledge primarily originates from information provided by parents, teachers, and the media. There is a strong connection between education and understanding. In fact, education is a crucial need for humans, essential for their personal growth. According to Febyanti, as cited in Ramadani, et al. (2022) the higher and better someone's level of education, the more they will understand and be aware of certain things. On the other hand, the worse and lower someone's educational level, the slower they will comprehend and become aware of certain matters. Furthermore, according to Sulastri and Astuti (2020) health education is one of the effective ways to enhance adolescents' knowledge about reproductive health and sexually transmitted diseases. The process of learning the reproductive system in XI MIPA 7 offers new insight as part of the education provided by the teachers, this matter contributes to XI MIPA 7 having their knowledge classified as "good," while the students in class XI MIPA 1 having their knowledge classified as "insufficient," since they haven't been exposed to the reproductive system material yet.

This opinion is in line with research conducted by Ramadani et al. (2022), which discovered that 51% of students demonstrated a good understanding of the reproductive system. One factor contributing to students' good understanding of the reproductive system is their prior exposure to information on the subject, primarily through education. As Amanda (2022) pointed out, those who are lacking sufficient knowledge about reproductive health tends to neglect their reproductive well-being, which ultimately leads them to take actions that are harmful to themselves.

An individual's experiences play a role in shaping their knowledge. The more experiences one has about a particular matter, the more their understanding of it deepens (Notoatmodjo, 2014). Students from both class XI MIPA 1 and XI MIPA 7 have distinct learning experiences. Class XI MIPA 7's learning activities are classified as very good category, leading to their 'good' knowledge classification. In contrast, students in class XI MIPA 1 haven't been introduced to the reproductive system material, resulting in an absence of related learning sessions. This matter is one of reasons why XI MIPA 1 is categorized as having 'insufficient' knowledge, as their understanding is essentially basic. Learning activities experiences in XI MIPA 7 has not been experienced by XI MIPA 1.

Age reflects an individual's maturity and their capacity for thought and action (Spreng and Turner, 2019). The differences of ages among students lead to diverse way of thinking. This matter also contributes to diverse outcomes in students' knowledge about reproductive system material. Atik dan Susilowati (2021) claimed that teenagers of schools age need guidance, direction, and education. Reproductive health education is a crucial matter for students' upcoming growth, and for enhancing reproductive health education in both their personal and social lives. The environment is also one of factors in education. Environment itself refers to the condition around an individual that affects the individual's growth and behavior (Manstead, 2018). A good environment will have a positive impact on a

student's knowledge, and vice versa. Therefore, there is a difference in students' knowledge levels regarding the reproductive system material (Table 3).

**Table 3.** Health care attitude score in XI MIPA 1 and XI MIPA 7

No	Description	Mean score $\pm$ standard deviation	Minimum score	Maximum score
1	Class XI MIPA 1 (had not studied the reproductive system material)	44.40 $\pm$ 2.20	40	48
2	Class XI MIPA 7 (has already studied the reproductive system material)	55 $\pm$ 3.21	47	60

Based on the data in Table 3, it can be seen that XI MIPA 1 which had not studied about reproductive system material shows moderate to high health care attitude category with a lowest score of 40 (58.82%) and a highest score of 48 (70.59%). The average of health care attitude among students scored 44.40 (65.29%), indicating that students in XI MIPA 1 have a moderate health care attitude. On the other hand, in XI MIPA 7 that have studied reproductive system material shows moderate to very high health care attitude category, with the lowest score of 47 (69.12%) and the highest score of 60 (88.24%). The average of health care attitude scored 55 (80.88%), proving that students in XI MIPA 7 have an average of health care attitude with a high category. Before conducting a correlation test, preliminary tests such as the normality test, homogeneity test, and linearity test are conducted first. The normality test results are presented in the following table.

The variation between positive and negative attitudes is influenced by several factors, one of which is knowledge. Knowledge plays a crucial role in shaping an individual's attitude. With knowledge one can choose and make decisions about their life (Notoadmojo, 2014). The higher student's knowledge, the more positive their attitude tends to be, and vice versa. The knowledge test outcomes for Class XI MIPA 7, who have studied the reproductive system, are notably better compared to those of Class XI MIPA 1, who haven't. This is one of the causes of the health care attitude in XI MIPA 7 higher than in XI MIPA 1. This is in line with the opinion of Mahmudah and Rosita (2018), which emphasizes knowledge as a key influencer of attitude. Similarly, Baron's statement, cited in Ramadani et al. (2022), suggests that knowledge plays a crucial role in shaping an individual's attitude.

This opinion aligns with the findings from the study by Mahmudah & Rosita (2018). In their research, 52% of participants showed a good attitude towards reproductive health, and 78% demonstrated positive knowledge about the topic. This indicates a relationship between the level of knowledge and reproductive health care attitudes.

Another factor that influenced attitude is an environment. If one's environment is poor, then their attitude will be bad, and vice versa. An individual's environment can shape their attitude. If an environment has negative influences regarding reproductive health, then there is a possibility that students may neglect their own reproductive well-being. However, they might behave differently if they have a good knowledge about the consequences of neglecting reproductive health. This view aligns with Sapara et al. (2020), suggesting that the environment is a significant factor shaping individual or group actions and behavior. The environment plays a crucial role in shaping individual's attitude. Therefore, there are differences in students' health care attitude towards reproductive health.

**Table 4.** Normality test

Variable	Class	Normality significance	Description
Students' knowledge about reproductive system material	XI MIPA 1 (had not studied the reproductive system material)	0.107	Normally distributed
	Class XI MIPA 7 (has already studied the reproductive system material)	0.057	Normally distributed
Reproductive health care attitude	XI MIPA 1 (had not studied the reproductive system material)	0.089	Normally distributed
	Class XI MIPA 7 (has already studied the reproductive system material)	0.154	Normally distributed

Based on the normality test of data for both variables above, it can be observed that in XI MIPA 1 which had not studied the reproductive system material, the significance score for the variable of student knowledge about the reproductive system is  $0.107 > 0.05$ , and for the variable of reproductive health care attitude is  $0.089 > 0.05$ , thus, the research data in XI MIPA 1 can be interpreted as being normally distributed. Furthermore, in XI MIPA 7 that had already studied about reproductive system material, the significance score is  $0.057 > 0.05$ , and for the variable of reproductive health care attitude is  $0.154 > 0.05$ , thus, the research data in XI MIPA 7 can be interpreted as being normally distributed.

The result of the homogeneity test on the variable of student knowledge about the reproductive system material showed that a significance score is  $0.099 > 0.05$ , it indicates that the data within the knowledge variable (x) is homogenous.

Furthermore, for the variable on reproductive health care attitude, a significance score is  $0.07 > 0.05$ , it indicates that the data within the attitude variable (y) is homogenous. Moreover, the linearity test results for both variables in the two classes showed a significance score of 0.00, which indicates that the two variables can be characterized as linear ( $0.00 < 0.05$ ). Since the knowledge test data and attitude survey are normally distributed, the hypothesis test that can be used in this study is parametric statistics. Furthermore, this research utilizes the Pearson's Product-Moment Correlation, that presented in Table 5.

**Table 5.** Pearson's product-moment correlation test

Variable	Class	Correlation coefficient (r)	Significance score	Number of subjects
Students' knowledge about reproductive system material	Class XI MIPA 1 (had not studied the reproductive system material)	0.677	0.000	35
Material reproductive health care attitude	Class XI MIPA 7 (has already studied the reproductive system material)	0.643	0.000	35

Based on the correlation test results from Table 5, XI MIPA 1, which had not studied the reproductive system material, showed a correlation coefficient of 0,677, indicating a strong correlation, with a significance score of 0,00. Whereas, in class XI MIPA 7, which had already studied reproductive system material, showed a correlation coefficient of 0,643, indicating a strong correlation and a significance score of 0,00. This demonstrates that there is a strong positive correlation between students' knowledge of reproductive system material and reproductive health care attitude. The significance score indicates a significant relationship ( $0,00 < 0,05$ ) between the two variables.

The results of the knowledge test in class XI MIPA 7 that had studied reproductive system material are proven to be better compared to the results of the knowledge test in class XI MIPA 1 that had not studied reproductive system material. This difference is a primary reason for the health care attitude in class XI MIPA 7 higher than XI MIPA 1, thus it can be concluded that the higher the value of students' knowledge about the reproductive system, the higher the value of their health care attitude, and vice versa. This is in line with what Farid et al. (2019) stated, that good knowledge will shape a positive attitude. This also aligns with Iriansyah's opinion in Yanti et al. (2018), suggesting that attitudes and knowledge will be interconnected and typically influencing each other in a directly proportional manner. Furthermore, Mahmudah and Rosita's 2018 study supports this, indicating that a person's understanding of a subject plays a role in shaping their attitude towards it. In other words, individuals with good knowledge tend to adopt a positive attitude, ensuring they care for and protect their reproductive health. Conversely, individuals with limited knowledge might adopt a negative or indifferent attitude towards their reproductive health. This perspective aligns with the statement from Gaferi et al. (2018), stating that a lack of knowledge about reproductive health is the main obstacle in successfully preventing reproductive system diseases.

The higher the level of students' knowledge, the better their attitude will be, because knowledge plays a crucial role to shape someone's attitude. Based on the results of research and experience, it can be proven that attitudes rooted in knowledge will last longer those that are not (Notoatmodjo, 2013). Students' knowledge about the reproductive system can raise their awareness, making them more cautious about actions that could harm their reproductive health, leading them to better care for and preserve it. This aligns with Mahmoud and Ahmed's (2018) perspective, suggesting that education plays a crucial role in enhancing students' knowledge to acquire a positive attitude towards the prevention of sexually transmitted diseases.

Educational activities play a significant role in influencing an individual's behavior, as they facilitate knowledge transfer (Al-Kurdi et al., 2018). Therefore, it is important for students to understand how to take care of their reproductive health, and its benefits and impacts what kind of way to maintain reproductive health and the benefits and impacts for them, with the aim of prompting positive behavioral changes in caring for their reproductive health. Based on the results of the study, it is also can be observed that the contribution of students' knowledge about the reproductive system towards health care attitude in XI MIPA 1 that had not studied reproductive system material reaches 45,9%, and as much as 54,1% is influenced by other factors. Likewise, the contribution of students' knowledge about the reproductive system towards health care attitude in XI MIPA 7 that had already studied reproductive system material reached 41,4% and as much as 58,6% was influenced by other factors. This is in line with research conducted by Fitri and Lufri (2017), showed that there are other factors that affect students' attitudes towards learning strategies other than interest factors.

Based on the explanation above about the analysis of the relationship between students' knowledge about the reproductive system and the health care attitude in high school students, it can be concluded that there is a positive and significant relationship between the two. This result is in line with the research conducted by Ramadani et al.

(2022), suggesting that there is a relationship between students' knowledge about the reproductive system and their reproductive health attitude at SMAN 4 Padang, where this relationship is classified as a very strong category with a correlation coefficient score of 0.93. Furthermore, Usfinit et al. (2017) and Li et al. (2017) carried out a comparable study, showing a positive correlation between teenagers' knowledge about sexuality and their sexual behavior at Setia Budi Malang Christian High School and at Chinese college students. This can be shown by the correlation score between variable X and variable Y and the result of the relationship score, which is 0,606 which is located at the interval of 0.60 – 0.79, indicating that the relationship is "strong" and positively directed connection. Moreover, this research also aligns with the research conducted by Atik and Susilowati (2021), suggesting that there is a relationship between knowledge about reproductive health and reproductive health attitude in teenagers aged 15-19 years old at SMK Semarang Regency. This was determined using a chi-square statistical test with a 5% significance level, resulting in a p-value of 0.000, indicating a statistically significant relationship between knowledge and reproductive health attitude.

## Conclusion

Based on the result of this research it can be concluded that students' knowledge of the reproductive system in class XI MIPA 1, that had not studied the reproductive system material, has an average score in the 'insufficient' category. Meanwhile, students' knowledge of the reproductive system in class XI MIPA 7, that had already studied the reproductive system material, has an average score in the 'good' category. Then, the reproductive health care attitude in class XI MIPA 1, that had not studied the reproductive system material, has an average score in the 'moderate' category. Whereas, the reproductive health care attitude in class XI MIPA 7, that had studied the reproductive system material, has an average score in the 'high' category. And last, there is a relationship between knowledge and health care attitude on the reproductive system material in class XI MIPA 1, that had not studied reproductive system material, with a strong correlation category value of 0.677 and the contribution of the knowledge variable to the attitude variable being 45.9%. Meanwhile, in class XI MIPA 7, that had already studied the reproductive system material, there is a relationship between knowledge and health care attitude on the reproductive system material, with a strong correlation category value of 0.643 and the contribution of the knowledge variable to the attitude variable being 41.4%.

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