

## Reproductive Health Knowledge of Undergraduate Students in the Department of Biology Universitas Negeri Makassar

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**Abstract:** Reproductive health is not only refers to the absence of disease related to reproductive system, but it also refers to a complete physical, mental, and social well-being. Promoting adolescents' knowledge on reproductive health is deemed important, as adolescence is an age group which is still vulnerable to various reproductive and sexual problems. The understanding of reproductive health for adolescents can help to protect them from risky sexual behavior which can affect their sexual health, such as unintended pregnancies, unsafe abortions, and sexually transmitted infections (STIs). Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar supports the efforts to increase knowledge of reproductive health in the community, especially through educational programs that prepare undergraduate students as the future biology teachers with adequate knowledge of reproductive health. Accordingly, this study is conducted to assess reproductive health knowledge of second year undergraduate students in Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar. The study population was students of class 2019 in the Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar. A total of 54 second year students in Biology department participated in this study by responding to an online Reproductive Health Questionnaire. The data obtained from the questionnaire were categorized into three groups based on Arikunto (2006) knowledge grouping categories. It is found that many participants in this study have the knowledge of reproductive health in the low (57.4%) and moderate (40.7%) category. Only 1.9% of respondents in this study had knowledge in the high category.

**Keywords:** Reproductive health, knowledge, physical, mental, and social well-being

## **Background**

The World Health Organization (WHO) defines reproductive health as a complete physical, mental and social well-being, not merely the absence of diseases related to the reproductive system, function and process. Reproductive health is one of the government's main concerns, as it is related to the improvement of the community's quality of life. This is due to the fact that reproductive health can affect the improvement of economic welfare in the society [1,2,3]. Through maintained reproductive health, individuals have the ability to reproduce and to live productively socially and economically.

Increasing knowledge of adolescents related to reproductive health is an important thing to pay attention to, because the issue of adolescent reproductive health can have a long-term impact on Indonesia's national development. Population census data in 2010 shows the high number of adolescent population in Indonesia, which is 18% of the total population of Indonesia or around 43.5 million people. The high number of adolescent population must be supported by relevant reproductive health education, since adolescents are at an age group that is vulnerable to various reproductive and sexual problems [4]. The understanding of reproductive health for adolescents aims to protect adolescents from risky sexual behavior that can lead to unwanted pregnancies, unsafe abortions, and sexually transmitted infections (STIs). In addition, adequate reproductive health knowledge is also important in supporting adolescents to lead a responsible and healthy reproductive life [4].

Various survey data related to adolescent reproductive health indicate that adolescents' knowledge of reproductive health is still relatively low [5]. The Indonesian Adolescent Reproductive Health Survey shows that 47.9% of female adolescent do not know when a woman is fertile. In addition, adolescents' knowledge regarding efforts to avoid sexually transmitted infections (STIs) such as HIV infection is also still limited. This can be seen from the low percentage of adolescents who mention condom use and limiting the number of partners as an effort to avoid sexually transmitted infections (STIs) such as HIV / AIDS [5]. The low level of knowledge on reproductive health among adolescents can be one of the causes of the high number of cases related to reproductive health. Ministry of Health data in 2010 shows that almost half (47.8%) of AIDS cases based on age are occupied by young age groups (20-29 years). This implies that risky sexual behavior occurs in adolescence. Therefore, efforts to increase adolescent knowledge regarding reproductive health are important to do.

Educational institutions provide the platforms to increase adolescent knowledge regarding reproductive health, especially adolescents at the secondary school level. Therefore, biology teachers have an important role in supporting the increase in knowledge of reproductive health among adolescents through educational settings. Department of Biology, Faculty of Mathematics and Natural Sciences Universitas Negeri Makassar supports the efforts to increase knowledge of reproductive health in the community, especially through educational programs that

prepare undergraduate students as the future biology teachers with adequate knowledge of reproductive health. Accordingly, it is considered important to conduct research related to knowledge of reproductive health of students in the Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar.

**RESEARCH METHOD**

This research is a descriptive study which aims to assess the reproductive health knowledge of second year undergraduate students in the Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar. The study population was students of class 2019 in the Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar. The research instrument was a Reproductive Health Knowledge Questionnaire which was distributed online to the group of 2019 students. In the online questionnaire distribution process, respondents were given an explanation that the score obtained from filling out the questionnaire would not affect their academic score. A total of 54 respondents participated in filling out the online Reproductive Health Knowledge questionnaire. Data obtained from the questionnaire were categorized into three groups based on Arikunto's knowledge grouping categories [6], namely:

Table 1. Knowledge Classification Categories

Category	Percentage (%)
High	76-100
Moderate	56-75
Low	<56

**RESULTS AND DISCUSSION**

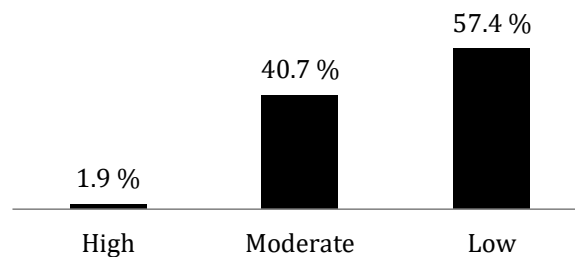


Figure 1. Knowledge Levels of Reproductive Health New Students Department of Biology

The results of categorization on the level of reproductive health knowledge (Figure 1) shows that more respondents had knowledge of reproductive health in the

low (57.4%) and medium (40.7%) categories. Only 1.9% of respondents in this study had knowledge of reproductive health in the high category. This indicates the need for efforts to increase knowledge of reproductive health for second year students in the Biology Department Universitas Negeri Makassar.

Most of the respondents (90.7%) admitted to having received information about reproductive health problems. The sources of information on the knowledge of the respondents' reproductive health were health workers (29.6%) and teachers (29.6%). Only 13% of respondents received information about reproductive health problems from parents. Although most of the respondents had received information related to reproductive health problems, only 61.1% of respondents had received information related to family welfare education. The main source of information for respondents regarding family welfare education is the parents' house and the seminar venue. Despite their role in providing information related to family welfare, the data in this study shows that parents have a low role in providing information related to reproductive health for adolescents. This is in line with the finding of a study conducted to assess reproductive knowledge of 200 adolescents[7], in which adolescents did not communicate with parents regarding reproductive health, as it is considered as a taboo topic. Furthermore, the adolescents consider their parents as not having sufficient knowledge on reproductive health. Thus, they prefer to talk with health workers or teachers related to reproductive health.

Reproductive health knowledge is positively influenced by sexuality education. Thus, adolescents access to sexuality education is an important factor to promote positive attitude and behavior related to reproductive health [8,9]. The data in this study showed that there were 79.6% of respondents who have received information about sexuality education. However, there were 20.4% of respondents who have never received information about sexuality education. The main source of information on sexual education was obtained from the school environment (63%). Despite its position as primary education agent, family was not found to be the main source of information regarding sexuality education in this study. It might occur as parents still need support in terms of information and strategies that can help preventing sexual risk behavior in their children [10,11].

### **Knowledge of the occurrence of pregnancy**

#### 1. First time sexual intercourse

In general, respondents in this study included a group of adolescents who were prone to pregnancy. Data from the questionnaire analysis showed that only 27.8% of respondents agreed that first sexual intercourse can lead to pregnancy. Meanwhile, other respondents disagreed (35.2%) and did not know (37%) that first sexual intercourse can lead to pregnancy. This indicates a misconception among adolescents that new pregnancies can occur after sexual intercourse more than once.

2. Pregnancy and orgasm

Only 11.1% of respondents disagreed with the statement that to become pregnant, a woman must have an orgasm. Meanwhile, 29.6% of respondents agreed that orgasm is a prerequisite for pregnancy in women. This understanding is a misconception, as there is no biological correlation between orgasm and pregnancy. Meanwhile, more than half of the respondents (59.3%) stated that they did not know. Thus, it can be concluded that more respondents in this study did not know that orgasm is not a prerequisite for pregnancy. In order to be pregnant, a woman doesn't have to experience orgasm during sexual intercourse.

3. Washing the vagina after sexual intercourse can prevent pregnancy

One of the indicators measured in the questionnaire is knowledge related to pregnancy prevention. Research data shows that more than a half of the participants (51.9%) disagree with the statement that washing the vagina after sexual intercourse can prevent pregnancy. This shows an understanding which is in accordance with the concept of human reproductive knowledge. There were only 1.9% of respondents who agreed that washing the vagina after sexual intercourse can prevent pregnancy, but 46.3% of other respondents showed that they did not know.

4. Women who urinate after sexual intercourse can avoid pregnancy.

The results of data analysis showed that only 37% of respondents disagreed with the statement of "Women who urinate after sexual intercourse can avoid pregnancy." More than half of the respondents (61.1%) stated that they did not know, and 1.9% of respondents agreed with this statement. These data indicate a low number of respondents who have knowledge that urination after sexual intercourse is not a preventive action against pregnancy.

The above data shows that the respondents' knowledge regarding pregnancy is still low. Many respondents (37%) stated that they did not know that sexual intercourse for the first time can cause pregnancy, and more than half of respondents (59.3%) stated that they did not know that orgasm is not a prerequisite for pregnancy. In addition, understanding regarding pregnancy prevention efforts is still low. Many respondents (61.1%) stated that they did not know the relationship between urination and pregnancy prevention, and only 37% of respondents knew that urinating after sexual activity was not a preventive measure for pregnancy. Inadequate knowledge of the intricacies of pregnancy can be one of the causes of high risk sexual activity among adolescents. The finding in this study is in line with other studies [12,13] which found that although adolescents have negative attitude toward adolescents pregnancies, their knowledge on pregnancy is still poor. Adolescents' ignorance of the knowledge on pregnancy can lead to sexual experimentation, leading to unplanned pregnancies, abortions, and sexually transmitted infections. Data from the Ministry of Health [14] shows that almost half (47.8%) of AIDS cases in Indonesia, as a type of sexually transmitted infection, are still occupied by young age groups (20-29 years).

## **Knowledge of Family Planning Program**

### 1. Family planning program objectives

One of the national programs that is still being implemented is the Family Planning program. The family planning program is implemented with the aim of: (a) pregnancy delay, (b) birth restriction, and (c) family welfare / happiness. Most respondents (75.9%) already know that the objectives of the family planning program include spacing births, restricting births, and improving family welfare. Unfortunately, there were still respondents who stated that they did not know (3.7%) the purpose of family planning. In addition, there are 13% of respondents who have a misconception that family planning only aims to restrict births. Meanwhile, there are also respondents who think that the family planning program only aims to control births spacing in the family (5.6%).

### 2. Use of birth control pills for pregnancy prevention

Respondents' knowledge regarding the effectiveness of using birth control pills is still relatively low. The questionnaire data shows that only 38.9% of respondents agree with the statement that to prevent pregnancy, every family planning acceptor must take birth control pills every day. Meanwhile, 20.4% of respondents disagreed and 40.7% of respondents did not know. Adolescent knowledge regarding the effectiveness of using birth control pills is still relatively low because the use of birth control pills to prevent pregnancy is not well communicated to adolescents, both in the family environment and in the school environment. This is because knowledge about the effectiveness of birth control pills in preventing pregnancy is "like a double-edged knife." The society fear that information regarding the use of birth control pills to prevent pregnancy can be misused by teenagers to prevent pregnancy from sexual activity before their marriage. It is related to the existence of religious and social norms in Indonesia, especially in the South Sulawesi region.

### 3. Time to check up

More than half of the respondents (61.1%) agree that family planning acceptors need to do regular check up at the Community Health Centres. This is important to do as an effort to detect any unhealthy symptoms while being an acceptor. Thus, early preventive medication can be taken. However, there were still respondents (35.2%) who stated that they did not know about the importance of regular check up for family planning acceptors.

### 4. Side effects of using birth control pills

Most of the respondents (63%) already knew that the use of birth control pills for acceptors could have side effects. Only 5.5% of respondents have a misconception that the use of birth control pills does not cause side effects. Meanwhile, 31.5% of respondents said they did not know.

### 5. Use of condoms

The items on the questionnaire that measure knowledge regarding condom use show that most respondents stated that they did not know the relationship

between condom use and sexual pleasure for women (92.6%) and for men (85.2%). More than half of respondents disagreed that condoms could be used more than once. However, the number of respondents who did not know about condom use was still quite high, as it reached 48.1%. This indicates the importance of an informative and educational approach to provide an explanation for adolescents regarding the supporting factors needed in an intramarital relationship (marriage). This is important, because in the future, adolescents will enter adult life and replace the previous generation.

In general, the questionnaire data that measures knowledge about the family planning program shows that most respondents already know about the objectives of the family planning program (75.9%), the importance of family planning acceptors to have regular checkups at the Community Health Centres (61.1%), and the possibility of side effects of using birth control pills (63%). However, the number of respondents who know the pattern of using birth control pills is still relatively low (38.9%). In addition, the number of respondents who stated that they did not know about the use of condoms as a contraceptive was still quite high. In this case, most respondents stated that they did not know the relationship between condom use and sexual pleasure in women (92.6%) and men (85.2%), as well as how many times a condom can be used (48.1%). Thus, these data indicate the need for an informative and educational pattern of communication to adolescents regarding the use of contraceptives in the family planning program, including the pattern of using birth control pills and condoms as contraceptives. This is important as adolescents knowledge about contraceptive methods could help to promote their reproductive health [15].

### **Sexuality Education**

Most of the participants agreed with the view that sexuality education is complementary to family and public health education which aims to help individuals / communities (90.7%). However, several respondents stated that they did not agree (1.9%) and did not know (7.4%) regarding the role of sexuality education. Although most respondents understand the important role of sexuality education, there are still a small number of respondents who disagree and do not know the role of sexuality education. Understanding on sexuality education amongst adolescents is important to help them maintain a healthy life and to prevent disturbances in reproductive system, the process of pregnancy, and health in general. It is important to provide access to all adolescents to a quality education which offers accurate and comprehensive information to promote positive attitude and behavior on reproductive health [16].

### **Sexually transmitted disease**

#### **1. Condoms and sexually transmitted Infections**

From a medical point of view, the use of condoms is useful for preventing transmission of sexually transmitted infections (STIs). However, there are

differences of opinion regarding the use of condoms as a tool to prevent the transmission of STIs, because they are considered unreligious and very radical. This is because the pattern of preventing STIs by using condoms is considered contrary to the prevailing values in Indonesian society. Despite these differences of opinion, use of condoms in premarital conditions can be useful in preventing transmission of STIs. The results of this study indicate that the number of respondents who agree (42.6%) that condoms can protect women / men from STIs is still lower than respondents who do not know (46.3%) regarding the role of condoms in preventing STIs transmission. Meanwhile, 11.1% of respondents did not agree that condoms could be used to prevent STI transmission.

2. Sexually Transmitted Infections (STIs)

Almost all respondents (96.2%) knew that AIDS can be transmitted to other people through sexual intercourse, multiple partners, homosexual practices, and blood transfusions. Only 1.9% of respondents stated that they did not know the mechanism of AIDS transmission, and 1.9% of respondents did not agree that AIDS can be transmitted through these methods. The high number of respondents who know the various modes of transmission of AIDS indicates that information related to AIDS as a sexually transmitted disease has been widely accepted by adolescents in various regions in South Sulawesi. Apart from the large amount of information related to AIDS in the mass media, explanations about AIDS can also be found in biology textbooks at the high school level. Most of the respondents were aware that syphilis, AIDS, and Gonorrhoea are diseases that are easily transmitted through sexual contact. However, there were few respondents who had misconceptions that syphilis (1.9%) and AIDS (13%) were not easily transmitted through sexual intercourse.

3. How to avoid sexually transmitted infections (STIs)

More than half of respondents (51.9%) already know that not sitting with or hanging out with people with STIs is not a way to avoid STI transmission. However, there still respondents who had a misconception that avoiding sexual intercourse before marriage (11.1%), using condoms (7.4%), and avoiding sexual intercourse with multiple different partners (29.6%) were not part of the effort to prevent STI transmission. The high number of respondents who have misconceptions related to efforts to prevent STI transmission needs attention, especially through efforts to increase knowledge of adolescent reproductive health. Adequate knowledge on various ways of transmitting STIs is useful for adolescents to avoid risky behaviour which can lead to STIs transmission.

The above data shows that the respondents' knowledge on sexually transmitted disease is still need to be improved. Most respondents already knew that AIDS, as a type of STIs, can be transmitted through sexual intercourse, multiple partners, homosexual activities, and blood transfusion. However, many of respondents still hold misconceptions regarding the way to avoid STIs transmission. For instance, many of the respondents did not agree that sitting with or hanging out



with people with STIs is a not a way to avoid STI transmissions. Adequate knowledge on variuos ways to prevent STIs transmission is important for the adolescents, as it can help the to avoid risky behaviour which can lead to STIs transmission [17].

### **Pregnancy and Maternal Health**

Respondents in this study already know that frequent pregnancies with a short distance between two pregnancies can cause nutritional stress for pregnant mother and the fetus in her womb (46.3%). Only a small proportion of respondent who viewed that two short pregnancies can cause nutritional stress for the mother (9.3%) and for the fetus (13%). A total of 31.5% of respondents viewed that frequent and close pregnancies can cause mental stress for a pregnant mother and her fetus.

Adolescent who become pregnant before the age of 17 are facing a high risk pregnancy, because there is competition for nutritional needs between the mother and the fetus. A total of 58.2% of respondents have known the risk of nutritional competition between pregnant adolescents and the fetus. Few respondents viewed that the risk of pregnancy in adolescence was not due to competition for nutritional needs between the mother and the fetus (18.2%) and not because of nutritional stress due to inadequate nutritional needs for the mother and the fetus (23.6%).

More than half of the respondents (57.4%) already know that the efforts that can be taken to maintain the health and to fulfil nutritional need of pregnant women and their fetus are through the use of good and correct contraceptive methods, which can be done through fertility restrictions for birth control efforts. However, there still few respondents who think that restriction of fertility (5.6%), control of births (16.7%), and proper use of contraceptive methods (20.4%) are not part of efforts to maintain the health and fulfillment of nutrition for pregnant women and their children.

The data on respondents knowledge regarding pregnancy and maternal health shows that many of the respondent already understand that frequent pregnancies with a short distance between two pregnancies can cause nutritional stress and also mental stress for the pregnant woman. Furthermore, they also understand that birth control can be used as an effort to prevent problems which may occur due to frequent and short distanced pregnancies. The importance of acquireing sufficient understanding related to pregnancy and maternal for adolescents is supported by a study which has found that knowledge about reproduction acquired during adolescence are predictive of contraceptive behaviour in adulthood [18].

### **Habits that affect Reproductive Function**

Various human habits can have a negative effect on reproductive health, including the habit of wearing tight clothing and smoking in men. In general, respondents in this study already know that the habit of wearing tight clothing for men can interfere with reproductive function (61.1%). However, the number of respondents who said they did not know the impact of wearing tight clothing on

male reproductive functions was still quite high, as it reached 33.3%. Most of the respondents also knew that smoking can interfere with the function of the reproductive organs (66.7%). However, the number of respondents who stated that they did not know about the negative effects of smoking on reproductive health was still quite high, as it reached 29.6%.

The data on responden knowledge regarding habits that can affect reproductive function shows that many of the respondents did not know that certain habits, such as wearing tight clothing and smoking, can negatively affect reproductive function. Thus, effort to improve respondents understanding on the relationship between good habit and reproductive health need is important to be implemented. The knowledge on the relationship between good habits and its impact on reproductive health is important to promoted amongst the adolescents so that they are capable of controlling they own fertility potential [19].

## **CONCLUSION**

In conclusion, this study found that the level of knowledge of reproductive health among students of class 2019 in the Biology Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar was in the low (57.4%) and moderate (40.7%) categories. Only 1.9% of respondents in this study had knowledge in the high category. The number of respondents who have an understanding of pregnancy is still low, particularly in relation to efforts to prevent pregnancy. Many of the respondents already understand the objectives of family planning program and sexuality education. Respondents knowledge on sexually transmitted diseases still need to be improved, particularly regarding prevention of STIs transmission.

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