e-ISSN : 2597-6052

MPPKI MEDIA PUBLIKASI PROMOSI KESEHATAN INDONESIA

Research Articles Open Access

# Evaluating Peer Tutoring for Reproductive Health Education: A Study in Palu, Indonesia

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**ARTICLE INFO**

**Manuscript Received:** 17 Dec, 2024
**Revised:** 29 May, 2025
**Accepted:** 29 May, 2025
**Date of Publication:** 05 Jun, 2025
**Volume:** 8
**Issue:** 6
**DOI:** 10.56338/mppki.v8i6.6650

**KEYWORDS**

Peer Tutor;
Educational Media;
Reproductive Health;
Teenager;
City of Palu

**ABSTRACT**

**Introduction:** This research aims to determine the use of peer mentoring as a means of reproductive health education for adolescents in Palu City.
**Method:** The research is This research is quantitative research involving secondary school students by developing reproductive health education methods that are more appropriate and effective in increasing adolescents' knowledge and attitudes towards reproductive health in the Palu city.
**Results:** This research shows that peer tutoring is effective in increasing students' knowledge, but is not yet effective in improving students' attitudes about reproductive health.
Research Implications: Peer mentoring can be used as an alternative method for reproductive health education in schools and has the potential to be further developed and researched to achieve long-term effects on student behavior.
**Conclusion:** Peer conversation can be used as an educational means to increase students' knowledge about reproductive health.

**Publisher:** Fakultas Kesehatan Masyarakat Universitas Muhammadiyah Palu

## INTRODUCTION

The sustainable development goals embodied in the Sustainable Development Goals (SDGs) are a reference in the development framework and negotiations of the countries of the world. One of these goals is efforts to end the HIV epidemic, access to reproductive services, education and information on sexual and reproductive health for women and adolescents (1).

The main problem of adolescent reproductive health (KRR) in Indonesia is the lack of information on reproductive health (2). According to Reproductive Health data collected by the National Epidemiology Network, correct and responsible information on KRR is still lacking. The results of surveys carried out by the World Health Organization (WHO) in several countries show that good and correct information can reduce reproductive health problems in adolescents (3)(4)(5).

Reproductive health problems in adolescents are of concern because they have a wide impact on various aspects of life. To date, there are still many infectious diseases that affect the reproductive organs (genital) of women; infections have quite worrying consequences which can cause infertility (sterility) and increase the incidence of ectopic pregnancies (6)(7)(8).

According to the results of the Global Health Observatory (GHO), since the beginning of the epidemic more than 70 million people have been infected with the HIV virus and about 35 million people have died from HIV. An estimated 0.8% (0.6-0.9) of adults aged 15 to 49 years worldwide are living with HIV, although the burden of the epidemic continues to vary between countries and regions (3)(4)(7).

Reproductive health is an issue that many adolescents face. All adolescents are basically the same, whether they are inside or outside the Islamic boarding school, they both need socialization with their environment to show their existence and their natural sexual impulses at their age (5).

The complexity of adolescent health problems, of course, requires comprehensive and integrated treatment that involves all elements of all related programs and sectors (5)(9)

Reproductive health education can help adolescents understand the risks of Sexually Transmitted Diseases (STDs) and ways to prevent their transmission. Informed adolescents are more likely to use condoms or other protective methods during sexual intercourse (6)(10).

Adolescence is a very critical period, where at this time adolescents are very vulnerable to various reproductive health problems (11).

Health education is a method used to increase a person's knowledge and skills through practical learning techniques or instructions with the aim of changing or influencing human behaviour individually, in groups and in society so that they can be more independent in achieving the goal of a healthy life (12).

Reproductive health education among adolescents should receive more attention from various parties. This is related to the resulting impact of sexual behaviour, which is quite serious and can affect the individual's life in the future (13).

Various forms of education that can be carried out in an effort to promote adolescent reproductive health. The counselling model can be implemented through schools and with the participation of teachers (14). The technique of teaching modules in the education of adolescents is effective in increasing their knowledge about reproductive health (15)(16)(17).

Reproductive health education is carried out to increase adolescents' knowledge and attitudes towards the maintenance of reproductive organs. This is related to the theory of behavioural development, so that educational patterns are developed based on two theories of behavioural development (18). The theory of reasoned action explains that a person's attitude is one of the determinants of behaviour (19)(20).

Research on reproductive health education among adolescents has been widely conducted using various methods, including lectures, counseling, audiovisual media, and digital methods. However, this approach is considered ineffective because it remains one-way and does not engage students directly (21)(22).

Several previous studies, such as that of (23), have shown that teacher counseling often faces communication barriers due to age gaps and differences in perception between educators and students, especially on sensitive topics such as reproductive health. On the other hand, social media or digital app-based approaches attract students' interest but have failed to consistently form positive attitudes due to the lack of direct interaction (24).

In this context, peer education has rarely been studied in depth, despite its potential to bridge the communication gap and create a more equal, open, and interactive learning environment. Peer tutoring allows students to learn from their own peers, who better understand the language, culture, and challenges faced by their age group.

## METHOD

### Types of research

This research is quantitative research with experimental methods. The experimental method is carried out by manipulating a certain object with the objective of obtaining as much information as is necessary and useful in carrying out an investigation that helps solve the problems to be discussed. Therefore, this research aims to find and develop reproductive health education methods that are more appropriate and effective in increasing adolescents' knowledge and attitudes towards reproductive health in Palu City.

### Investigation procedures

Tutor Selection Procedure: 1) Recruitment of student tutors is first conducted through interviews with faculty members regarding the criteria for students who can become tutors. 2) Tutor selection uses several criteria, such as being able to communicate well, having good leadership skills, being easy to get along with friends, and having an interest in reproductive health (at least following the guidelines of the Biology Olympiad). 3) Once selected, tutors will receive intensive training related to adolescent reproductive health material, how to deliver the material, and the ethics of communicating with their friends. 4) The training was conducted over two days using participatory methods, role-playing, and simulation to ensure that the tutors were prepared and confident in conveying the information correctly.

Formation of two groups, namely a control group and an experimental group. In this study, the researchers determined two groups at two research locations. Next, determine a suitable location for the research according to the planned number of participants. Design the materials that will be used in the research. Next, determine a suitable location for the research according to the planned number of participants.

The next stage is to carry out the experiment, that is, to carry out a pre-test on two groups, both the experimental group and the control group. The application of education is given to the experimental group in two meetings for each module and 4 modules are taught. during the experiment, that is, material on reproductive organs, puberty, sexually transmitted infections and HIV AIDS, so there were eight meetings in total. The post-test was applied to both groups, both those who had gone through the educational process and those who had not received education.

The evaluation process is carried out by evaluating adolescents' knowledge and attitudes towards reproductive health before and after the experiment.

Next, the researcher conducted a comparison test between the pre- and post-test knowledge levels for the two groups. In addition, the research also carried out a comparison test of attitudes between the pretest and post-test for the experimental group and the control group. The instruments used in this research are; (1) observation; (2) cognitive testing of students; (3) questionnaire.

### Ethical Approval

This research was carried out observing a code of research ethics by explaining the objectives, benefits, methods and potential risks to all respondents. Respondents who were included in the sample also signed a respondent agreement and we ensured respondent confidentiality. Additionally, we explained to respondents that the results of this research did not affect their grades in school.

## RESULTS

This research was conducted at Al-Azhar Mandiri Secondary School, Palu. This research aims to determine the comparison of the level of knowledge and attitudes of adolescents regarding reproductive health through a peer mentoring approach.

**Students' knowledge of reproductive health at Al-Azhar Mandiri Secondary School, Palu**

For the distribution of respondents according to students' knowledge before and after receiving reproductive health education, please see the following table:

**Table 1.** Distribution of respondents' knowledge before and after reproductive health education through peer tutors at Al-Azhar Mandiri Secondary School, Palu

| Knowledge | Pre-Test | | Post-Test | |
|---|---|---|---|---|
| | Frekuency (f) | Percentage (%) | Frekuency (f) | Percentage (%) |
| High | 16 | 36,4 | 43 | 97,7 |
| Low | 28 | 63,4 | 1 | 2,3 |
| **Total** | **44** | **100** | **44** | **100** |

From the table above, it can be seen that the students' knowledge of reproductive health before receiving education through peer tutoring (pre-test) was mostly low, namely 28 people (63.4%), while the high knowledge was only 16 people (36.4%). After receiving education through peer tutors, students' knowledge of reproductive health increased significantly. This is evident from the results (post-test) which show that only 1 student (2.3%) had low knowledge while 43 students (97.7%) had high knowledge.

**Table 2.** Paired T-test results on respondents' knowledge before and after reproductive health education through peer tutors at Al-Azhar Mandiri Secondary School, Palu

| Measurement | N | Mean | variance | Sig. (2-tailed) |
|---|---|---|---|---|
| Knowledge Pre-test | 44 | 4,97 | | 0,000 |
| | | | -2,636 | |
| Knowledge Post-test | 44 | 7,59 | | |

The results of the paired t test give a value of Sig = 0.000, which means that it is less than the α value of 0.05, so the test rejects H0 and H1 and is accepted, which means that there is an increase in the knowledge about reproductive health. using the peer mentoring approach. These results also show that the average value of knowledge after receiving education through a peer tutoring approach is 7.59% higher than the knowledge before receiving education, that is, 4.97%. This demonstrates that peer tutoring is effective in increasing students' knowledge of reproductive health.

**Students' attitudes towards reproductive health at Al-Azhar Mandiri Secondary School, Palu**

For the distribution of respondents according to students' attitudes before and after receiving reproductive health education, see the following table.

**Table 3.** Distribution of respondents' attitudes before and after reproductive health education through peer tutors at Al-Azhar Mandiri Secondary School, Palu

| Attitude | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Frekuency (f) | Persentage (%) | Frekuency (f) | Persentage (%) |
| Good | 42 | 95,5 | 43 | 97,7 |
| Not Good | 2 | 4,5 | 1 | 2,3 |
| **Total** | **44** | **100** | **44** | **100** |

From the table above, it can be seen that 2 students' attitudes towards reproductive health before receiving education through peer tutoring (pre-test) were not good, while 42 people (95.5%) had good attitudes. After receiving

education through peer tutors, students' attitudes about reproductive health did not improve. This is clear from the results (post-test) which show that only 1 student's attitude was bad, which changed.

**Table 4.** Paired T-test results of respondents' attitudes before and after reproductive health education through peer tutors at Al-Azhar Mandiri Secondary School, Palu

| Measurement | N | Mean | variance | Sig. (2-tailed) |
|---|---|---|---|---|
| Attitude pre-test | 44 | 31,20 | 0,614 | 0,217 |
| Attitude post-test | 44 | 30,59 | | |

The results of the paired t test show a value of Sig = 0.217, which means that it is greater than the α value of 0.05, so the test accepts H0 and H1 is rejected, which means that there is no increase in attitudes of students about reproductive health. using the peer mentoring approach. These results also show that the average value of attitude after receiving education through peer tutoring approach is 30.59% lower than the attitude before receiving education, that is, 31.20%. This shows that peer tutoring has not been effective in improving students' attitudes about reproductive health.

## DISCUSSION

### Knowledge

The results of the study show that the peer tutoring method can significantly increase students' knowledge about reproductive health. This can be seen in the increase in values before and after the instruction. These findings reinforce the idea that the peer tutoring method has proven effective as a method for conveying sensitive health information, such as reproductive health, to students.

The success of this finding can be explained based on (25) Social Learning Theory, which posits that individuals will learn more easily from people who are considered equals/peers, especially in a social context. In this case, students feel more comfortable and open to receiving information from their peers because they feel equal and are not judged in discussions.

In this research, the peer mentoring approach was shown to be effective in increasing adolescents' knowledge and attitudes regarding reproductive health. Adolescents, as the primary subjects of this research, tend to respond more to information conveyed by their peers compared to conventional educational methods that are generally provided by medical personnel or formal educators. This approach emphasizes the important role of peers in transmitting health information, especially regarding reproductive health, which is still often misunderstood by many adolescents.

This success is supported by a peer tutoring approach that uses language and teaching methods that teens easily understand. Peer tutors better understand how to explain complex issues in a way that suits the teen's level of understanding and interest. Aside from that, a more relaxed and interactive discussion atmosphere encourages teens to ask questions and discuss more actively without feeling awkward or scared (26).

This is in accordance with the research conducted by Harianti Fajar titled “The Effect of Health Education on Knowledge and Attitudes in HIV/AIDS Prevention in Secondary Schools” in 2021. This research is that there is an influence of health education on the knowledge and attitudes of students in the prevention of HIV AIDS in SMA Negeri 22 Central Maluku (7).

This study also agrees with findings showing that students who receive education from peer tutors have higher knowledge compared to students who receive education through conventional lectures from teachers (27). These results also agree with research (28) showing that peer education programs have been proven to increase students’ knowledge about reproductive health (anatomy, puberty, and risk of sexually transmitted diseases).

**Attitude**

These results indicate that while there is a significant increase in knowledge, the peer tutoring method has not shown a significant increase in students' attitudes about reproductive health. This is demonstrated by the lack of significant changes in attitude response scores before and after the instruction (25).

Attitude is a more complex aspect of the affective domain than knowledge because it involves many aspects such as personal values, emotions, social norms, and beliefs. This means that changes in students' attitudes are not sufficient simply by providing information; rather, a process of reinforcement through experience, role models, and in-depth discussions is required (26).

The results show that several factors prevent peer tutors from optimally influencing students' attitudes: the relatively short intervention time, the lack of material addressing emotions and cultural norms, and the tutor's ability to facilitate discussions to increase students' awareness and reflection is still limited (29).

Attitude changes cannot take place immediately like knowledge changes because attitudes are certain regularities in a person's feelings, thoughts, and action predispositions toward an aspect of the environment that take longer than knowledge changes (3).

This is consistent with research showing that there is no significant difference between providing video-based and handout-based knowledge education to students on reproductive health ($p = 0.24$). (16).

This result is also consistent with research conducted, which states that increased knowledge is not always accompanied by changes in attitudes if it is not supported by an approach that can awaken students' affective values. Furthermore, the findings also emphasize the importance of strengthening norms and values through group discussions and experience-based approaches to forming positive attitudes toward reproductive health (29).

**Limitations and Cautions**

While this study provides meaningful contributions to understanding social media's impact on adolescent mental health, several limitations should be acknowledged. First, the cross-sectional design limits our ability to establish causality, which aligns with the limitations identified by earlier studies, such as those by Green et al. (2022) (7). Second, the reliance on self-reported data may have introduced bias, such as over- or under-reporting of social media usage, as noted in prior research (8). Finally, the study's geographic focus on Palu City, Indonesia, may limit the generalizability of findings to other settings with different cultural and technological landscapes (9). Future studies should employ longitudinal designs and larger, more diverse samples to address these limitations and provide deeper insights.

**Recommendations for Future Research**

Future studies should focus on addressing the identified limitations. For instance, longitudinal designs could help establish causality between social media use and mental health outcomes, as recommended by Wilson et al. (2021) (10). Additionally, investigating the specific features of social media platforms, such as algorithm-driven content exposure or peer validation mechanisms, may reveal deeper insights into the pathways through which social media impacts mental health. Expanding research to include diverse cultural and demographic contexts would also contribute to the development of more globally applicable interventions.

## CONCLUSION

Peer conversations can be used as a means to increase students' knowledge about reproductive health, but they are not yet optimal for changing students' attitudes, so they require modification and integration of several elements into the intervention process.

## AUTHOR'S CONTRIBUTION STATEMENT

The author has contributed to this article from ideas, data preparation and analysis, article preparation to the review process according to the input of the reviewers and is responsible for all aspects of this article

## CONFLICTS OF INTEREST

There is no conflict of interest in this research because all research and writing processes were carried out independently and transparently.

## DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In the preparation of this manuscript, generative AI and AI-assisted technologies were employed solely to support the translation of text and to enhance the grammatical clarity of the content. Specifically, these tools were used to improve the quality of language expression, ensuring consistency and readability, particularly during the process of translating from the original language into English. No AI tools were used to generate original ideas, conduct data analysis, or develop the scientific content of the manuscript. The authors affirm full responsibility for the intellectual content and integrity of the work presented.

## SOURCE OF FUNDING STATEMENTS

This research received a grant from the General Directorate of Higher Education, Research and Technology (Ditjen Diktiristek) under contract number 1035/LL16/AL/2024. In this research, DRTPM was not involved in the research process (data collection, data presentation, data analysis and interpretation) or the article preparation process.

## ACKNOWLEDGMENTS

The author would like to thank the Ministry of Education, Culture, Research and Technology (Kemendikbudristek) through the General Directorate of Higher Education, Research and Technology (Ditjen Diktiristek).

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