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Influence of Reproductive Health Education on Adolescent Self-Efficacy

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ABSTRACT

Adolescence is a transitional period marked by vulnerability to various reproductive health problems, including physical, mental, and social challenges. Limited knowledge about reproductive health often leads adolescents to engage in risky behaviors and exhibit low self-efficacy in maintaining their well-being. Self-efficacy refers to an individual's belief in their ability to perform actions necessary to achieve desired outcomes. In reproductive health, it reflects adolescents' confidence in making informed decisions and adopting protective behaviors. Health education is therefore a strategic intervention to improve adolescents' knowledge, attitudes, and confidence regarding reproductive health. This study aimed to examine the effect of reproductive health education on adolescents' self-efficacy in the working area of UPT Puskesmas Kota Enrekang Regency. A quasi-experimental design with a one-group pretest-posttest approach was employed. A total of 80 adolescents were selected using purposive sampling, and the intervention was delivered through leaflet-based health education. Self-efficacy was measured using a 20-item questionnaire. Before the intervention, only 13.7% of respondents demonstrated good self-efficacy, while 86.3% were categorized as low. After the intervention, there was a significant increase in the mean self-efficacy score from 38.56 to 72.12, with a mean difference of 33.56 and a p-value of 0.009. These findings indicate that reproductive health education significantly improves adolescents' self-efficacy. The study highlights the importance of integrating structured reproductive health education into school and community programs to empower adolescents, reduce risky behaviors, and promote healthier future generations in Indonesia.

Keywords
Adolescents
Health Education
Reproductive Health
Self-Efficacy

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Introduction

Adolescence is a crucial developmental stage marked by rapid biological, psychological, and social transitions that bridge childhood and adulthood [1]. During this period, adolescents are particularly vulnerable to reproductive health challenges, including early sexual activity, unintended pregnancies, unsafe abortions, and sexually transmitted infections (STIs) [2]. The World Health Organization (WHO) reports a steady rise in reproductive health-related cases among adolescents, with incidences of reproductive cancers, ovarian cysts, and other reproductive disorders increasing annually [3]. In Indonesia, adolescence is a critical developmental stage characterized by rapid physical, psychological, and social transitions that bridge childhood and adulthood. During this period, adolescents are particularly vulnerable to reproductive health problems, including early sexual activity, unintended pregnancy, and sexually transmitted infections (STIs). According to the WHO, reproductive health issues among adolescents continue to rise globally. In Indonesia, the 2023 Basic Health Research (Riskesdas) report revealed that reproductive health problems among adolescents remain prevalent, with limited access to accurate information and health services. Furthermore, data from the Ministry of Health of the Republic of Indonesia showed that around 37% of adolescents lack adequate knowledge of reproductive health, contributing to risky behaviors and low self-efficacy in maintaining reproductive well-being. Reproductive health is not only the absence of disease but also encompasses physical, mental, and social well-being related to the reproductive system. Unfortunately, cultural taboos, inadequate parental communication, and gender inequality often limit adolescents' ability to access accurate reproductive health information. This is reflected in data from the Kemenkes RI, which noted that misconceptions about menstruation, fertility, and reproductive anatomy remain common among Indonesian adolescents, particularly in rural areas. The Demographic and Health Survey (SDKI, 2022) recorded 44,267 adolescent reproductive health cases, which rose to 46,821 in 2023, highlighting the persistent and growing nature of this problem. Similarly, data from the South Sulawesi Provincial Health Office in 2023 indicated 603 reported cases of reproductive health issues, showing an upward trend compared to previous years [4].

Reproductive health is not only defined by the absence of disease or disability but also encompasses physical, mental, and social well-being in all matters related to the reproductive

system [5]. Unfortunately, low levels of awareness, inadequate parental communication, and prevailing sociocultural stigma often leave adolescents ill-prepared to manage their reproductive health effectively [6]. Compounding this issue are patriarchal societal norms that prioritize education for males over females, reinforcing gender inequalities and limiting young women's access to vital health information [7]. These conditions expose adolescents to increased vulnerability, not only to physical health risks but also to psychosocial challenges that may hinder their capacity to build self-efficacy in managing reproductive health [8].

Self-efficacy, an individual's belief in their ability to execute specific behaviors to achieve desired outcomes, plays a central role in determining health-related behavior [9]. For adolescents, high self-efficacy translates into greater confidence in resisting risky sexual behavior, adopting protective practices, and maintaining reproductive health [10]. Conversely, poor self-efficacy may result in susceptibility to peer pressure, early marriage, and risky sexual practices. Studies have consistently demonstrated that reproductive health education positively influences adolescents' self-efficacy [11]. Reported that women of reproductive age showed significant improvement in reproductive health knowledge and self-efficacy after targeted education. At the same time, educational leaflets effectively enhanced adolescents' ability to care for their reproductive organs [12]. A significant increase in knowledge, attitudes, and self-efficacy among adolescents was observed after receiving reproductive health education interventions [13].

Despite these encouraging findings, several gaps remain in the existing body of literature. Many studies have focused on urban populations or specific female cohorts, with limited exploration of rural adolescent groups who may face unique sociocultural barriers [14]. Moreover, while the effectiveness of educational media such as booklets and audiovisual tools has been tested, fewer studies have examined the impact of structured, community-based reproductive health education programs within primary healthcare facilities [15]. There is also insufficient evidence addressing how such interventions influence adolescents' long-term confidence and behavioral control in maintaining reproductive health. In particular, previous research has rarely explored how reproductive health education implemented at the Puskesmas level can strengthen self-efficacy among adolescents in rural Indonesian settings, where access to information and health services is often limited. These gaps underscore the urgent need for context-specific, evidence-based research to develop more effective strategies that comprehensively address adolescents' reproductive health challenges [15].

The present study seeks to fill this gap by investigating the influence of reproductive health education on self-efficacy in maintaining reproductive health among adolescents in the working area of UPT Puskesmas, Enrekang District. By adopting a quasi-experimental design with pretest–posttest assessment, this research aims to provide empirical evidence on how

targeted educational interventions can strengthen adolescents' confidence and ability to safeguard their reproductive well-being. Specifically, the objectives are:

- to assess adolescents' baseline self-efficacy in maintaining reproductive health before intervention,
- to evaluate changes in self-efficacy following reproductive health education, and
- to determine the significance of the intervention's impact.

Nevertheless, it is essential to acknowledge some limitations. The study utilizes a purposive sampling approach limited to 80 participants, which may constrain generalizability beyond the local context. Additionally, the use of self-reported questionnaires introduces the possibility of response bias. Despite these limitations, the study provides valuable insights into the role of education in shaping adolescents' reproductive health behaviors, particularly in resource-limited settings.

The contribution of this research lies in its potential to inform health policy and practice at both local and national levels. By demonstrating the effectiveness of reproductive health education in enhancing self-efficacy, the findings can support the integration of structured reproductive health modules into school curricula and community health programs. Furthermore, the study highlights the need for culturally sensitive approaches that address gender disparities and empower both male and female adolescents equally. In doing so, this research advances scientific knowledge. It provides practical guidance for healthcare providers, educators, and policymakers aiming to reduce adolescent reproductive health risks and promote healthier, more informed generations.

Material and Methods

A. Study Design

This study employed a quasi-experimental design with a one-group pretest-posttest approach. The design was selected to evaluate the effect of reproductive health education on adolescents' self-efficacy in maintaining reproductive health. A pretest was administered to all participants before the intervention, followed by the delivery of reproductive health education, and finally, a posttest was conducted to assess changes in outcomes. The research was conducted at the UPT Puskesmas Kota, Enrekang District, South Sulawesi, Indonesia. Data collection took place in January 2025.

B. Population and Sample

The target population consisted of all adolescents (n=410) residing in the working area of UPT Puskesmas Kota, Enrekang District. Using Slovin's formula with a 10% margin of error, the sample size was calculated to be 80 participants. A purposive sampling technique was applied to select respondents based on inclusion and exclusion criteria. Inclusion criteria: Adolescents living in the UPT Puskesmas Kota area. Willing to participate as respondents.

Exclusion criteria: Participants who withdrew before the study was completed. Those who declined to participate after being informed about the study.

C. Intervention

The intervention included reproductive health education sessions using a structured leaflet as the primary medium. The leaflet contained information on adolescent reproductive health, developmental changes during puberty, and strategies for maintaining reproductive well-being. Education was delivered through group sessions facilitated by the research team using the structured leaflet as the primary medium. The intervention included reproductive health education sessions using a structured leaflet as the primary medium. The leaflet contained information on adolescent reproductive health, developmental changes during puberty, and strategies for maintaining reproductive well-being. Education was delivered through group sessions facilitated by the research team. Each educational session lasted approximately 45–60 minutes and was conducted twice for each group, with a one-week interval between sessions. This duration and frequency were designed to allow sufficient time for discussion, reflection, and reinforcement of key messages.

D. Research Instruments

Two instruments were employed: the Self-efficacy questionnaire, A 20-item structured questionnaire, with "Yes" responses scored as 1 and "No" responses scored as 0. Respondents achieving ≥50% were categorized as having "good" self-efficacy, while those achieving <50% were classified as "poor" self-efficacy. Educational leaflet: Developed as the intervention material, containing adolescent reproductive health topics tailored to the local context. The self-efficacy questionnaire was tested for validity and reliability before data collection. The instrument achieved a Cronbach's alpha value of 0.87, indicating good internal consistency.

E. Data Collection and Analysis

On the first day, respondents completed the pretest questionnaire assessing self-efficacy. On the second day, they received the reproductive health education intervention through the leaflet. Immediately afterward, the same questionnaire was administered as a posttest to evaluate changes in self-efficacy.

Collected data were checked for completeness (editing), coded numerically, and entered into a master table for processing. Data analysis was carried out using SPSS version 25.0. Univariate analysis: Frequency distributions and percentages were used to describe respondents' characteristics and baseline variables. Bivariate analysis: Data were first tested for normality using the Shapiro-Wilk test. As the data were normally distributed ($p>0.05$), the Paired Sample t-test was applied to assess the effect of the intervention. A p-value ≤0.05 was considered statistically significant.

F. Ethical Considerations

Ethical approval for this study was obtained from the Health Research Ethics Committee of STIKES Gunung Sari, South Sulawesi, Indonesia, number: 036/LPPM/STIKES-GS/MKS/VIII/2025. Before participation, all respondents were informed about the study's purpose, procedures, and potential risks. Written informed consent was obtained from participants, and confidentiality, anonymity, and justice were ensured throughout the study.

Results

Fig. 1 illustrates the comparison of adolescents' self-efficacy levels before and after the reproductive health education intervention. Before the intervention, only 13.7% of respondents demonstrated good self-efficacy, while the majority (86.3%) showed poor self-efficacy. After receiving the educational intervention, there was a substantial improvement, with 82.5% of adolescents achieving good self-efficacy and only 17.5% remaining in the poor category.

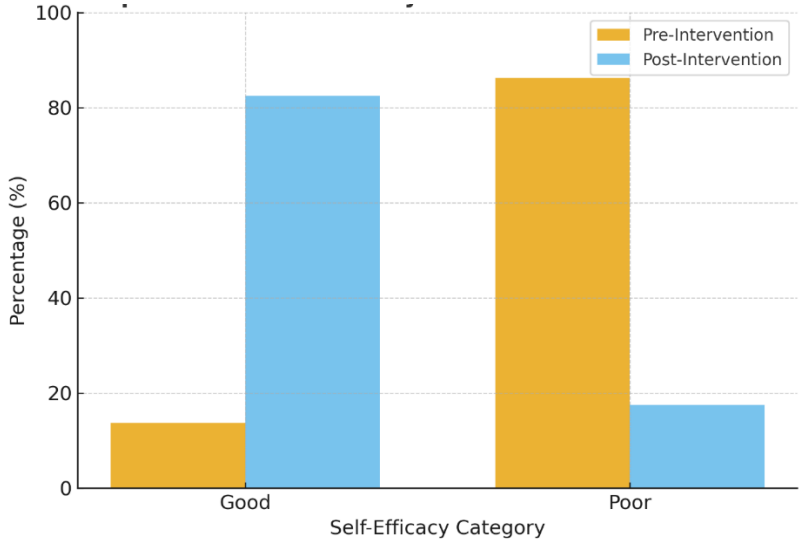


Fig. 1. Comparison of Adolescents' Self-Efficacy Levels Before and After Reproductive Health Education Intervention

This visual representation clearly highlights the positive impact of reproductive health education on adolescents' confidence and ability to manage their reproductive health. The marked increase in the "good" self-efficacy category indicates that the intervention effectively enhanced participants' knowledge, attitudes, and behavioral readiness. Overall, the graph supports the statistical findings ($p = 0.009$), confirming that the educational intervention significantly improved self-efficacy among adolescents.

Table 1 presents the results of the paired sample t-test comparing adolescents' self-efficacy scores before and after the intervention ($n = 80$). The findings indicate a statistically significant increase in self-efficacy following reproductive health education, demonstrating the

effectiveness of the intervention in improving adolescents' confidence in maintaining their reproductive health.

Table 1. Paired Sample T-Test of Self-Efficacy Scores Before and After Intervention (n = 80)

Variable	n	Mean ± SD	Mean Difference	95% CI for Mean Difference	p-value
Pretest Score	80	38.56 ± 8.23	33.56	[27.64, 39.48]	0.009*
Posttest Score	80	72.12 ± 13.28			

The mean self-efficacy score increased significantly from 38.56 before to 72.12 after intervention, with a mean difference of 33.56 (p=0.009). This indicates a statistically significant effect of reproductive health education on adolescents' self-efficacy. This study demonstrated a substantial impact of reproductive health education on adolescents' self-efficacy in maintaining their reproductive health. Before the intervention, most respondents exhibited poor self-efficacy, with only a small proportion demonstrating good self-efficacy. Following the educational intervention, there was a substantial shift, with more than four-fifths of respondents achieving good self-efficacy. The paired sample t-test revealed a significant increase in mean self-efficacy scores following the intervention (mean difference = 33.56, 95% CI [27.64, 39.48], p = 0.009), indicating that reproductive health education effectively enhanced adolescents' confidence and ability to maintain their reproductive health.

The improvement in self-efficacy has broader implications, as it equips adolescents with the capacity to make informed decisions, adopt healthier behaviors, and prevent reproductive health problems. Furthermore, these results reinforce the importance of incorporating structured reproductive health education into school curricula and community-based programs. Ensuring that adolescents receive accurate and comprehensive information can reduce stigma, dispel myths, and strengthen resilience in facing challenges related to reproductive health. This study highlights reproductive health education as a vital strategy for empowering adolescents and fostering long-term health and well-being.

Discussions

The present study investigated the influence of reproductive health education on adolescents' self-efficacy in maintaining reproductive health at the UPT Puskesmas Kota, Enrekang Regency. The findings demonstrated a significant improvement in self-efficacy after the intervention. Before the educational program, only 13.7% of respondents exhibited good self-efficacy, whereas after the intervention, the proportion increased substantially to 82.5%. Statistical analysis using the paired sample t-test confirmed the significance of this change (p = 0.009), thus supporting the hypothesis that reproductive health education positively affects self-efficacy among adolescents.

As defined by Bandura, self-efficacy refers to an individual's belief in their capacity to execute behaviors necessary to produce desired outcomes. In line with this theory, the significant improvement in adolescents' self-efficacy observed after receiving reproductive health education in this study indicates that increased knowledge and understanding enhanced their confidence and ability to manage reproductive health behaviors effectively. This finding supports Bandura's assertion that individuals who believe in their capabilities are more likely to adopt and sustain positive behavioral changes [15]. In the context of reproductive health, self-efficacy involves adolescents' confidence in their ability to protect and maintain their reproductive well-being through knowledge and appropriate behaviors [16] [17]. The notable improvement in post-intervention scores suggests that health education enhanced knowledge and reshaped attitudes and confidence toward healthier decision-making [18]. This aligns with the theoretical assumption that structured health education can empower adolescents to adopt preventive behaviors and resist risky practices [19] [20].

The results of this study corroborate earlier findings, both internationally and regionally. Reproductive health education significantly improved women's understanding and efficacy in maintaining reproductive health, with similar use of educational media. Similar results were also reported in Indonesia and other Southeast Asian countries, where reproductive health education programs effectively increased adolescents' knowledge, attitudes, and self-efficacy in maintaining reproductive health [21] [22]. The results of this study corroborate earlier findings. Reproductive health education significantly improved women's understanding and efficacy in maintaining reproductive health, with similar use of educational media [23] [24]. Educational interventions through leaflets improved adolescents' practices in reproductive care [25]. Likewise, reproductive health education effectively reduced premarital sexual activity by strengthening knowledge, attitudes, and self-efficacy [26] [27]. These findings underscore a consistent pattern across different populations: health education significantly influences adolescents' capacity to manage their reproductive health responsibly [28] [29].

The present study adds to this body of evidence by focusing on adolescents in Enrekang Regency, a predominantly rural area in South Sulawesi where access to reproductive health information and services remains limited. This regional context is significant because geographic isolation, sociocultural norms, and limited health literacy often restrict adolescents' opportunities to obtain accurate and comprehensive reproductive health education, making targeted interventions particularly relevant. In this context, socio-cultural factors such as patriarchal norms and limited parental communication may hinder access to accurate information [30]. The significant post-intervention improvements demonstrate that even brief, targeted educational programs can overcome such barriers [31]. The findings

further strengthen Bandura's social cognitive theory, emphasizing that self-efficacy mediates behavior change. Adolescents who perceive themselves as capable are more likely to engage in protective behaviors and avoid risky sexual practices [32]. Moreover, the study highlights the importance of environmental factors such as structured education and supportive health services in shaping adolescents' confidence [33] [34]. Adolescents may rely on peers or myths without adequate knowledge and reinforcement, leading to misconceptions and unsafe practices. Thus, reproductive health education is an external stimulus that enhances internal belief systems [35] [36].

The results of this study are of practical importance to schools, healthcare providers, and policymakers. The present study adds to this body of evidence by focusing on adolescents in Enrekang Regency. Therefore, it is recommended that policymakers develop comprehensive adolescent reproductive health policies that integrate educational interventions into school curricula and primary healthcare programs. Such policies should emphasize gender equality, community participation, and sustained funding to ensure long-term improvements in adolescent reproductive health outcomes. First, schools should integrate reproductive health education into their curricula to ensure adolescents acquire comprehensive, accurate, and age-appropriate knowledge. Teachers and health workers must collaborate to deliver this information using interactive methods promoting active participation and personal reflection. Second, community health centers (Puskesmas) are crucial in extending education beyond the classroom. Regular health promotion activities targeting both male and female adolescents are necessary to reduce stigma and gender-based disparities. Given that patriarchal norms often prioritize male education, health programs should deliberately empower young women by providing safe spaces to discuss reproductive issues. Third, policymakers should consider adopting reproductive health education as a national priority. The increasing prevalence of adolescent reproductive health problems, as reported by WHO and Indonesia's Ministry of Health, underscores the urgency of such measures. Policies that integrate reproductive health education into formal and informal education systems will contribute to healthier, more resilient young generations.

Despite its promising results, this study has several limitations. First, the research employed a quasi-experimental design with a single group, which may limit the generalizability of findings. The absence of a control group prevents excluding external factors that may have influenced outcomes. Second, the measurement of self-efficacy relied on self-reported questionnaires, which are subject to bias, including social desirability. Third, the study was conducted in a specific geographic area with a relatively small sample size, which may not reflect the diversity of adolescents across Indonesia. Additionally, the intervention used leaflets as the primary medium of education. While effective, this method may not cater

to different learning styles or provide the interactive engagement that digital media or peer-to-peer discussions might achieve.

Future studies should explore multimodal interventions that combine printed, audiovisual, and interactive approaches. Future research should expand upon this study by including control groups, larger and more diverse samples, and longitudinal designs to assess the sustainability of changes in self-efficacy. Mixed-method approaches that combine quantitative surveys with qualitative interviews could provide deeper insights into adolescents' experiences, perceptions, and barriers regarding reproductive health. Schools and health centers should collaborate to deliver continuous and comprehensive reproductive health programs for practical implementation. Training teachers and health workers in adolescent-friendly communication is essential to address sensitive topics effectively. Furthermore, involving parents in educational programs can bridge the gap between school-based learning and home-based reinforcement, ensuring that adolescents receive consistent messages.

Conclusion

This study confirms that reproductive health education significantly improves adolescents' self-efficacy in maintaining reproductive health, as evidenced by an increase in the proportion of participants with good self-efficacy from 13.7% before to 82.5% after the intervention, and a significant rise in mean self-efficacy score from 38.56 ± 8.23 to 72.12 ± 13.28 ($p = 0.009$). The findings are consistent with prior research and contribute to theoretical and practical understanding of health education's role in empowering adolescents. By enhancing knowledge, attitudes, and confidence, reproductive health education equips adolescents with the tools necessary to navigate the challenges of puberty, resist risky behaviors, and make informed decisions. Despite certain limitations, the study provides valuable evidence supporting the integration of reproductive health education into school curricula and community health initiatives. In the long term, such interventions can contribute to reducing adolescent reproductive health problems, promoting gender equity, and fostering healthier generations in Indonesia. In the long term, such interventions can contribute to reducing adolescent reproductive health problems, promoting gender equity, and fostering healthier generations in Indonesia. Therefore, it is recommended that policymakers strengthen the integration of reproductive health education into the national school curriculum and support continuous collaboration between schools and community health centers (Puskesmas). Establishing adolescent-friendly health programs and involving parents in reproductive health discussions can further enhance the sustainability and effectiveness of these interventions.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed significantly to the research and manuscript preparation and have approved the final version submitted.

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