

# The Effect Of Puberty Education On Knowledge And Attitudes Related To Puberty Changes: Literature Review

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## ABSTRACT

Puberty is an important phase in adolescent development characterized by physical, psychological and social changes. Lack of understanding about pubertal changes can trigger anxiety and risky behavior. Puberty education is a strategic step in equipping adolescents with accurate information about reproductive health and body changes. This study aims to analyze the effect of puberty education on improving adolescents' knowledge and attitudes through the literature review method from various international and national studies in 2021-2025. The results of the analysis show that technology-based, interactive, and empowerment-based educational approaches are able to increase understanding and shape positive attitudes of adolescents towards puberty. In addition, family support and adaptation to adolescents' special needs also play an important role in the success of education. Innovations in learning methods, such as the use of mobile applications and Health Belief Model-based approaches, proved effective in improving pubertal health behaviors. These findings emphasize the importance of developing more inclusive and evidence-based puberty education policies to support adolescent well-being.

**Keywords:** Puberty education, Adolescent knowledge, Attitude towards puberty, Adolescent physical changes

## INTRODUCTION

Puberty is an important phase in individual development which is marked by physical, psychological and social changes. WHO noted that around 1.2 billion teenagers in the world are experiencing puberty (WHO, 2021). In Indonesia, data from the National Population and Family Planning Agency (BKKBN) shows that there are around 64 million teenagers aged 10-24 years who are going through this

phase.(BKKBN, 2022)Although puberty is a natural process, many adolescents face challenges in understanding the changes occurring in their bodies. Lack of access to accurate information can lead to confusion, anxiety, and even the risk of unhealthy behaviors. Without adequate understanding, adolescents are also at risk of experiencing uncertainty about their identity. Therefore, puberty education is crucial in providing adolescents with correct and accurate information.

Puberty is the transition period from childhood to adulthood, influenced by various factors. One of the main factors involved is changes in reproductive hormones, such as estrogen in girls and testosterone in boys.(Ningrum, AW, Ristianti, DH, & Sumarto, 2022)This process causes significant physical changes, such as rapid growth in height and changes in voice. In addition, the appearance of acne and the development of secondary sexual characteristics, such as breast enlargement in girls and facial hair growth in boys, are also characteristic of puberty.(Hastuti *et al.*,2022). These changes are not only physical; they also impact the psychological and emotional aspects of adolescents. Mood swings, increased sensitivity, and the search for self-identity often occur during this phase.(Martinet *al.*, 2022)If not handled properly, these changes can trigger stress and anxiety in adolescents.

The impact of adolescents' lack of understanding about puberty can lead to various health problems. Not knowing about the changes occurring in the body can cause adolescents to experience prolonged stress and anxiety. Furthermore, a lack of understanding about reproductive health can increase the risk of adolescents engaging in risky behaviors. These include unsafe sex, early pregnancy, and the spread of sexually transmitted infections. Environmental and cultural factors also play a role in influencing adolescents' attitudes towards puberty. Therefore, systematic, evidence-based puberty education is essential to foster a better understanding.

In a social context, puberty also brings changes in the interactions between adolescents and their surroundings. During this time, adolescents tend to be more interested in socializing with their peers than with their families. This can influence their thought patterns and behavior, particularly in receiving information about puberty. Many adolescents rely on peers as their primary source of information, which, unfortunately, is often inaccurate and unscientific.(Tsagem, 2022).

Furthermore, the use of social media as a means of obtaining information about puberty is also increasing. However, without proper information filtering, adolescents can be exposed to inaccurate or even misleading information. Therefore, evidence-based puberty education is needed to ensure that adolescents receive accurate and reliable information.

Puberty education has become part of Indonesian government policy to improve adolescents' understanding of the changes they experience. The Adolescent Reproductive Health Education (PKRR) program, implemented by the Ministry of Health and the Ministry of Education, Culture, Research, and Technology, aims to provide a comprehensive understanding of reproductive health and puberty.(Indonesia, 2023)However, the implementation of this program still faces various challenges, particularly in terms of its implementation in schools. One major obstacle is the lack of educators with specialized expertise in delivering puberty material. Furthermore, the stigma in society that considers this topic taboo also hinders the effectiveness of puberty education programs. Therefore, a more inclusive and systematic approach is needed to deliver puberty education to adolescents.

Several previous studies have shown that interactive puberty education can provide more effective results than conventional methods. A study by(Utaminingsyaset *al.*,2024)found that around 40% of adolescents in developing countries, including Indonesia, have a low level of understanding about puberty and reproductive health. Another study bySalahshouriet *al.*,(2024)showed that interactive puberty education programs were able to increase adolescents' understanding by 38%. In addition, research bySalahshouriet *al.*,(2024)revealed that an educational app based on a health belief model can increase puberty knowledge by 30%. Positive attitudes toward puberty also increased by 25% with the app-based educational method. This demonstrates that innovation in educational methods plays a significant role in increasing the effectiveness of adolescents' understanding of puberty.

One strategy that can be implemented to improve puberty education is to use a technology-based approach. Currently, technological advances allow puberty education to be delivered through digital platforms, such as apps and social media. This method has proven more effective in engaging adolescents than conventional,

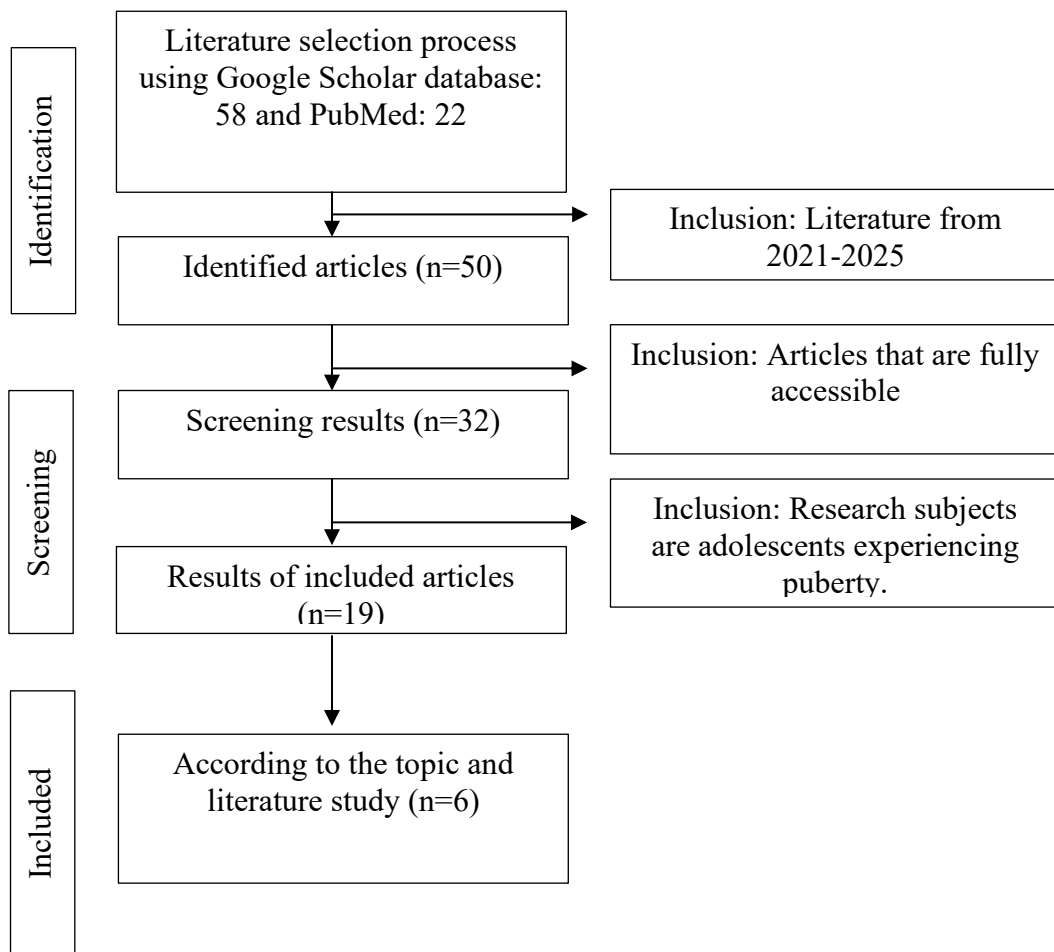
one-way methods. Furthermore, a technology-based approach allows adolescents to independently access information according to their needs. However, the use of technology in puberty education must also be balanced with monitoring of the content presented. In this way, puberty education can provide optimal benefits for adolescent development.

Based on the phenomena described, this study aims to analyze the influence of puberty education on adolescents' knowledge and attitudes regarding pubertal changes. *literature review* This study will examine various scientific sources to provide a comprehensive overview of the effectiveness of various puberty education methods implemented in various educational institutions. Furthermore, this study aims to identify factors that may influence the effectiveness of puberty education programs among Indonesian adolescents. It is hoped that the results of this study can provide recommendations for the development of more effective and inclusive puberty education policies in Indonesia. This will enable adolescents to gain a better understanding of puberty and face this phase with greater confidence..

## **METHOD**

This study used a literature review method to analyze the influence of puberty education on adolescents' knowledge and attitudes. Data was collected from two major databases, Google Scholar and PubMed, with publication years spanning 2021–2025.

Search keywords included “Puberty Education,” “Adolescent Knowledge,” and “Attitude towards Puberty Changes” in English, and “Puberty Education” and “Adolescent Knowledge” in Indonesian. Articles were selected based on inclusion criteria, namely (1) studies discussing the effectiveness of puberty education, (2) using a quantitative or quasi-experimental research design, and (3) available in full text. Exclusion criteria included articles that were opinion-only or lacked a clear research method. Of the 80 articles identified, 32 passed the screening stage, and 6 articles were selected for further analysis. The selection process is displayed in a PRISMA flowchart. Data from the selected studies were then synthesized using a thematic approach to identify patterns in the effectiveness of puberty education methods.



**Figure 1.** PRISMA flowchart diagram of literature search

**RESULTS AND DISCUSSION**

Table 1. Journal Review

No	Author, Year	Research Title	Country	Method	Sample	Research result
1	Zhihong Sa, Li Tian, Xiyang Wang, 2022	<i>Evidence for a comprehensive sexuality education intervention</i>	China	Self-administered questionnaire	School selection was based on availability, followed by class	There was a significant increase in adolescent sexual knowledge (F(1,1118)=223.96; p<0.001),

		<i>on that enhances Chinese adolescents' sexual knowledge and gender awareness and empowers young women</i>			randomization; number of respondents was 1131 students (583 intervention, 548 control)	non-traditional gender attitudes (F=8.32; p=0.004), rejection of sexual double standards (F=22.57; p<0.001), and sexual self-efficacy in female adolescents (F(1,577)=4.81; p=0.03).
2	Roza Bahari, Amin Shokravi, Monireh Anosheh, Maryam Moridi, 2021	<i>Effect of a health education program on puberty knowledge among visually impaired female adolescent students</i>	Iran	The research created questionnaire contained 51 items about physical health, physical activity, mental health, and	<i>Convenience sampling</i> ; 100 blind female students aged 10-19 years	The health education program significantly increased puberty knowledge in blind female students in various domains, such as puberty signs from 1.82±1.99 to 6.14±3.19 (p=0.002) and physical changes from

				sexual health.		2.47±2.63 to 7.81±1.81 (p<0.001), with an increase in the good knowledge category of 68% after the intervention.
3	Mohamadi Sarah, Omid Garkaz, Seyed Abbas Mousavi, Afsaneh Keramat, Shahrbanoo Goli, Zahra Motaghi, 2021	<i>The Effect of Motivational Interviewing on Puberty Knowledge and Practice among Adolescent Girls</i>	Iran	Demographic questionnaire and puberty knowledge and practices questionnaire (with Cronbach's alpha reliability of 0.84)	<i>Multistage sampling</i> ; 240 students (117 intervention, 123 control)	The mean knowledge score increased from 22.61±3.84 to 29.44±3.51 in the intervention group one month after education, while the control group remained lower (p<0.001), with a knowledge increase of more than 30% in the intervention group.
4	Sedighe Bab Eghbal	<i>The effectiveness of</i>	Iran	Questionnaire (covering	<i>Multi-stage random</i>	After the Health Belief Model-based

	et al., 2023	<i>educational program based on health belief model on promotion of puberty health concepts among adolescent girls: a cross-sectional study in north of Iran</i>		g demographic variables, knowledge, HBM constructs, and health behavior)	<i>sampling;</i> total 110 female students (55 intervention group, 55 control group)	intervention, there was a significant increase in knowledge scores, perceived vulnerability, benefits, self-efficacy, and puberty health behaviors in the intervention group (all $p < 0.001$ ), with no significant changes in the control group.
5	Salahshouri Arash, Parvaneh Raisi-Philabadi, Saeed Ghanbari, Lar Stein, Marzieh	Using the health beliefs model to implement mobile puberty health education in Iranian	Iran	Demographic questionnaire, health knowledge, health behavior, and HBM construct	<i>Cluster random sampling;</i> 148 junior high school students (74 intervention, 74 control)	Mobile phone-based puberty education significantly improved puberty health behaviors with an F value of 892.92; $p < 0.001$ and an effect size of 0.860, as well

	Araban, 2024	adolescent boys: a randomized controlled trial		s; instrument validation using CVR and CVI		as increased knowledge scores and Health Belief Model constructs in the intervention group.
6	Angela-Maithy N. Nguyen, Micaela Camozzi, Marni Sommer, 2025	<i>Impacts of a puberty and period education intervention among 9- to 12-year-old girls in the New York metropolitan area: a randomized trial</i>	United States of America	<i>Pre-and post-test survey (knowledge, attitudes, and comfort communicating about puberty and menstruation)</i>	Random sampling in community-based after-school programs ; 123 final participants (65 intervention, 58 control)	After the puberty education intervention, there was a significant increase in knowledge, attitudes, and comfort in communicating about puberty in the intervention group compared to the control group based on the pre-test and post-test results.

A review of six articles showed that puberty education consistently had a positive impact on improving reproductive health knowledge, attitudes, and behavior in adolescents. Research by Sa Zhihong et al. (2022) showed that sexual education

interventions significantly increased adolescent sexual knowledge, as well as gender attitudes and sexual self-efficacy in adolescent girls. Similar findings were also reported by Bahari et al. (2021) which showed a significant increase in puberty knowledge after reproductive health education intervention. Furthermore, Mohamadi et al. (2021) found that adolescents' average knowledge scores increased significantly one month after education, indicating that educational interventions have a lasting impact on adolescents' understanding of reproductive health. Other research also showed that after puberty education, the percentage of adolescents with good knowledge increased from 0% to 92.5%, confirming that health education plays a crucial role in improving adolescents' understanding of pubertal changes. (Rosita et al., 2023).

In addition to increasing knowledge, several studies have also shown that puberty education can influence the psychological aspects and health behaviors of adolescents. Eghbal et al. (2023) found that a Health Belief Model-based intervention increased adolescents' perceptions of vulnerability, benefits, and self-efficacy in maintaining reproductive health. Salahshouri et al. (2024) shows that the use of technology-based media, such as mobile phones, is effective in improving pubertal health behaviors in adolescents. This is in line with research Nguyen et al. (2025) who reported that puberty education not only increases knowledge but also increases adolescents' comfort in communicating about puberty changes. Other research shows that adolescents with low levels of knowledge have a 2.629 times higher risk of anxiety in facing puberty compared to adolescents with good knowledge, making education an important factor in improving adolescents' mental readiness. (Exposto et al, 2023).

Overall, various studies have shown that puberty education is an effective strategy for increasing adolescents' knowledge and preparedness for the physical and psychological changes that occur during puberty. However, some adolescents still have a low level of understanding about puberty and reproductive health, particularly in developing countries. Therefore, more innovative and engaging educational methods are needed. (Utamingtyas et al., 2024) Therefore, developing puberty education programs that utilize interactive learning media tailored to

adolescent needs is crucial for improving adolescent reproductive health knowledge and behavior.

## **CONCLUSION AND SUGGESTIONS**

Based on the results of a literature review of six research articles, it can be concluded that puberty education has a positive influence on increasing adolescents' knowledge and attitudes in facing pubertal changes. Various educational methods, such as school-based education, digital media, and health theory-based approaches, have been proven effective in increasing adolescents' understanding, self-efficacy, and readiness to face physical and psychological changes during puberty. Therefore, it is recommended that health workers, educators, and schools can improve the implementation of puberty education in a planned, systematic, and sustainable manner by using interactive methods that are appropriate to adolescent characteristics. Furthermore, further research is expected to develop more innovative educational media and methods so that the effectiveness of puberty education can continue.

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