

Impact of Educational Intervention of Knowledge about Puberty in Indonesia's Junior High School Students

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ABSTRACT

Purpose: The primary aim of this study was to determine the effectiveness of educational interventions in enhancing the knowledge of junior high school students in Indonesia regarding puberty and sexual organ health. Additionally, the study sought to support teenagers in understanding and coping with bodily changes. **Design/methodology/approach:** A non-randomized intervention study was conducted with 128 seventh-grade students at SMP Muhammadiyah 2 Taman, Sidoarjo. Seminars led by pediatricians educated participants about puberty. Knowledge was evaluated using pre-and post-tests, with data analyzed using SPSS. **Findings:** There was a general improvement in students' understanding post-intervention, although the enhancement was modest. Specific topics, such as the definition of puberty and primary hormones causing puberty, witnessed significant advancements. However, some areas observed a decline in post-test scores. **Research Limitations/Implications:** The study's primary limitation lies in its modest increase in knowledge post-intervention. For meaningful conclusions, a deeper analysis may be required, considering the diverse baseline knowledge levels among participants. The findings underscore the need for refined interventions to bridge the educational gap effectively. **Practical implications:** The research emphasizes the importance of early education on puberty and sexual health, highlighting the potential negative consequences of delaying such education. The study's results could guide educators and policymakers in Indonesia to design and implement more effective puberty and sexual health educational programs. **Originality/value:** This study offers a unique insight into the challenges faced by Indonesian adolescents due to a lack of adequate education on puberty. It provides a novel approach to assessing the impact of educational seminars, serving as a blueprint for future interventions in similar contexts.

Keywords: puberty education; Indonesia; sexual health; adolescent challenges

INTRODUCTION

During the phase of puberty growth, children undergo the process of attaining reproductive maturity, accompanied by the maturation of various other bodily systems. These transformations can pose challenges and induce feelings of fear and uncertainty. There is compelling evidence indicating a lack of adequate education on puberty and menstrual health for adolescent girls in Indonesia [1]. In Indonesia, discussions about puberty and menstrual health typically occur later in senior years, targeting students aged 16 to 18. This delay is influenced by traditional taboos surrounding the teaching of such topics [3].

Adolescents nowadays undergo puberty at younger ages, sometimes as early as 9–11 [4]. Despite this trend, research conducted by Durex Indonesia on Reproduction and Sexual Health in Indonesia found that 84% of teenagers aged 12–17 had not received education on puberty and sexual health [2].

Contrary to this, studies suggest that sexual health education can be introduced without waiting for puberty onset. Delaying menstruation and puberty education until after these changes occur may reduce its effectiveness for early adolescents who could benefit socially, mentally, and physically from this information [3].

Many girls express feeling unprepared for puberty and menstruation; this includes a lack of knowledge about practical aspects such as managing menstrual cramps or using menstrual products. The absence of education and social support on these topics has significant consequences, especially for early-maturing girls (ages 9–11) who feel the least prepared for pubertal changes. These girls are at a higher risk for issues like poor body image, depression, and engaging in risky behaviors like substance use and early initiation of sexual activity.

Research suggests that improved preparation through education on menstrual health can help alleviate some of the adverse effects of early pubertal timing [6].

The challenges extend beyond girls, revealing that teenage boys also face insecurities about their body changes. Strikingly, there's a notable absence of sexual and reproductive health education specifically tailored for boys. While educational efforts predominantly target girls, boys also experience fear and insecurity but often choose to suppress their emotions [5].

Not only does this paper aim to investigate whether educational interventions can enhance the knowledge of junior high school students (aged 12–13) in Indonesia regarding puberty and sexual organ health, but it also aims to ensure that teenagers can understand better and be less afraid with the changes within their body.

MATERIAL AND METHODS

This non-randomized intervention study was conducted at SMP Muhammadiyah 2 Taman, Sidoarjo. The intervention is carried out by providing education about puberty to participants through seminars given by pediatricians. This study used all the seventh-grade students from SMP Muhammadiyah 2 Taman as participants. This study used consecutive sampling methods. The inclusion criteria for this study were the seventh-grade students presented at that time. Students who were absent from school that day were excluded. The Faculty of Medicine Health Research and Ethics Committee accepted this study, with ethical clearance number 139/EC/KEPK/FKUA/2022.

Participants were first asked about their age, date of birth, and at what age they have their menarche and nocturnal emission to know the subject's characteristics. Then, pre-test and post-test with ten same questions are given to participants to compare the participants' knowledge about puberty before and after intervention.

The Correct answers were scored 10, and the incorrect answers were scored 0. The pre-test and post-test are assessed using the statistical program SPSS version 17. The categorical variables were presented as the mean value along with its corresponding standard deviation and frequency (percentage). A comparison of pre-and post-intervention tests was analyzed with the Wilcoxon test with a significance level $p < 0,05$.

RESULT

Subjects Characteristic

A total of 128 Indonesian students participated in this study. The participants are 75(58,59%) female students and 53(41,40%) male students with a mean age of $12,23 \pm 4,75$. All of them were in the seventh grade. The subjects' characteristics are shown in the Table.

TABLE 1: The Subjects' Characteristics.

Variables	Results (n=128)
Age	12,23 ± 4,75
Sex	
Male	53 (41,40)
Female	75 (58,59)

Pre-Test and Post-Test Assessment

The pre-and post-tests assessed the knowledge before and after the seminar were given to participants. The average score measured the value. The average score for the pre-test was 70.00, with a wide variation, as indicated by the standard deviation of 15.56; this shows significant variability in the scores achieved by participants. Meanwhile, the mean score for the post-test increased slightly to 73.04, with a standard deviation of 14.76, indicating that the variation in participants' scores remained consistent. This average increase suggests a general increase in participants' knowledge from the pre-test to the post-test, although it should be noted that this increase was relatively small.

TABLE 2: Pre-Test and Post-Test Assessment.

	Pretest	Posttest	Description	p
Mean score	70,00 ± 15,56	73,04 ± 14,76	Improved	

There was a significant increase in knowledge ($p=0.007$) regarding the definition of puberty after the intervention, as shown by the first question. Learning about the main hormones that cause puberty in both boys and girls increased significantly after the intervention ($p=0.000$).

On the other hand, knowledge about the causes of puberty is rising, but there are no significant changes. However, questions about the characteristics of puberty boys, events that occur during puberty, and actions that should be taken during puberty have decreased.

TABLE 3: Pre-Test and Post-Test Assessment.

Question	Pre-Intervention			Post Intervention			p
	Correct	Wrong	Mean Score	Correct	Wrong	Mean Score	
What is the meaning of puberty	14(10.9)	115(89.1)	11,00 ±3,12	26(20.2)	103(79.8)	20,00 ±4,03	0.007
Which major hormone causes puberty in boys?	85(65.9)	44(34.1)	66,00 ±4,76	122(94.6)	7(5.4)	95,00 ±2,27	0.000
Which major hormone causes puberty in girls?	32(24.8)	97(75.2)	25,00 ±4,34	95(73.6)	34(26.4)	74,00 ±4,42	0.000
When is the normal age of puberty in boys?	100(77.5)	29(22.5)	78,00 ±4,19	116(89.9)	13(10.2)	90,00 ±3,02	0.005
When is the normal age of puberty in girls?	50(38.8)	79(61.2)	39,0 ±4,89	106(82.2)	23(17.8)	82,00 ±3,84	0.000
Why does puberty occur in children?	97(75.2)	32(24.8)	75,00 ±4,34	106(82.2)	23(17.8)	82,00 ±3,84	0.117
What is the characteristic of primary puberty in girls?	100(77.5)	29(22.5)	78,0 ±4,19	77(59.7)	52(40.3)	60,00 ±4,92	0.000
What are the characteristics of primary puberty in boys?	113(87.6)	16(12.4)	88,0 ±3,31	93(72.1)	36(27.9)	72,00 ±4,50	0.001
What happens in the post pubertystage?	95(73.6)	34(26.4)	74,00 ±4,42	90(69.8)	39(30.2)	70,00 ±4,61	0.446
Below are ways to deal with puberty, except	120(93.0)	9(7.0)	93,00 ±2,56	114(88.4)	15(11.6)	88,00 ±32,2	0.109

DISCUSSION

The data highlights a critical issue in Indonesia regarding the lack of comprehensive education on puberty and sexual health, particularly for adolescents. The delay in addressing these topics until later in the academic journey, influenced by traditional taboos, seems to contribute to a significant gap in knowledge and preparedness among young individuals. The consequences are particularly pronounced for early-maturing girls and boys who face physical and emotional challenges. The discussion will be divided into three sub-topics, not including the limitations and recommendations section.

Puberty and Sexual Health Educational Gap

The study engaged 128 Indonesian students, encompassing 75 female students (58.59%) and 53 male students (41.40%), all in the seventh grade with a mean age of 12.23 ± 4.75 . The research design included the assessment of knowledge before and after a seminar using pre-and post-tests. The pre-test revealed an average score of 70.00 with a notable standard deviation of 15.56, indicating significant variability in the scores among participants. The wide range suggests diverse levels of prior knowledge among the students.

For the post-test, the mean score increased slightly to 73.04, accompanied by a standard deviation of 14.76. While the increase indicates a general improvement in participants' knowledge, it's essential to note that the change was relatively small.

The consistent standard deviation suggests that the variation in participants' scores remained steady after the seminar. The data implies that the educational intervention, represented by the seminar, had a positive impact on the students' understanding of puberty and sexual organ health. However, the modest increase in the average score prompts considerations about the depth and effectiveness of the intervention. It also emphasizes the importance of addressing the diverse baseline knowledge levels among students, as indicated by the substantial standard deviations in both pre-test and post-test scores.

Educational Gap and Its Consequences

Challenges faced by girls: Many girls in Indonesia express feeling unprepared for puberty and menstruation, lacking knowledge on practical aspects such as managing menstrual cramps or using menstrual products. The absence of education and social support has significant consequences, particularly for early-maturing girls aged 9–11, who are at a higher risk for issues like poor body image, depression, and engaging in risky behaviors.

Insecurities among boys: The challenges extend beyond girls, revealing that teenage boys also face insecurities about their body changes. Notably, there's a lack of sexual and reproductive health education specifically tailored for boys. While efforts predominantly target girls, boys also experience fear and insecurity but often choose to suppress their emotions.

Limitations

To draw meaningful conclusions, further analysis and interpretation of the data may be required. It's crucial to explore whether specific topics within puberty and sexual health saw more substantial improvements and if certain demographic factors influenced the outcomes. Addressing the baseline knowledge This study's findings lay the groundwork for understanding the potential benefits of educational interventions. Still, ongoing research and refinement of these interventions are necessary for a more comprehensive and tailored approach to address the academic gap.

Recommendations

Four critical recommendations for future research include: One, exploring whether specific topics within puberty and sexual health are more important to be delivered. Combining the research with qualitative data, including interviews and focus group discussions, may help. Two, addressing the diverse baseline knowledge levels among students, as indicated by the substantial standard deviations in both pre-and post-test scores. Three include material and assistance sessions on mental health and psychology to deal with emotional and body image problems, which often arise along with physical changes during puberty. Fourth, puberty and reproductive health education should be given to parents or caretakers a few months before the children. The aim of the latter is so that the parents can better prepare an excellent way to welcome their children into adulthood. Being open regarding this problem will also help the children's confidence through this challenging and frightening process. If feasible, exploration regarding parental involvement influences adolescents' experiences and preparedness for puberty.

CONCLUSION

As a result of ongoing challenges in accessing quality menstruation and pubertal health education in schools and at home, many adolescents from both genders in Indonesia are under-prepared to navigate puberty and reproductive health comfortably and confidently. A total of 128 Indonesian students participated in the study, consisting of 75 female students (58.59%) and 53 male students (41.40%) with a mean age of 12.23 ± 4.75 . Knowledge was assessed before and after the seminar through pre- and post-tests. The pre-test had an average score of 70.00 with significant variability, and the post-test mean score increased slightly to 73.04.

The slight increase indicates a general improvement in knowledge, though the variation in scores remained consistent. For progress, a more comprehensive and specific topic tailored for both genders are needed to see more positive impacts. Addressing the diverse baseline knowledge levels among students may also help with the result's accuracy.

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