

Impact of Teacher-Led Reproductive Health Education on Knowledge Among Vocational High School Students

Dampak Pendidikan Kesehatan Reproduksi oleh Guru terhadap Tingkat Pengetahuan Siswa Sekolah Menengah Kejuruan

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ABSTRACT

Background: Adolescent reproductive health remains a major concern in Indonesia due to the increasing prevalence of risky sexual behavior and low reproductive health literacy among students. Teachers play a strategic role in delivering comprehensive reproductive health education (RHE) within the school environment.

Objective: This study aimed to assess changes in students' knowledge before and after the intervention.

Methods: A pre-experimental design using a one-group pretest–posttest approach was used, involving 139 tenth-grade students from two State Vocational High Schools (X and Y) in Malang. Data were collected using pretest and posttest questionnaires and analyzed with a paired t-test.

Results: The results showed a significant increase in students' knowledge after receiving RHE from teachers, both at VHS X ($p < 0.001$) and VHS Y ($p < 0.001$). Most students (68.3%) showed improvement, and more than half stated that RHE is essential to be taught in schools.

Conclusion: In conclusion, RHE delivered by teachers is effective in enhancing students' knowledge. Therefore, strengthening teachers' capacity and integrating RHE into the school curriculum are crucial strategies to foster healthy, knowledgeable, and responsible adolescents.

Keywords: Adolescent; Reproductive health education; teacher; student knowledge; vocational school

ABSTRAK

Latar Belakang: Isu kesehatan reproduksi remaja masih menjadi tantangan penting di Indonesia seiring meningkatnya perilaku seksual berisiko dan rendahnya literasi reproduksi di kalangan pelajar. Guru memiliki peran strategis dalam memberikan pendidikan kesehatan reproduksi (penkespro) yang komprehensif di lingkungan sekolah.

Tujuan: Penelitian ini bertujuan untuk menilai perubahan pengetahuan siswa sebelum dan sesudah intervensi.

Metode: Desain penelitian menggunakan pendekatan pra-eksperimental menggunakan pendekatan pretes-postes kelompok tunggal pada 139 siswa kelas X di dari dua Sekolah Menengah Kejuruan Negeri (X dan Y) di Malang. Pengumpulan data dilakukan menggunakan kuesioner pengetahuan sebelum dan sesudah intervensi, kemudian dianalisis menggunakan uji paired t-test.

Hasil: Hasil penelitian menunjukkan terdapat peningkatan pengetahuan siswa secara signifikan setelah diberikan penkespro, baik di SMKN X ($p < 0.001$) maupun SMKN Y ($p < 0.001$). Mayoritas siswa (68.3%) mengalami peningkatan pengetahuan, dan lebih dari separuh menyatakan bahwa penkespro remaja penting diberikan di sekolah.

Kesimpulan: Pendidikan kesehatan reproduksi yang disampaikan oleh guru efektif dalam meningkatkan pengetahuan siswa, sehingga penguatan kapasitas guru dan integrasi penkespro dalam kurikulum sekolah perlu terus dikembangkan sebagai upaya membentuk remaja yang sehat dan bertanggung jawab.

Kata Kunci: Guru; Pendidikan kesehatan reproduksi; Pengetahuan siswa; Remaja; Sekolah Menengah Kejuruan

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Submitted 11 November 2025

Revised 06 March 2026

Accepted 09 March 2026

INTRODUCTION

Adolescence represents a critical transitional phase toward adulthood, marked by complex physical, psychological, social, and emotional developments. This stage is significant, as decisions made during this period can profoundly influence individuals' future health outcomes and overall quality of life (Kementerian Kesehatan RI, 2022; World Health Organization, 2018).

In the context of Indonesia, empirical evidence indicates that many adolescents possess insufficient knowledge regarding reproductive health. This deficiency in reproductive health literacy is associated with increased incidences of adolescent pregnancy, sexual violence, and early marriage, which collectively undermine the quality of human capital and elevate the risk of intergenerational stunting (Kementerian Kesehatan RI, 2022; World Health Organization, 2018).

In recent years, the issue of adolescent reproductive health in Indonesia has come under serious scrutiny due to the rise in cases of sexual harassment and risky sexual behavior among teenagers. Data from the 2015 Global School Health Survey (GSHS) indicate that some adolescents engage in behaviors that can threaten their reproductive health. This risky behavior is closely linked to changes in the adolescent brain (Badan Pusat Statistik et al., 2017; Kementerian Kesehatan RI, 2022). Furthermore, psychological changes during adolescence, marked by a decrease in closeness with parents and the emergence of role models, are crucial (Badan Pusat Statistik et al., 2017; Kementerian Kesehatan RI, 2022; Suprobo et al., 2025).

Therefore, innovations are needed to develop strategies for providing reproductive health information. One strategy is to integrate adolescent RHE into the curriculum. Efforts to improve adolescent reproductive health literacy

have become a national priority, as mandated by Law Number 17 of 2023 concerning Health and Government Regulation Number 61 of 2014 concerning Reproductive Health. Both regulations affirm that every citizen, including adolescents, has the right to receive comprehensive, high-quality reproductive health information, education, and services that align with the nation's cultural and moral values (Puriastuti et al., 2025; Safitri, 2021).

However, adolescent RHE (hereinafter referred to as *Penkespro Remaja*) is often neglected. One challenge is the limited number of trained educators and the societal stigma surrounding discussions about sexuality. This has led many schools to fail to incorporate RHE into their curricula. According to UNESCO (2018) in its International Technical Guidance on Sexuality Education, comprehensive RHE can increase knowledge, foster positive attitudes, and develop the life skills adolescents need to make responsible decisions. Teachers hold a strategic position as the primary link between educational policy and students' learning experiences.

Through values-based learning and scientific evidence, teachers can create a safe dialogue space for students to understand their bodies, respect themselves, and engage in healthy behaviors. Thus, teachers are not only educators but also agents of social change, playing a crucial role in developing a healthy, knowledgeable, and character-driven young generation (Afrila et al., 2024; Wulandari et al., 2021).

In this regard, it is a strategic opportunity to make teachers the primary source of information and education on reproductive health. This aligns with the findings of several studies that show adolescents are more comfortable discussing reproductive health with teachers or lecturers (Badan Pusat Statistik

et al., 2017; Puriastuti et al., 2024). Therefore, teachers of related subjects can be provided with initial education on adolescent reproductive health.

This research is a continuation of community service activities aimed at increasing teacher knowledge of the importance of RHE in schools. Previously, teachers had received four sessions of adolescent RHE (Puriastuti et al., 2025). They were provided with materials related to adolescent reproductive health and a guidebook for developing learning materials. However, there is limited empirical information on how school-based RHE influences vocational students' understanding in Indonesia. Ultimately, this study aims to evaluate students' knowledge of RHE activities provided by teachers who have previously received RHE and have been given several teaching materials on adolescent reproductive health theory.

MATERIALS AND METHODS

A. Research Design

This study employed a pre-experimental research design using a one-group pretest–posttest approach to assess students' knowledge before and after the implementation of the Penkespro Remaja program.

B. Population and Sample

This study was conducted in two public vocational high schools in Malang, Indonesia. The study population consisted of tenth-grade students enrolled in both schools. Participants were selected from classes taught by teachers who had previously received the Penkespro Remaja program. A non-probability purposive sampling technique was applied, resulting in a final sample of 139 students. This study received ethical approval from the Ethics Committee of Universitas Negeri Malang with certificate number No.02.06.13/UN32.14.2.8/LT/2025.

C. Data Collection Techniques

Data collection was conducted using a pretest–posttest procedure. At baseline, respondents completed a pretest questionnaire containing demographic characteristics and items assessing their knowledge of adolescent reproductive health. Following the pretest, teachers implemented the Penkespro Remaja program over approximately four to five instructional sessions. After completion of the educational sessions, participants were asked to complete a posttest questionnaire to measure changes in their knowledge.

D. Research Instruments

The instruments used in this study included a structured questionnaire and a teacher guidebook for adolescent reproductive health education. The questionnaire was designed to measure students' knowledge related to adolescent reproductive health. Meanwhile, the guidebook served as a reference for teachers in delivering the Penkespro Remaja educational materials during the intervention sessions.

E. Data Analysis Techniques

Data were analysed using a paired-samples t-test to determine differences in students' knowledge scores before and after the intervention. Statistical analysis was performed to assess whether the Penkespro Remaja program significantly improved students' knowledge of adolescent reproductive health.

RESULT AND DISCUSSION

A. Respondent Characteristics

The results of the respondents' characteristics analysis, as shown in Table 1, indicate that the age distribution of all respondents was 15–17 years old, as they are in grade X of a vocational high school (VHS). Meanwhile, by gender, 69.8% of respondents are female, with the majority (48.9%) from the hospitality department. The respondents live mostly in urban areas

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(68.3%), and 92.8% live with their parents. The majority of respondents (71.2%) have previously received adolescent health

promotion, and the majority (51.1%) consider that adolescent health promotion is essential for adolescents.

Table 1. Student Characteristics of Two VHS

No.	Category	School	1st VHS		2nd VHS		Recapitulation	
			f	%	f	%	f	%
1	Sex	Male	20	28.6	22	31.9	42	30.2
		Female	50	71.4	47	68.1	97	69.8
2	Major	Nursing Program	36	51.4			36	25.9
		Hospitality Program	34	48.6	34	49.3	68	48.9
		Culinary Program			35	50.7	35	25.2
3	Residence	City	54	77.1	41	59.4	95	68.3
		Suburban	5	7.1	12	17.4	17	12.3
		Village	11	15.7	16	23.2	27	19.4
4	Living with	Parents	68	97.1	61	88.4	129	92.8
		Relatives	2	2.9	7	10.1	9	6.5
		Boarding house	0		1	1.4	1	0.7
5	Received adolescent RHE promotion	Ever	62	88.6	37	53.6	99	71.2
		Never	8	11.4	32	46.4	40	28.8
6	Attitudes towards discussing adolescent RHE in schools	Very important	43	61.4	28	40.6	71	51.1
		Important	21	30.0	21	30.4	42	30.2
		Neutral	2	2.9	14	20.3	16	11.5
		Not important	2	2.9	2	2.9	4	2.9
		Very unimportant	2	2.9	4	5.8	6	4.3

Based on the respondents' characteristics, all participants were in the late middle to late adolescent stage, a crucial phase of growth and self-discovery. At this age, young people are not only going through physical changes associated with puberty but are also experiencing rapid psychosocial development as they begin to shape their personal identity and independence (Puriastuti, Dessy Amelia, et al., 2024; Soetjningsih, 2012). However, during this period, the brain, particularly the prefrontal cortex responsible for rational decision-making, is still developing (Kementerian Kesehatan RI, 2022; Puriastuti, Winny Kirana Hasanah, et al., 2024b).

This neurological immaturity often makes adolescents more prone to impulsive or risky behaviours. Without sufficient understanding of reproductive

health, they may make uninformed decisions, such as engaging in early sexual activity or entering marriage before being physically and mentally prepared (World Health Organization, 2018).

Regarding gender distribution, most respondents were female (69.8%), while 30.2% were male. Although both groups have the same right to access RHE, female students often face greater risks when reproductive health literacy is lacking. They are more vulnerable to the long-term consequences of early marriage and early childbearing, including the risk of having children who experience stunting (Ali et al., 2022; R. D. C. Dewi & Dian Kartika Sari, 2025; Rachmah et al., 2023). Therefore, empowering young women through RHE not only benefits them individually but also contributes to broader public health goals.

Students at VHS tend to have distinct characteristics compared to those in general senior high schools. Many parents hope their children can enter the workforce soon after graduation, which is reflected in the specialized majors offered at VHSs. In this study, most respondents came from the hospitality program (48.9%), followed by nursing (25.9%) and culinary arts (25.2%). Unlike nursing students, who are more likely to be exposed to health-related topics, those in hospitality and culinary programs may have limited access to information on adolescent reproductive health. For this reason, providing RHE within these departments is particularly relevant and timely.

The next aspect observed was the respondents' place of residence and whether they lived with their parents. Most respondents (68.3%) lived in urban areas, while 19.4% resided in rural regions and 12.3% in suburban settings. The environment where adolescents live can subtly shape their knowledge, attitudes, and behaviours related to reproductive health. Those living in rural communities often encounter cultural taboos surrounding discussions of sexual and reproductive health, limited access to youth-friendly health services, and fewer educational opportunities focused on these topics (Puriastuti, Winny Kirana Hasanah, et al., 2024a; Suprobo et al., 2025). As Endriani et al. (2020) and Yusuf (2022) suggest, effective interventions must therefore be sensitive to the local social and cultural context.

By contrast, adolescents in urban settings tend to be more exposed to new information and are generally more open to discussing reproductive health. Yet, this openness also comes with challenges; inaccurate or misleading information can spread easily and influence behaviour. In such cases, the presence of trusted adults, especially parents, becomes essential. Encouragingly, most respondents in this

study (92.8%) lived with their parents, offering an opportunity for families to play an active role in guiding and monitoring their children's social interactions and decision-making after receiving RHE.

In addition, when examining students' attitudes toward reproductive health programs, earlier research comparing high school and vocational high school students in Medan found that vocational students tend to have lower emotional stability, even though other characteristics were similar (Sitanggang & Saragih, 2013). This difference may help explain why a small portion of respondents in this study perceived RHE as less important or unnecessary (2.3% and 4.9%, respectively). Nonetheless, these findings highlight the importance of designing learning approaches that are engaging, supportive, and emotionally responsive to students' unique developmental needs.

B. Respondent's Knowledge Level

The results of the analysis of changes in knowledge levels are presented in Tables 2 and 3. Based on the descriptive results of changes in knowledge levels, the majority (68.3%) of respondents' knowledge had increased.

Prior to conducting statistical analysis using a paired t-test, the existing data were tested for normality with the Shapiro-Wilk test, and all data were found to be normally distributed. The results of the paired t-test on the pretest and posttest results of First VHS students showed a significant increase in knowledge, with the average score increasing from 63.57 (SD = 17.55) to 74.93 (SD = 17.52), with an average difference of 11.36 points, $t(69) = -5.62$, $p < 0.001$, $d = 0.67$.

The results of the paired t-test on the pretest and posttest results of students at Second VHS also demonstrated a significant increase in knowledge, with the average score increasing from 61.16 (SD = 15.95) to 71.30 (SD = 12.03), with an average

difference of 10.15 points, $t(68) = -4.84$, $p < 0.001$, $d = 0.58$.

Table 2. Descriptive Changes in the Level of Knowledge of Students at Two VHS

No		Increase d		Remains the Same		Decrease d	
		f	%	f	%	f	%
1	First VHS	49	70.0	10	14.3	11	15.7
2	Second VHS	46	66.7	9	13.0	14	20.3
Recapitulation		95	68.3	19	13.7	25	18.0

Table 3. Statistical Changes in the Knowledge Level of Students at Two VHS

No	Category	Me an	SD	N	t	P value
1	First VHS Pretest	63.6	17.6	70	-5.617	.000
	First VHS Posttest	74.9	17.5	70		
2	Second VHS Pretest	61.2	16	69	-4.836	.000
	Second VHS Posttest	71.3	12	69		

The results of this study indicate that adolescent RHE provided by subject teachers during science lessons, even in different schools, has significant potential to improve students' knowledge. Furthermore, teachers play a strategic role in delivering RHE because they have direct access and high levels of trust from students (Puriastuti, Hasanah, et al., 2024). Teachers' education can be tailored to local social and cultural values so that reproductive material is not considered taboo but understood as part of character and health development (Afrila et al., 2024; Wulandari et al., 2021).

By guiding open and meaningful discussions, teachers empower adolescents to understand how choices like early marriage, teenage pregnancy, or poor nutrition can affect their bodies and futures, helping them develop a sense of care and responsibility for their own health.

RHE delivered by teachers is not merely about sharing biological facts, but about nurturing students' understanding of themselves and others in a holistic way.

It represents a real and integrated effort to promote comprehensive RHE in schools. As emphasized by Safitri (2021), RHE should be continuous, credible, and capable of shaping life skills and positive attitudes among adolescents. In line with this, UNESCO (2018), through the International Technical Guidance on Sexuality Education, highlights the importance of a comprehensive, human rights-based approach that encourages students to value health, gender equality, respect, and healthy relationships.

Teachers are therefore expected to design learning experiences that go beyond textbooks – lessons that help students think critically, communicate openly, and make thoughtful, responsible choices guided by cultural and moral values. Building a Comprehensive Reproductive Health Education Framework (Aulia, 2024; TCI University, 2020) further expands this perspective by identifying seven key components of effective reproductive education, including gender awareness, HIV prevention, human rights, non-violence, diversity, and interpersonal relationships. Teachers play a vital role in ensuring that these elements are delivered proportionally and meaningfully within the classroom context.

Beyond their academic role, teachers carry a moral responsibility to present reproductive health material in ways that are age-appropriate and sensitive to students' developmental stages. They help shape values, ethics, and respect for self and others. As noted by Rosdiana and Bakhtiar (2020), sexuality education in schools should not be limited to anatomy, but should also foster character development through politeness, self-control, and awareness of social and religious boundaries. In this sense, teachers become facilitators who integrate cognitive, emotional, and behavioral learning, guiding students to internalize both knowledge and values.

Teachers stand at the forefront of this mission. They are not only educators but also role models who embody respect, empathy, and responsibility. Their example helps students form a mature and humane understanding of sexuality and reproduction (Miswanto, 2014; Utami et al., 2024). To strengthen this role, teachers need continuous support through professional training, curriculum integration, and collaboration with health professionals and communities. Such partnerships can help create a generation of young people who are not only knowledgeable about reproductive health but who also act with respect and integrity in their relationships.

However, school-based RHE cannot thrive in isolation. It requires a supportive system, policies that empower teachers, a curriculum that aligns with students' needs, and a school environment that welcomes open and respectful discussion. UNESCO (2018) advocates for an interdisciplinary approach that connects reproductive health with subjects such as biology, physical education, social studies, and religious studies. This integrated model helps students see reproductive health as part of life's broader moral, social, and spiritual dimensions. Ultimately, the success of RHE depends on the synergy between teachers, schools, and policymakers (Abdel Rahman et al., 2023).

When teachers are trusted and supported, they can deliver sensitive content with confidence and compassion. When schools foster inclusivity and provide a safe space for dialogue, students can learn not only to understand their bodies but also to respect themselves and others. Such synergy forms the foundation for a healthy, equitable, and holistic educational environment that truly nurtures human development.

This study used a pre-experimental one-group design without a control group,

which limits causal interpretation. The short intervention period and lack of follow-up also restrict conclusions about long-term impact. In addition, self-reported data may involve bias, and the findings from two vocational schools may not represent wider populations.

CONCLUSION

Integrating RHE into the vocational curriculum can enhance students' health literacy and preventive behavior. The findings revealed a clear improvement in students' knowledge after participating in learning sessions led by teachers who had previously received specialized training in reproductive health. These results highlight the essential role of teachers as educators and facilitators who help adolescents develop healthy perspectives and responsible attitudes. With supportive school policies and ongoing efforts to strengthen teachers' capacity, integrating RHE into the school curriculum becomes a meaningful step toward preventing early marriage, teenage pregnancy, and the long-term risks of stunting. To ensure sustainability, collaboration among educational institutions, healthcare professionals, and government bodies is crucial in expanding access to comprehensive RHE that nurtures well-informed, healthy, and value-driven Indonesian youth. Strengthening school-community partnerships is essential to sustain adolescent RHE.

ACKNOWLEDGMENTS

This study was supported by internal funding from the State University of Malang through the 2025 State Budget (Non-APBN). The research team extends sincere gratitude to the Institute for Research and Community Service (LPPM), State University of Malang.

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