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EMPOWERING ADOLESCENTS THROUGH BOOKLET-BASED EDUCATION TO IMPROVE KNOWLEDGE OF ADOLESCENT-FRIENDLY HEALTH SERVICES IN THE WORKING AREA OF NILAM SARI COMMUNITY HEALTH CENTER 2026

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ABSTRACT

Adolescent-Friendly Health Services (PKPR) represent a healthcare initiative designed to meet the health needs of adolescents. Preliminary survey data from the Nilam Sari Community Health Center (Puskesmas) for 2025 indicate a population of 1,282 adolescents within its service area; however, only 10 visits to PKPR services were recorded during the same period. This situation highlights the need to strengthen health promotion—specifically through the use of booklets—to enhance adolescent knowledge regarding PKPR. This study aimed to determine the impact of using booklets on increasing adolescent knowledge about PKPR at the Nilam Sari Community Health Center. A quantitative method was employed using a pre-experimental design with a one-group pretest-posttest approach. The study sample consisted of 48 respondents selected via accidental sampling. Respondents completed a knowledge questionnaire both before and after receiving the booklet. Data analysis was conducted using the Wilcoxon Signed-Rank Test with a 95% confidence level. The results showed that the mean knowledge score among adolescents was 12.71 prior to receiving the booklet and increased to 18.17 afterward. The Wilcoxon Signed-Rank Test yielded a Z-value of -6.056 and a p-value of <0.001 ($p<0.05$), indicating a significant difference in adolescent knowledge

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before and after the intervention. The study concludes that the use of booklets has a positive effect on increasing adolescent knowledge regarding PKPR. Booklets can serve as a supportive tool for health promotion and adolescent education, making information about PKPR easier to understand.

INTRODUCTION

Adolescence is a transitional period from childhood to adulthood characterized by substantial physical, psychological, cognitive, and social development, making this age group an important target for health promotion and preventive interventions. (Dick & Ferguson, 2015);(Dehne & Riedner, 2001) Adolescents may experience various health challenges, including reproductive health problems, sexually transmitted infections, anemia, smoking, substance use, and mental health concerns.(Brabin et al., 2001);(Morojele et al., 2021);(Ariani et al., 2024) These challenges highlight the importance of providing appropriate health information and accessible healthcare services that respond to adolescents' specific needs. (Dick & Ferguson, 2015);(Dehne & Riedner, 2001)/ Adolescent-Friendly Health Services, known in Indonesia as Pelayanan Kesehatan Peduli Remaja (PKPR), represent a healthcare program intended to provide services that are responsive to adolescents' health needs. The program emphasizes accessible, acceptable, comprehensive, and adolescent-oriented services while protecting privacy and confidentiality. (Pulungan & Kusumayati, 2021) PKPR activities include health education, counseling, preventive services, early identification of health problems, and referrals when further treatment is required. (Pulungan & Kusumayati, 2021);(Pulungan & Kusumayati, 2021) Providing information about these services is important because the availability of healthcare facilities does not necessarily ensure that adolescents understand or utilize the services offered. (Sukaedah & Suhartini, 2017);(Kadek Alit Arsani, 2013) Health education is one approach that can be used to improve adolescents' understanding of health-related information. (Soekidjo, 2007) Educational media can support the delivery of information by organizing messages in a form that is easier to

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understand and review. (Indrawati et al., 2023);(Arsyad, 2017) A booklet is a printed educational medium that combines written information and visual elements, allowing readers to revisit the material independently after an educational session. (Soekidjo, 2012);(Arsyad, 2017) Previous research has examined the use of booklets in health education, including studies addressing knowledge about anemia among adolescent girls and other health-related topics. (Hutasoit et al., 2023);(Musabikhah et al., 2023) These studies provide a rationale for considering booklet-based education as a supporting strategy in adolescent health promotion. At Nilam Sari Community Health Center in Bukittinggi, West Sumatra, preliminary data from 2025 recorded 1,282 adolescents in the service area, consisting of 695 males and 587 females. The same preliminary data recorded only 10 visits to PKPR services, consisting of three male visits and seven female visits. These figures indicated a substantial difference between the adolescent population and the recorded number of service visits, although visit counts alone cannot establish the reasons for low utilization. This local situation highlighted the need to strengthen health promotion efforts and improve adolescents' awareness of PKPR. Providing structured information through a booklet was selected as an educational approach because the material could cover the definition, objectives, target population, types of services, benefits, and procedures for accessing PKPR. The use of educational media is consistent with the broader role of communication, information, and education in supporting adolescent health programs. (Syesharini et al., 2020);(Pulungan & Kusumayati, 2021) Although previous studies have examined educational media and adolescent health knowledge, the present study focused specifically on the effect of booklet-based education on adolescents' knowledge of PKPR at Nilam Sari Community Health Center. The study aimed to compare knowledge scores before and after the intervention and determine whether the observed difference was statistically significant.

METHODS AND IMPLEMENTATION

his study used a quantitative pre-experimental method with a one-group pretest-posttest design. The study was conducted in the working area of Nilam Sari Community Health Center, Bukittinggi, West Sumatra, Indonesia, from April to July 2026. The study population consisted

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of adolescents living in the health center's service area. A total of 48 respondents were recruited using accidental sampling. Eligible respondents were adolescents aged 10–19 years who were willing to participate and complete the study procedures. The study instrument consisted of a knowledge questionnaire about PKPR and an educational booklet. The booklet presented information about the definition, objectives, target population, types of services, benefits, and ways to access PKPR at a community health center. A respondent-characteristics form was also used to collect information on age, sex, and educational level. Data collection was conducted in three main stages. First, respondents completed a pretest questionnaire to assess their initial knowledge of PKPR. Second, an educational session was delivered using the booklet, which was subsequently provided to respondents for reading and independent review. Third, respondents completed the same knowledge questionnaire as a posttest to measure their knowledge after the intervention. The collected questionnaires were checked for completeness, coded, entered into statistical software, and reviewed for data-entry errors. Univariate analysis was used to describe respondent characteristics and knowledge scores before and after the intervention. The Shapiro–Wilk test was used to assess normality, followed by the Wilcoxon Signed Rank Test because the knowledge-score distributions did not meet the normality criterion. Statistical significance was determined using a 95% confidence level and a significance threshold of $p < 0.05$. Ethical principles were addressed through informed consent, anonymity, confidentiality, and voluntary participation. Respondents were informed about the study procedures before agreeing to participate, and identifying information was replaced with respondent codes during data processing.

RESULTS AND DISCUSSION

Respondents Characteristik

A total of 48 adolescents participated in the study. Their characteristics were described according to age, sex, and educational background. The distribution is presented in Table 1.

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Table 1. Characteristics of Respondents

Characteristics	Category	Frequency (n)	Persentase %
Sex	Male	19	39.6%
	Female	29	60.4%
Age (Years)	10-14 Years	16	33.3%
	15-19 Years	32	66.7%
Education Level	No formal schooling	3	6.3%
	Junior High School	23	47.9%
	Senior High School/Vocational School	22	45.8%

As shown in Table 1, most respondents were aged 15–19 years, representing 66.7% of the sample. Female respondents accounted for 60.4%, while male respondents accounted for 39.6%. In terms of educational background, the largest group had completed or was associated with junior high school education (47.9%), followed by senior high school or vocational school education (45.8%). Three respondents (6.3%) were recorded as having no formal schooling. These characteristics indicate that the intervention reached adolescents with varied demographic and educational backgrounds.

Changes in Knowledge Before and After the Intervention

Table 2. Distribution of Adolescents' Knowledge Categories Before and After Booklet-Based Education

Knowlegde Category	Pretest		Postest	
	n	%	n	%
Poor	2	4.2%	0	0%
Moderate	45	93.8%	1	2.1%
Good	1	2.1%	47	97.9%

Before the intervention, most respondents had moderate knowledge of PKPR, accounting for 45 respondents (93.8%). One respondent (2.1%) had good knowledge, while two respondents (4.2%) had poor knowledge. Following the educational intervention, 47 respondents (97.9%) were classified as having good knowledge, while one respondent (2.1%) remained in the

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moderate category. No respondents were classified as having poor knowledge after the intervention.

Table 3. Descriptive Statistics of Knowledge Scores Before and After Booklet-Based Education

Measurement	Mean	Standar Devitation	Minimum	Maximum
Post-test	12.71	1.56	8	16
Pre-test	18.71	1.08	15	20

Table 3 shows that the mean knowledge score increased from 12.71 in the pretest to 18.17 in the post-test. The mean difference was 5.46 points. The pretest scores ranged from 8 to 16, with a standard deviation of 1.56. Following the intervention, post-test scores ranged from 15 to 20, with a standard deviation of 1.08.

Statistical Analysis of the Difference in Knowledge Scores

The study used the Wilcoxon Signed-Rank Test to examine differences between pretest and post-test knowledge scores. The results are presented in Table 4.

Table 4. Wilcoxon Signed-Rank Test Results

Comparison	n	Z-value	p-value
Pretest versus Postest	48	-6.056	<0.001

The Wilcoxon Signed-Rank Test showed a statistically significant difference between knowledge scores before and after booklet-based education ($Z = -6.056$; $p < 0.001$)

DISCUSSION

The principal finding of this study was the improvement in adolescents' knowledge scores following education using a PKPR booklet. The mean score increased by 5.46 points, while the proportion of respondents classified as having good knowledge increased from 2.1% to 97.9%.

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One possible explanation is that the booklet organized information about PKPR into a structured educational resource. The material covered the definition, objectives, target population, types of services, benefits, and procedures for accessing PKPR. The booklet also allowed respondents to review the information independently after the educational session. Printed educational media can support the delivery of structured information and provide learning material that readers can revisit. (Soekidjo, 2007);(Arsyad, 2017) The findings are consistent with previous research examining booklets as a medium for health education. Hutasoit et al. investigated booklet-based education to improve adolescent girls' knowledge about anemia, while Musabikhah et al. examined booklet education concerning risk factors for noncommunicable diseases among adolescents. (Hutasoit et al., 2023);(Musabikhah et al., 2023) These studies provide relevant context for the use of booklets in health promotion, although their topics and study settings differ from the present research. The findings also support the importance of communication, information, and education in adolescent health services. (Syesharini et al., 2020);(Pulungan & Kusumayati, 2021) Providing information about PKPR may help adolescents recognize the services available at community health centers and understand how those services relate to their health needs. (Pulungan & Kusumayati, 2021);(Pulungan & Kusumayati, 2021) In this study, the booklet served as a supporting medium for communicating information about PKPR rather than replacing the services provided by healthcare professionals.The results are particularly relevant to Nilam Sari Community Health Center because the preliminary data recorded 1,282 adolescents but only 10 PKPR visits during 2025. Increasing knowledge is a potentially useful component of health promotion; however, the present study did not directly measure subsequent service utilization. Therefore, the increase in knowledge should not be interpreted as proof that the intervention increased PKPR visits or changed health-related behavior. Several limitations should be considered when interpreting the findings. First, the one-group pretest-posttest design did not include a control group, so other factors may have contributed to the observed improvement. Second, the sample consisted of 48 respondents recruited through accidental sampling from one health center's service area, limiting the generalizability of the results. Third,

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posttest knowledge was measured after the intervention, so the study did not establish whether the improvement was sustained over a longer period. Finally, knowledge was measured using a questionnaire, and the results depended on respondents' understanding of the questions and the accuracy of their responses.Future studies could include a comparison group, recruit participants from multiple health centers, and conduct follow-up assessments to examine whether knowledge improvements persist. Additional research could also evaluate whether improved knowledge is associated with greater awareness, willingness to seek care, or actual utilization of PKPR services

CONCLUSION

Booklet-based education was associated with improved knowledge of Adolescent-Friendly Health Services among adolescents participating in the study at Nilam Sari Community Health Center. The mean knowledge score increased from 12.71 before the intervention to 18.17 afterward, representing an increase of 5.46 points. The Wilcoxon Signed-Rank Test demonstrated a statistically significant difference between pretest and post-test scores ($Z = -6.056$, $p < 0.001$). The findings support the use of booklets as a supplementary medium for adolescent health education. Nilam Sari Community Health Center may consider using booklet-based education alongside direct explanations from health professionals to improve adolescents' understanding of available services. Further research involving a control group and longer follow-up is needed to assess the durability of knowledge improvement and determine whether it translates into increased utilization of adolescent-friendly health services.

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