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The Influence of Digital Pocket Book Learning Media on the Knowledge and Attitudes of Students of SMAN 5 Samarinda Regarding Sexually Transmitted Infections

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Abstract: There are more than thirty different types of germs known to be transmitted through sexual contact. This research aims to determine the effect of health education through digital pocket book learning media on the knowledge and attitudes of students at SMAN 5 Samarinda towards sexually transmitted infections, using a quasi-experiment with the accidental sampling method. Respondents, selected from a total of 1068 students, numbered 92 students aged 14 to 16 years during a one-week analysis of the benefits and positive impact of digital pocket book media intervention on students knowledge and attitudes. Data analysis used validity and reliability tests on the pre-test and post-test questionnaires, followed by paired T-tests and Wilcoxon tests on the results of the influence of the digital pocket book intervention. All sexually transmitted infection questionnaires were made reliable and valid for respondents to understand. The results of the paired T-test on students knowledge showed an average increase in knowledge scores of 9.47%, with a difference in the increase in knowledge results ranging between 3.2% and 15.2% among respondents. Regarding attitudes, students obtained an average increase in positive attitude scores of 8.17%, with a difference in the increase in positive attitude results ranging from 5.4% to 11.9% among respondents. The results of the Wilcoxon test on student knowledge showed a positive influence on all respondents, with an average knowledge value resulting from the intervention amounting to 93%. Similarly, students attitudes were positively influenced by all respondents, with an average attitude value resulting from the intervention of 92%.

Keywords: Attitudes and Knowledge, Pocket Book Media, and Sexually Transmitted Infections.

1. Introduction

Based on data from the WHO in 2020, there are more than 1 million cases of sexually transmitted infections occurring worldwide every day, with the majority of these infections not showing symptoms. It is estimated that there are at least 374 million new cases of sexually transmitted infections, including chlamydia (129 million), gonorrhea (82 million), syphilis (7.1 million), and trichomoniasis (156 million) (James et al., 2020). Data from UNFPA and WHO indicate that 1 in 20 adolescents is infected with STIs each year. This suggests that the prevalence of STIs among adolescents remains high and is likely due to their lack of knowledge about STIs and their attitudes toward them. In Indonesia, the prevalence of STIs varies by region (Achdiat et al., 2019). In Indonesia, the incidence of sexually transmitted infections (STIs) continues to rise. According to the 2019 report on the development of HIV/AIDS and Sexually Transmitted

Infections (STIs), there were 2,114 reported cases of urethral discharge syndrome (UDS) and 283 cases of genital ulcers (Amelia et al., 2020). The number of reported STI cases based on laboratory examination approaches included cervicitis (42.86%), early syphilis (32.72%), gonorrhea (18.77%), late syphilis (9.2%), trichomoniasis (2.72%), genital herpes (2.54%), and non-gonococcal urethritis (0.73%). According to data from the Central Statistics Agency (BPS) of Samarinda City, there were 544 cases of HIV/AIDS in 2019, while in 2021 there were 444 cases of STIs and 191 cases of HIV/AIDS ((Kemenkes), 2022). Based on research conducted at SMAN 5 Samarinda in 2019, the findings revealed that 82.7% of students, totaling 62 respondents, engaged in mild casual sexual behaviors (holding hands, hugging, and kissing), while 17.3%, or 13 respondents, engaged in severe casual sexual behaviors (holding hands, hugging, kissing, and sexual intercourse) (Rafik, 2019). According to Kemenkes, preventive actions can be taken through several measures such as educating the community to maintain health and healthy sexual relationships, protecting the community from STIs by preventing and controlling them, and providing healthcare facilities for early diagnosis and treatment of STIs ((Kemenkes), 2021).

According to Agustina, instructional media is anything used to support the learning process aimed at facilitating students understanding (Agustina et al., 2022). Attitude is defined as the internal state of an individual that influences the choices of personal actions taken. According to Mulugeta, bloom argues that attitudes comprise three components: cognitive, affective, and conative (Mulugeta et al., 2024). Good knowledge and attitudes can be obtained by providing education through health education in the school environment. Health education aims to improve knowledge through sight and hearing (Tsuboi et al., 2021). According to Chairudin, printed media has several advantages, including; materials can be learned by students according to their needs, interests, and pace; easy to carry around so it can be studied anytime; attractive appearance complemented with pictures and colors (Chairudin & Dewi, 2021). Pocketbooks are small-sized books that can be carried in pockets and easily taken anywhere, thin in size, and contain information about a specific theme (Melyanti, 2019).

2. Materials and Methods

This research aims to determine the effect of health education through digital pocket book learning media on the knowledge and attitudes of students at SMAN 5 Samarinda towards sexually transmitted infections, using a quasi-experiment with the accidental sampling method. Respondents, selected from a total of 1068 students, numbered 92 students aged 14 to 16 years during a one-week analysis of the benefits and positive impact of digital pocket book media intervention on students knowledge and attitudes. Data analysis used validity and reliability tests on the pre-test and post-test questionnaires, followed by paired T-tests and Wilcoxon tests on the results of the influence of the digital pocket book intervention (Azeem et al., 2024). Using objective criteria of favorable and unfavorable with weighted values for knowledge statements (1-3 points for correct, unsure, or incorrect answers) and attitude statements (1-5 points for responses ranging from strongly agree to strongly disagree) as a means of determining the

categories of knowledge (good, moderate, low) and attitudes (positive, neutral, negative). All sexually transmitted infection questionnaires were made reliable and valid for respondents to understand.

3. Results and Discussion

The results are divided into two sets of data, consisting of univariate analysis of research findings and bivariate analysis of research subjects.

3.1 Univariate analysis

Table 1. Characteristics of Research Respondents

Age Characteristics	Frequency (N)	Percentage
14	1	1,08
15	66	71,74
16	25	27,18
Total	92	100
Gender		
Male	39	42,39
Female	53	57,61
Total	92	100

Based on the above table 1, the age characteristics of the research respondents range from 14 to 16 years old, with the most common age group being 15 years old, comprising a total of 66 respondents (71.74%). The second most common age group is 16 years old, with a total of 25 respondents (27.18%), while the least common age group is 14 years old, with only 1 respondent (1.08%). The distribution of respondents gender shows that the study is predominantly composed of female respondents, totaling 53 respondents (57.61%), while male respondents constitute 39 respondents (42.39%).

3.2 Bivariate analysis

3.2.1 The Result of the Questionnaire on Students Limited Knowledge of Sexually Transmitted Infections

Table 2. Results of the Questionnaire on Knowledge of Sexually Transmitted Infections (STIs) in the Moderate and Low Categories

Statement	Number of Students	The Number of Students Answering Correctly	Number of Students Providing Inaccurate Responses
Sexually transmitted diseases cannot be transmitted through direct contact and syringes.	92	16 (17,4%)	76 (82,6%)
When cutting hair at a salon, the razor used must be sterilized. If not sterilized, it will increase the risk of	92	49 (53,3%)	43 (46,7%)

HIV/AIDS.

In women, many sexually transmitted diseases often do not cause symptoms, so they are often unnoticed.

92

56 (60,9%)

36 (39,1%)

Based on the above table 2, the post-test results of the sexually transmitted infections knowledge questionnaire indicated that there were three knowledge statements that fell into the moderate and low categories, which were not well understood by the students after receiving the intervention of a digital pocketbook on sexually transmitted infections. This could be attributed to several factors such as the short duration of the intervention, concise explanations in the pocketbook, focus on personal gender-related information, and social environment.

3.2.2 Hypothesis Testing

a. Paired T-Test for Sexually Transmitted Infection Questionnaire Data

Table 3. Paired T-Test for Knowledge

<i>Model</i>	<i>Mean</i>	<i>Standard Devition</i>	<i>Standard Error Mean</i>	<i>Correlation</i>	<i>95% Confidence Interval of the Difference</i>		<i>T</i>	<i>Sig.</i>
					<i>lower</i>	<i>upper</i>		
<i>Pre-test</i>	73,02	5,178	0,540	-	-	-	-	-
<i>Post-test</i>	81,54	4,069	0,424	-	-	-	-	-
<i>Pre-test & Post-test</i>	-	-	-	0,974	-	-	-	0
<i>Pre-test – Post-test</i>	-8,522	1,530	0,159	-	-8,839	-8,205	-53,432	0

Based on Table 3 above, it can be concluded that the effect of the digital pocketbook on sexually transmitted infections on students of SMAN 5 Samarinda resulted in an increase in the mean score by 8.522, with a 95% confidence interval of the difference from 8.205 to 8.839; a decrease in the standard error of the mean by 0.159; a positive correlation value of 0.937; a calculated t-value of 53.432 > t-table value of 1.658; and a significance value of 0.000 < 0.05. Therefore, H₁ is accepted, indicating that the digital pocketbook on sexually transmitted infections has a positive and significant effect on the knowledge of students at SMAN 5 Samarinda.

Table 4. Paired T-Test for Attitudes

<i>Model</i>	<i>Mean</i>	<i>Standard Devition</i>	<i>Standard Error Mean</i>	<i>Correlation</i>	<i>95% Confidence Interval of the Difference</i>		<i>T</i>	<i>Sig.</i>
					<i>lower</i>	<i>upper</i>		
<i>Pre-test</i>	42,59	4,312	0,450	-	-	-	-	-
<i>Post-test</i>	46,67	3,368	0,351	-	-	-	-	-
<i>Pre-test & Post-test</i>	-	-	-	0,937	-	-	-	0

<i>Post-test</i>								
<i>Pre-test –</i>	-4,087	1,649	0,172	-	-4,428	-3,746	-23,779	0
<i>Post-test</i>								

Based on Table 4 above, it can be concluded that the effect of the digital pocketbook on sexually transmitted infections on students of SMAN 5 Samarinda resulted in an increase in the mean score by 4.087, with a 95% confidence interval of the difference from 3.746 to 4.428; a decrease in the standard error of the mean by 0.172; a positive correlation value of 0.937; a calculated t-value of 23.779 > t-table value of 1.658; and a significance value of 0.000 < 0.05. Therefore, H₂ is accepted, indicating that the digital pocketbook on sexually transmitted infections has a positive and significant effect on the attitudes of students at SMAN 5 Samarinda.

b. *Wilcoxon Signed-Rank Test for Sexually Transmitted Infection Questionnaire Data*

Table 5. Wilcoxon Signed-Rank Test for Knowledge

<i>Model</i>	<i>Ranks</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Z</i>	<i>Asymp. Sig. (2-tailed)</i>
<i>Post-test –</i> <i>Pre-test</i>	<i>Negative Ranks</i>	0 ^a	0	0	-	-
	<i>Positive Ranks</i>	92 ^b	46,50	4278	-8,382 ^b	0
	<i>Ties</i>	0 ^c	-	-	-	-
	Total	92				

Based on Table 5 above, it can be concluded that the effect of the digital pocketbook on sexually transmitted infections on students of SMAN 5 Samarinda resulted in all respondent outcomes falling into the positive ranks category, with an average rank of 46.50 out of a maximum score of 50. The total rank sum of all respondents is 4278. The calculated Z-value is -8.382, which is greater than the critical Z-value of -45.99, and the asymptotic significance (2-tailed) value is 0.00 < 0.05. Therefore, H₁ is accepted, indicating that the digital pocketbook on sexually transmitted infections has a positive and significant effect on the attitudes of students at SMAN 5 Samarinda.

Table 6. Wilcoxon Signed-Rank Test for Attitudes

<i>Model</i>	<i>Ranks</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Z</i>	<i>Asymp. Sig. (2-tailed)</i>
<i>Post-test –</i> <i>Pre-test</i>	<i>Negative Ranks</i>	0 ^a	0	0	-	-
	<i>Positive Ranks</i>	92 ^b	46,00	4186	-8,347 ^b	0
	<i>Ties</i>	0 ^c	-	-	-	-
	Total	92				

Based on Table 6 above, it can be concluded that the effect of the digital pocketbook on sexually transmitted infections on students of SMAN 5 Samarinda resulted in all respondent outcomes falling into the positive ranks category, with an average rank of 46.00 out of a maximum score of 50. The total rank sum of all respondents is 4186. The calculated Z-value is -8.347, which is greater than the critical Z-value of -45.99, and the asymptotic significance (2-tailed) value is 0.00 < 0.05. Therefore, H₂ is accepted, indicating that the digital pocketbook on sexually transmitted infections has a positive and significant effect on the attitudes of students at

SMAN 5 Samarinda.

3.3 Interpretation of Results

3.3.1 Overview of the Level of Knowledge Regarding Sexually Transmitted Infections

The results of this study are consistent with the research conducted by (Putri, 2020), which found differences in pre-test and post-test knowledge levels for both the experimental and control groups with pocketbook intervention, with a p-value of 0.000 (<0.05). Similarly, a study by Qurrotaini stated that there was a difference in knowledge between the intervention group after receiving the 'Healthy Teenager Me' book and accompanying process compared to the control group in understanding adolescent health, with a p-value of 0.000 (Qurrotaini et al., 2022). Additionally, the findings of Rosdiana revealed that 91.4% of respondents had good knowledge levels and 90.5% of respondents had good attitudes towards STIs (Rosdiana et al., 2022). Furthermore, a study by Taamu, reported that the majority (98.6%) had good attitudes towards STI prevention, but less than half (34.0%) had good prevention practices (Taamu et al., 2020). This study is consistent with the research of Izah, which found a significant relationship between knowledge and attitudes after intervention with pocketbook and slide share media in improving students knowledge and attitudes (Izah R.M & Aprilina, 2023). The findings of this study are also in line with the research of Larasati, where health promotion is known to have an impact on increasing knowledge about balanced nutrition in students (Larasati, 2022).

3.3.2 Overview of the Attitude Level Towards Sexually Transmitted Infections

The findings of this study are consistent with Komarudin, which showed that the attitudes of school-age children towards breakfast were mostly positive after receiving education (Komarudin et al., 2021). The positive attitudes were attributed to health education interventions. According to Resmiati, the ease of obtaining information can help accelerate one's acquisition of new knowledge (Resmiati, 2022). Meanwhile, according to Sulistri, suggestive messages carried by information, if strong enough, will provide an effective basis for evaluating something, thereby forming specific attitudes (Sulistri et al., 2020). Changes in attitudes from less favorable to favorable after education are inseparable from the process of increased knowledge. Respondents who were previously unaware became aware, then understanding led to changes in their attitudes. This is consistent with the study conducted by Ardiana, which found that respondents with good knowledge would have positive and long-lasting attitudes, but conversely, if their knowledge is lacking, their attitudes will be negative (Ardiana & Wisyastutik, 2022).

4. Conclusion

The results of the paired T-test on students knowledge showed an average increase in knowledge scores of 9.47%, with a difference in the increase in knowledge results ranging between 3.2% and 15.2% among respondents. Regarding attitudes, students obtained an average increase in positive attitude scores of 8.17%, with a difference in the increase in positive attitude results ranging from 5.4% to 11.9% among respondents. The results of the Wilcoxon test on student knowledge showed a positive influence on all respondents, with an average knowledge value resulting from the intervention amounting to 93%. Similarly, students attitudes were

positively influenced by all respondents, with an average attitude value resulting from the intervention of 92%. The provision of digital pocketbook learning media has a positive influence on the basic knowledge and positive attitudes towards sexually transmitted infections among all students of SMAN 5 Samarinda who participated in this study.

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Conflict of Interest

All Authors declare no conflict of interest and agree with the content of the manuscript.

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