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Original Research Paper

Health education affects knowledge in the management of dysmenorrhea in adolescent girls

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Abstract
Dysmenorrhea or menstrual pain is a complaint caused by a hormonal imbalance that results in the onset of pain that is most often experienced by adolescents. The management of dysmenorrhea varies, such as pharmacological and non-pharmacological management. The purpose of this study is to determine the influence of health education on dysmenorrhea management knowledge in adolescent girls at SMP Negeri 2 Godean, Sleman, Yogyakarta. The design of this study is an experimental quasy using a nonequivalent control group design approach. The respondents in this study were 44 class VII students with purposive sampling techniques. This research instrument uses a questionnaire. The analysis methods used were univariate and bivariate analysis (paired sample t-test and independent sample t-test). The results showed that in the intervention group, the average score before being given health education was 61.45 and the average value after being given health education was 89.91, while in the control group there was no increase. The results of the paired sample t-test obtained a p-value = 0.000 (<0.05) meaning that there is an influence of health education on dysmenorrhea management knowledge. The results of the independent sample t-test obtained p value = 0.000 (<0.05) meaning that there was a significant difference between the level of knowledge of female students in the intervention group and the control group. The conclusion that there is an influence of health education on the knowledge of dysmenorrhea management in adolescent girls at SMP Negeri 2 Godean, Sleman, Yogyakarta.

Keywords: adolescents; dysmenorrhea; health education; knowledge

1. Introduction

Adolescence is a stage between childhood and adulthood. Adolescence is marked by various changes, both physical and psychological (Sari et al., 2022). Dramatic changes in form and physical characteristics are closely related to the onset of puberty. The achievement of sexual maturity in adolescent girls is marked by the arrival of menstruation (Anggraeni, 2021).

Menstruation is periodic bleeding from the uterus that begins about 14 days after periodic ovulation due to the detachment of the lining *uterine endometrium*. This condition occurs because there is no fertilization of the egg by sperm, so the lining of the uterine wall (*Endometrial*) that has thickened in preparation for pregnancy to shed. If a woman does not experience pregnancy, then the menstrual cycle will occur every month. Generally, the normal menstrual cycle in women is 28-35 days (Sinaga et al., 2021). This period changes behavior from several aspects, for example, psychology, physiology and others. Physiological changes encountered during menstruation occur in the reproductive system. Changes in the reproductive system can lead to the occurrence of dysmenorrhea.

Dysmenorrhea or menstrual pain is a complaint caused by hormonal imbalance *Progesterone* in the blood so that it results in the onset of pain that is most often experienced by women (Sadiman, 2017). Dysmenorrhea is divided into primary and secondary dysmenorrhea. Primary dysmenorrhea is menstrual pain that is not based on a pathological condition, while secondary dysmenorrhea is menstrual pain that is based on a pathological condition as found *endometriosis* or ovarian cysts. Primary

dysmenorrhea is related to contractions of the uterine muscles (*myometrium*) and prostaglandin secretion, while secondary dysmenorrhea is caused by pathological problems in the pelvic cavity (Larasati & Alatas, 2016).

The cases of dysmenorrhea in the world are quite high. Based on data from WHO, there were 1,769,425 cases of dysmenorrhea or around 90% of adolescents who experienced dysmenorrhea (Manafe et al., 2021). Prevalence of occurrence dysmenorrhea In the world, it is quite large, with an average of more than 50% of women in each country. As many as 90% of adolescent girls worldwide experience problems during menstruation and more than 50% of menstruating women experience primary dysmenorrhea. In the United States, the percentage is around 60%, in Sweden it is around 72%, while in Indonesia itself it reaches 55% (Larasati & Alatas, 2016). In Yogyakarta, the prevalence of dysmenorrhea is 81% in adolescents. The highest prevalence is in primary dysmenorrhea with a percentage of 90% and 10% in secondary dysmenorrhea (Adzani, 2021).

The form of dysmenorrhea that many teenagers experience is stiffness or spasms in the lower abdomen. It feels very uncomfortable so that it causes irritability, irritability, nausea, vomiting, weight gain, flatulence, back pain, headaches, acne, tension, lethargy, and depression (Larasati & Alatas, 2016). Dysmenorrhea causes discomfort in daily physical activities. These complaints are related to repeated absences at school or at work, so they can interfere with productivity. Some psychological disorders reported that 73% felt angry, 65% depressed, 52% felt very sad, 32% felt overwhelmed, and 25% felt like hiding (Larasati & Alatas, 2016).

Management dysmenorrhea varies, such as pharmacological and non-pharmacological management. For primary dysmenorrhea, drugs that inhibit the synthesis of prostaglandins such as ibuprofen, aspirin and mefenamic acid can be given. These types of drugs are given 1-2 days before menstruation and continued until the second or third day of menstruation. Non-pharmacological management that can be done with warm compresses, exercise, reduced caffeine intake, aromatherapy *lavender* and drink herbal medicine (Anggriani et al., 2021). But there are also some people who overcome it by sleeping, some even just leave it alone (Februanti, 2017).

The government's efforts to deal with adolescent health are regulated in Law number 36 of 2009 concerning health which includes reproductive health in the sixth part of articles 71 to 77. Article 71 paragraph 3 mandates that reproductive health is carried out through promotive, preventive, curative, and rehabilitative activities. In recent years, several models of adolescent health services have begun to be implemented that meet the needs, rights and "tastes" of adolescents in several provinces, and were introduced as Adolescent Care Health Services or abbreviated as PKPR. Providing services to adolescents with this PKPR model is one of the important strategies in striving for optimal health for adolescents. This program has officially been running since 2003. At the field level, PKPR is carried out by the Puskesmas (Dinkes Kota Tanjung Balai, 2017). The role of midwives in overcoming dysmenorrhea is to provide counseling on reproductive health about how to reduce pain and perform the correct anamnesis and conduct appropriate examinations in order to overcome complaints from clients who experience dysmenorrhea.

Dysmenorrhea that occurs in adolescent girls is still quite high, but there are still few adolescent women who know information about dysmenorrhea or menstrual pain (Beverlee & Sitompul, 2022). The lack of knowledge about primary dysmenorrhea results in a lack of treatment to overcome pain. Low knowledge about primary dysmenorrhea will be negatively related to self-management, meaning that adolescent students have little knowledge about how to handle dysmenorrhea (Abazie et al., 2021). Information about dysmenorrhea or menstrual pain is very important for every adolescent girl to know, so that adolescent women can understand the treatment of dysmenorrhea (Beverlee & Sitompul, 2022).

Health education can be defined as an effort or effort to provide information to improve the ability of individuals to make decisions related to health and skills related to health aimed at individuals, groups,

and communities with the hope that people will be concerned and aware of health, both environmental health, physical health, and social health (Strisanti et al., 2022). The provision of health education about dysmenorrhea has a great influence on the knowledge of adolescent girls. The existence of health education can provide benefits in increasing insights, knowledge, and information that can increase the knowledge of adolescent girls about dysmenorrhea and its management. Given the low knowledge of adolescent girls about dysmenorrhea, the provision of health education is the right effort to increase knowledge (Saputra et al., 2021).

Based on research conducted by Marliany (2023), out of 94 respondents who had good knowledge, 81 people (82.2%) treated dysmenorrhea pain in the good category, out of 52 respondents who had enough knowledge, 46 people (88.5%) treated dysmenorrhea pain in the adequate category. Based on the results of the Rank Spearman test, a p value of 0.000< from the determined significance level of 0.05, this result shows that there is a relationship between the level of knowledge and the treatment of dysmenorrhea pain in adolescent girls at Saraswati 1 Junior High School Denpasar. This is in line with research conducted by Marliany et al. (2023) shows that, before health education (*pretest*) most or 66.7% of respondents are known to have a lack of dysmenorrhea knowledge. After receiving health education (*posttest*) most or 87.4% of respondents are known to have good knowledge of dysmenorrhea.

The results of a preliminary study carried out on January 16, 2023 at SMP Negeri 2 Godean, found that 9 female students (90%) experienced dysmenorrhea every month, when dysmenorrhea students felt pain to the lower abdomen and did not know the exact management of dysmenorrhea and 1 female student (10%) did not experience dysmenorrhea. The management used was 2 female students (22.2%) doing warm compresses, 1 female student (11.1%) drinking warm water and 6 female students (66.7%) allowing dysmenorrhea by resting and not understanding other management such as exercise, aromatherapy, reducing caffeine and drinking sour turmeric herbs.

Based on the above, the researcher is interested in conducting this research with the title "The Influence of Health Education on Dysmenorrhea Management Knowledge in Adolescent Girls at SMP Negeri 2 Godean, Sleman, Yogyakarta".

2. Research Methods

This study uses a quantitative research method, namely to determine the influence of health education on knowledge of dysmenorrhea management in adolescent girls at SMP Negeri 2 Godean, Sleman, Yogyakarta. The research design used is Quasi Experiment with the approach nonequivalent control group design, This design consists of two groups that are not randomly selected. In this design both the intervention group and the control group get pretest and posttest (Susilawati et al., 2021). Sample size is calculated using the formula Lemeshow, United States Based on the calculations, samples were obtained in the intervention group and in the control group, each totaling 22 students. This sampling technique uses Purposive Sampling Namely a technique for determining samples with certain considerations or special selection. Each respondent was given the freedom to give consent or refuse to be the subject of the study. After the respondent stated that he was willing to follow the research procedure, he was asked to sign the form Informed consent or a letter of approval that has been prepared by the researcher. In this study, the instruments used were respondent identity data sheets and closed questionnaires using a scale *Guttman.* A questionnaire is a research instrument consisting of a series of questions or other types of clues aimed at collecting information from respondents (Chandra, 2023).

The statistical test used by the researcher in this bivariate analysis uses the paired sample t-test, a test used for two paired data samples, this test is used to compare the pretest value and the posttest value of one sample. In this study, an independent sample t-test was also used. This test is used to test data

that are independent of each other, the purpose of which is to find out whether or not there is a difference between the two groups. Data collection was carried out by, before being given health education, knowledge measurement or pretest was carried out by filling out a questionnaire for 25 minutes in the intervention group and control group. Then provide health education for ±60 minutes to the intervention group. After completing the treatment in the intervention group, both groups were re-collected (posttest) using the same questionnaire for 25 minutes, the control group was given material through a softfile. The researcher obtained permission from the Ethics Commission of 'Aisyiyah University Yogyakarta that the research conducted did not harm any party, including the research respondent with the Ethical Clearance number No.2768/KEP-UNISA/IV/2023.

3. Results and Discussion

a. Presentation of Univariate Analysis Data

3.1.1. Characteristics of Respondents

The respondents taken were 44 students with 22 students given treatment (intervention group) and 22 students not given treatment (control group). The characteristics observed were age and experience in dealing with dysmenorrhea. To simplify the data analysis process, this study uses a computerized program with the results presented in Table 1:

Table 1 Distribution of Respondent Frequency in Intervention and Control Groups Based on Age and Experience in Managing Dysmenorrhea

Characteristic	Group			
	Interventions (n=22)		Control (n=22)	
	N	%	N	%
Age				
13 years	15	68,2	14	63,6
14 years	7	31,8	8	36,4
Experience in dealing with dysmenorrhea				
Rest/sleep	20	90,9	19	86,4
Warm compress	2	9,1	3	13,6

Source: Primary Data, 2023

Table 1 shows that most of the respondents in the intervention and control groups were 13 years old. Most respondents treated dysmenorrhea by resting or sleeping in the intervention group or control group.

3.1.2. Knowledge Before Providing Health Education to Adolescent Girls at SMP Negeri 2 Godean

The results of knowledge before being given health education to adolescent girls at SMP Negeri 2 Godean are presented in Table 2:

Table 2. Knowledge Distribution in Intervention Groups and Control Groups Before Health Education

Group	N	Mean	Median	Mood	Min-Max	SD
Intervention	22	61.45	62.00	62	52-71	5.369
Control	22	59.55	59.50	67	48-71	6.954

Source: Primary Data, 2023

Table 2 shows that in the intervention group, the average score before being given health education was 61.45 with a median of 62.00, the highest score was 62. In the intervention group before health education, the lowest score was 52, the highest score was 71 and the standard deviation was 5,369. Likewise, in the control group before treatment, the average score was 59.55, with a median of 59.50 and the highest score of 67. In the control group before the treatment, the lowest value was 48, the highest value was 71 with a standard deviation of 6,954.

This is in accordance with research conducted by Haerani et al. (2020), namely the majority of respondents in middle adolescents (aged 13-15 years) have less knowledge about dysmenorrhea by (78.3%). Similar research was also conducted by Marliany et al. (2023) That is, the knowledge of adolescent girls before being given dysmenorrhea health education is mostly lacking.

This is in accordance with the theory Abazie et al. (2021) that a lack of knowledge about dysmenorrhea results in a lack of treatment to manage the pain. Low knowledge about dysmenorrhea will be negatively related to self-management, meaning that adolescent students have little knowledge about how to handle dysmenorrhea.

3.1.3. Knowledge After Being Given Health Education to Adolescent Girls at SMP Negeri 2 Godean

The results of knowledge after being given health education to adolescent girls at SMP Negeri 2 Godean are presented in Table 3:

Table 3 Knowledge Distribution in Intervention Groups and Control Groups After Health Education

Group	N	Mean	Median	Mood	Min-Max	SD
Intervention	22	89.91	90.00	90	81-100	4.918
Control	22	58.23	57.00	57	48-67	5.992

Source: Primary Data, 2023

Table 3 shows that the average knowledge in the intervention group after being given health education is 89.91, the lowest score is 81 and the highest is 100. After being given health education, there was a significant increase in the intervention group, namely an increase in knowledge of 28,455 with *a p value* of 0.000 so that it can be concluded that the health education provided significantly affects the knowledge of adolescent girls in SMP Negeri 2 Godean.

The results of this study are in line with Marliany et al. (2023) Results were obtained after receiving health education (*posttest*) most or 87.4% of respondents are known to have good dysmenorrhea knowledge. There was a difference in the average value of knowledge before being given health education, which was 57.07. Meanwhile, the average score after being given health education was 87.99.

Research conducted by Husna et al. (2018) has been conducted at SMKN 1 Depok Sleman Yogyakarta showing that most of the health education before being given to the level of knowledge of female students in the poor category is as many as 20 people (66.7%). And after being given health education, the level of knowledge of respondents has increased, namely in the good category as many as 17 people (56.7%).

Health education aims to improve knowledge, attitudes and actions in maintaining and improving health (Gani et al., 2022). The purpose of health education is to increase knowledge of health issues, improve skills in health care, in order to have a good and correct healthy lifestyle and prevent diseases and have physical and spiritual health (Widiyastuti et al., 2022).

b. Presentation of Bivariate Analysis Data

The results of *the analysis of paired sample t test* knowledge in the intervention group and control group are presented in Table 4:

Table 4 Results of Paired Sample T Test Knowledge Analysis in the Intervention Group and Control Group

Group	*Pretest Mean*	*Posttest Mean*	t	*P value*
Intervention	61.45	89.91	26.187	0,000
Control	59.55	58.23	0.817	0,423

Source: Primary Data, 2023

In Table 4, it is known that there is a statistically significant increase between the mean pretest and posttest scores in the intervention group. In the intervention group, the average score before being given health education was 61.45 and the average score after being given health education was 89.91. Meanwhile, in the control group, there was no increase between the average pretest and post-test scores. In the control group, the average score of the pretest was 59.55 and the average score of the post-test was 58.23. In the control group, the probability value (p-value) was 0.423, meaning that there was no effect on the control group. Meanwhile, in the intervention group, the probability value (p-value) was 0.000 (<0.005) which means that there was an influence of health education on dysmenorrhea management knowledge.

Similar research was also conducted by Sinaga & Pranoto (2023) The results of the analysis of differences in knowledge of dysmenorrhea treatment before and after counseling conducted with the paired Samples Test at a significance level of 95% obtained a value of P = 0.000 less than 0.05 so that it can be concluded that there is a difference in knowledge before and after counseling on dysmenorrhea treatment in respondents. Another result was obtained from a comparative test to see the Influence of Health Education on Adolescent Girls' Knowledge of Dysmenorrhea in Sudirman Banyubiru Islamic Junior High School Students. It can be seen that N is the number of samples, namely 36 students and the Mean value (average value) of knowledge before being given health education is 11.17 and after being given health education the Mean value (average value) increases to 17.58. The difference after being given health education increased by 6.41. The results of the Paired T-test sig (2-tailed) p-value 0.000 p < 0.05 were obtained, it can be concluded that Ha was accepted and Ho was rejected, which means that there is a difference in the knowledge of adolescent girls before and after being given health education about dysmenorrhea to students of Sudirman Islamic Junior High School Banyubiru.

The results of the independent sample t-test analysis of knowledge in the intervention group and control group are presented in Table 5:

Table 5 Results of Independent Sample T-Test Analysis of Knowledge in the Intervention Group and Control Group

Group	N	Δ *Mean* (SD)	p-value (CI 95%)
Intervention	22	28.45 (5.096)	0.000 (19.578-25.604)
Control	22	5.86 (4.804)	

Source: Primary Data, 2023

Based on Table 4.7, it is known that the average difference in the intervention group is 28.45 with a standard deviation of 5,096, while in the control group, it is 5.86 with a standard deviation of 4,804. The probability value (p-value) was obtained at 0.000 (<0.05) with a value range of 19,578-25,604 CI 95%, so there was an average difference between the intervention group and the control group. It can

be concluded that the group that was given health education had better knowledge compared to the group that was not given health education.

This is in line with the research Kholisotin et al. (2021) obtained a Sig result of 0.001<0.05 which means that there is a significant difference in the level of knowledge of female students in the intervention group and the control group. In accordance with the theory put forward by Sinaga et al (2021) which states that health education is all activities that provide or improve knowledge, attitudes and practices of the community in maintaining and improving their health. With this health education, adolescents can gain insight and knowledge about dysmenorrhea and its management. This is in accordance with the theory Gadis et al. (2022), one of the goals of health education in schools is to increase knowledge of health issues.

From these results, it shows that health education about dysmenorrhea and its management can affect the knowledge of adolescent girls in SMP Negeri 2 Godean. Health education is carried out in the form of interactive lectures using powerpoint and the implementation of feedback or feedback in the form of questions and answers.

4. Conclusion

Based on research conducted at SMP Negeri 2 Godean on June 19, 2023, the author can draw conclusions, namely, the average knowledge in the intervention group before being given health education is 61.45, the lowest score is 52 while the highest score is 71. Meanwhile, the average knowledge after being given health education was 89.91, the lowest score was 81 and the highest score was 100. The average knowledge of the control group, the results of the pretest were obtained with an average score of 59.55, the lowest score was 48, and the highest score was 71. Meanwhile, the results of the posttest obtained an average score of 58.23, the lowest score was 48 and the highest score was 67. There was an effect of health education on dysmenorrhea management knowledge in adolescent girls at SMP Negeri 2 Godean, Sleman, Yogyakarta with a significance value of 0.000. Knowledge of dysmenorrhea management was better in the intervention group compared to the control group that was not given the intervention.

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