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HEALTH EDUCATION USING MEDIA SMART DIABETES SPINNER ON KNOWLEDGE AND ATTITUDES TO PREVENT DIABETES MELLITUS IN ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

Background: Diabetes is a disease of high blood sugar levels (Hypoglycemia) due to abnormalities ininsulin secretion. Diabetes mellitus claims millions of lives from various parts of the world because itscomplications are not treated properly. One important component to reduce the risk of complications in diabetes is prevention. One way to prevent diabetes mellitus is to use media smart diabetes spinner. This study aims to determine the effect of health education using media smart diabetes spinner on knowledge and attitudes in preventing diabetes mellitus in children at SDN 149/IV Jambi City.
Method: This type of research is quantitative with a pre-experiment research design, and a One grouppre-test and post-test research design. The sample was taken using total sampling with a total of 34 respondents. Data analysis used the Shapiro Wilk test and the Wilcoxon signed rank test because the research respondents were ≤ 50 respondents.
Result: The average score for diabetes mellitus knowledge pre-test was 4.03 and post-test 8.32 anddiabetes mellitus attitude pre-test 4.09 and post-test 8.21. The results of the study stated that there wasa difference in the increase in diabetes mellitus knowledge and attitude scores given health educationusing media smart diabetes spinner with statistical test results with a value of 0.000>05 (CI: 95%).
Conclusion: There is a difference between knowledge and attitudes for thepretest and posttest so that there is an influence of health education with media smart diabetes spinnerin preventing diabetes mellitus on the knowledge and attitudes of children at SDN 149/IV Jambi City.

Keywords: Smart Diabetes Spinner; Knowledge; Attitude

INTRODUCTION

Diabetes Mellitus (DM) is a disease characterized by high blood sugar levels due to abnormalities in insulin secretion, insulin action or both. According to the World Health Organization (WHO), 70% of deaths worldwide are caused by non-communicable diseases, including diabetes mellitus which has been linked to the behavior of the younger generation with unhealthy lifestyles (Qifti et al.,2020). Diabetes Mellitus (DM) is a series of metabolic diseases that can be characterized by hyperglycemia or sugar levels that exceed normal limits due to damage to insulin production, unethical insulin work or it can alsobe a problem with both (Putra et al, 2021. Diabetes mellitus has claimed millions of lives from various parts of the world because its complications are not treated properly. Factors associated with the risk of diabetes mellitus include age, gender, obesity, history of heart disease, hypertension, cholesterol and one of them is poor lifestyle which is the main risk factor to date (Kemenkes,2023; Putra et al, 2022, Sunanda et al., 2023).

The results of Basic Health Research (Riskesdas, 2018), show that the prevalence

of diabetes mellitus in Indonesia based on doctor's diagnosis at age ≥ 15 years is 2%. According to Indonesian Health Survey Data (SKI, 2023), The prevalence of diabetes mellitus at all ages according to Jambi province is 0.9% with 11,588 cases, the highest cases occurred in DKI Jakarta 3.1% with 33,552 cases, while the lowest cases occurred in Papua Mountains 0.2%with cases 4,563 and for Indonesia the prevalence was 1.7% with 877,531 cases. The prevalence of diabetes mellitus according to characteristics is highest at age 65-74 years, 6.7%with 44,881 cases, while the lowest is at age ≤

1 year, 0.19% with 11,518 cases. Data from theIndonesian Pediatrician Association (IDAI) states that the incidence of DM in children aged0 - 18 years has increased by 700% over a period of 10 years. The cause of type-1 DM is the interaction of many factors, including genetic predisposition, genetic environmental factors, as well as immunity and cells.

Results Riskesdas Jambi Province (2018)shows that the prevalence of diabetes mellitusbased on a doctor's diagnosis at age ≥ 15 years according to the District/City of Jambi Provinceis 2,674 sufferers (2.02%). In this case, of the 2 cities and 9 districts in Jambi Province, Jambi City has the highest prevalence of diabetes mellitus. Based on data on the 10 most common diseases at the Rawasari Community Health Center, Rawasari Village, Jambi City, in 2023, there were 2,596 Diabetes Mellitus sufferers.

According to Notoatmodjo (2012) most human knowledge is obtained through the senseof sight and information is remembered more often if they can read the information independently. Attitude is a person's reaction orresponse that is still closed to a stimulus or object (Notoatmodjo, 2012). In an effort to promote health, several methods or ways of providing information can be done, one of which is by giving interactive lectures. This is effective if accompanied by demonstrations.

For school children, playing in the classroom aims to avoid boredom and feeling sleepy during the learning process, so that the information provided will be easier for the childto accept. The game media used in the learningprocess is by combining games in it, which is expected to lead to active teaching and learning activities so that it can make learning more fun,train cooperation, increase students understanding of the material being taught, and create interest in learning (Muyaroah, 2017). One of the learning media is the Smart Diabetes Spinner Game. Smart Diabetes Spinner is an innovative game media from a spinning wheel or often known as a spinning wheel. It is hoped that with this research students can be motivated and increase students knowledge and attitudes towards preventing diabetes mellitus and can apply it in everyday life.

METHODS

This type of research is quantitative research with the pre-experiment method. The design used in this research was a one group pre-post test design, because the researchers wanted to see the effect after being given healtheducation using media smart diabetes spinner. This research design was used to test the effect of health education using media smart diabetes spinner on knowledge and attitudes among students at SDN 149/IV Jambi City. Measurement of knowledge and attitudes was carried out before being given health education (pre-test) and after being given health education(post-test).

This research was carried out at SDN 149/IV Jambi City in May 2024. The population was all students at SDN 149/IV Jambi City grades IV to V, totaling 34 students.The sample in this research is non-probability sampling with a total sampling technique whichuses the entire population as the sample.

Data processing is collected using a questionnaire, data processing will be carried

out using Editing, Coding, Transferring, Tabulating. Data analysis was carried out univariate and bivariate. The statistical test for bivariate analysis is using the Shapiro Wilk andWilcoxon tests using computer equipment at a confidence level of 95% (α = 0.05). Hypothesistesting is carried out by comparing the P-valueat the 95% confidence level with the followingcriteria; If the p value > α value then Ho fails tobe rejected. If the p value < α value then Ho fails to be rejected. Data is presented in tabularand textual form.

RESULTS AND DISCUSSION

Tabel 1. Characteristics of the research sample

Student Characteristics	n	%
Gender		
Male	17	50.0
Female	17	50.0
Age		
9 years	4	11.7
10 years	11	32.4
11 years	12	35.3
12 years	7	20.6
Class		
4	18	53.0
5	16	47.0

Tabel 2. The influence of health education using smart diabetes spinner media in increasing knowledgeand attitudes in efforts to prevent diabetes mellitus in elementary school children

Variabel	Mean ± (SD)	Median ± selisih	Min-Max	95% CI (Lower – Upper)	P
Knowledge					
Pre-test	4.03 ± 0.717	4.35 ± 0.205	3 - 6	3.78 – 4.28	0.001
Post Test	8.38 ± 0.922		7 - 10	8.06 – 8.70	
Attitudes					
Pre-test	4.09 ± 0.712	4.12 ± 0.266	3 – 6	3.84 – 4.34	0.003
Post Test	8.21 ± 0.978		6 - 10	7.86 – 8.55	

Source: Primary Data (2024)

Based on table 1, it shows that men and women have the same number of 17 respondents (50%). while the age group of mostrespondents was 11 years old, 12 years old (35.3%), then the level of most respondents was grade 4, 18 respondents (53%). The influence of health education using media smart diabetes spinner on knowledge and attitudes in efforts to prevent diabetes mellitus in children at SDN 149/IV Jambi City is presented in table 2.

These results have shown that there is an increase in knowledge and attitudes about diabetes mellitus among students. Data analysis shows that there is a difference in average knowledge (difference of 4.29) and average attitude (difference of 4.12) between before being given health education and after being given it using media smart diabetes spinner.

This study used the Shapiro Wilk data normality test because the number of respondents was less than 50 respondents. p value (significant) in the normality test using the Shapiro-Wilk test. The sig value of the pre-test and post test knowledge is 0.001, the pre- test attitude value is 0.000, and the post test attitude value is 0.003, which shows that the data for each research variable is not normally distributed because p or sig <0.05. Analysis used the Wilcoxon test with a significance level of 95% because the research variables were not normally distributed.

Then the researcher used the Willcoxon test because the data was not normally distributed. With the Sign Rank test, the value p = 0.001 ≤ 0.05 with a confidence level of 95%.The results of the Wilcoxon knowledge test data obtained from 34 respondents stated that there was no decrease in knowledge and attitudes and values were the same. between thepre-test and post-test with a p value of knowledge and attitude of 0.001, then Ho is rejected, which means there is an influence of health education using media Smart diabetes spinner on increasing knowledge about preventing diabetes mellitus in students in grades VI and V at SDN 149/IV Jambi City. 2024.

Based on the research results, it is

known that the value of diabetes mellitus knowledge in students at SDN 149/IV Jambi City pre-test 4.03 and post test 8.32 with an increase difference of 4.29 with a significance value of 0.001. From these results there are differences between the results pre-test and posttest when given, it can be concluded that there is an influence of health education with media smart diabetes spinner on increasing knowledge about diabetes mellitus in school children. In line with research (Oktorina et al., 2019), health education is the process of providing information that can improve cognitive, affective and psychomotor aspects in a better direction. Someone who has adequate knowledge about diabetes mellitus will developpositive knowledge in an effort to support healthy health.

In line with research (Fauziah et al., 2020), it shows that there was an increase in knowledge after being given health education in preventing diabetes mellitus for sufferers at the Padurenan Bekasi health center where before education it was 14.83 with standard deviation. The mean value after health education was 22.00 with standard deviation. deviation of 2,763 so that a deviation value of 2,763 is obtained so that a mean difference value is obtained before and after health education is 0.000 < 0.05.

Efforts to increase knowledge made from an early age will create habits that last until the child becomes an adult. In line with research (Oktapia et al., 2023), children find it easier to gain knowledge from what they see, experience and hear. It is also supported by the theory contained in research (Purnama J., 2013) that the methods used in health education/counseling also influence the ability to change the level of knowledge. The level of knowledge can be changed by a combination of various methods, namely lectures, presentations, brainstorming, seminars and panel discussions. Apart from that, a person's ability to absorb material is influenced by his five senses.

Based on the research results, it is known that the attitude value of diabetes mellitus in students at SDN 149/IV Jambi City pre-test 4.09 and post test 8.21 with an increasedifference of 4.12 with a significance value of 0.001. From these results there are differences between the results pre-test and post test when given, it can be concluded that there is an influence of health education with media smart diabetes spinner on improving attitudes about diabetes mellitus in school children.

Attitude is a reaction to objects and stimuli that involve the emotions in question. Attitude is a form of feeling, namely feeling supportive or partial (favourable) or feeling unfavorable (unfavourable) towards an object. Attitude is a pattern of behavior, tendency or anticipatory readiness, predisposition to adapt to social situations, or simply a response to a coordinated social simulation.

From the definition above, it can be concludedthat attitude is a person's reaction to a certain object that is positive or negative, which is usually manifested in the form of liking or disliking, agreeing or disagreeing with a particular object.

The influence of smart diabetes spinner media on students knowledge and attitudes about preventing diabetes mellitus at SDN 149/IV Jambi City

The results of statistical tests showed that differences in knowledge and attitudes showed that there was an increase in attitudes before and after. This proves that health education using media smart diabetes spinner can increase knowledge or change attitudes. In line with research (Sry Meylanda et al., 2023), providing counseling using a spinning wheel about immunization received a good response resulting in an increase in the average attitude score of respondents after being given the spinning wheel media. Providing health education assisted by spinning wheel media is a good method, because it can introduce a health message in a

pictorial medium as well asplaying. In line with research (Hidayah et al., 2021), it is stated that interventions using spinning wheel media have a higher effect on increasing students' knowledge and attitudes than leaflets. This can be explained by the fact that the increase in knowledge in the subjects ofthe wheel intervention group was higher than in the leaflet group, so that attitudes which were the effect of knowledge followed suit. The level of reasoning regarding an object in question.

Based on Edgar Dale's theory in the Cone of Experience (Dale's Cone Experince) explains that a person's learning outcomes are obtained through direct (concrete) experience, the reality found in a person's life environment,then through replicas, and even verbal symbols(abstract). The higher the top of the cone, the more abstract the equalization device becomes. Based on the following statement, it can be concluded that school children have 90% memory skills if they are given learning in the form of role playing.

Based on Skinner's theory in (Notoatmodjo, 2012), states that a more influential stimulus is needed to increase respondents' knowledge and attitudes. In this study, the bigger stimulus was the media smart diabetes spinner. The media used in health education must pay attention to characteristics and targets. Elementary school children are an age group that tends to prefer active games, so the media created must also contain elements of play so as not to cause boredom.

CONCLUSION

Based on the research results, it can be concluded that providing health education through smart diabetes spinner media has a significant effect on increasing knowledge and attitudes about diabetes mellitus in students. Thus, smart diabetes spinner media can be usedas an educational tool to improve knowledge and attitudes among students at SDN 149/IV Jambi City.

Suggestion, media smart diabetes spinner has been able to increase students' knowledge and attitudes. Thus, it is necessary to disseminate information related to DM through attractive and creative media smart diabetes spinner in schools to support the success of efforts to prevent diabetes mellitus and improve the health status of school children.

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CONFLICT OF INTEREST

The author has stated that in this article there isno or potential conflict of interest from either the author or the institution in relation to the research that has been carried out, both based on authorship and publication.

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