

## THE EFFECT OF HEALTH EDUCATION USING POWERPOINT ON KNOWLEDGE AND ATTITUDES ON DIABETES PREVENTION MELITUS AT SMP IT AL MUTHMAINNAH JAMBI CITY

Sylvya Afrinanda<sup>1\*</sup>, Ary Irfan<sup>1,2</sup>, Solihin Sayuti<sup>1,2</sup>

<sup>1</sup>Departement of Health Promotion, Politeknik Kesehatan Kementerian Kesehatan Jambi, Indonesia

<sup>2</sup>PUI-PK, Politeknik Kesehatan Kementerian Kesehatan Jambi, Indonesia

\*Corresponding author: [afrinandasylvya@gmail.com](mailto:afrinandasylvya@gmail.com)

### ABSTRACT

**Background:** Diabetes mellitus or often called DM is a group of metabolic diseases which are usually characterized by frequent urination in large amounts, drastic weight loss and hyperglycemia or sugar levels that are above normal due to damage to insulin production. One effort to reduce the prevalence and improve attitudes towards preventing diabetes mellitus is health education using PowerPoint media. The aim of this research is to determine the effect of health education using PowerPoint media to increase knowledge and attitudes towards preventing diabetes mellitus in class VII students at SMP IT AL Muthmainnah, Jambi City.

**Method:** This research is non-probability research with a one group pre test post test design using total sampling. This research was carried out at SMP IT AL Muthmainnah Jambi City. Univariate descriptive analysis includes frequency and percentage distribution, bivariate test with Shapiro-Wilk and Wilcoxon signed rank test.

**Result:** It is known that Asymp.Sig (2-tailed) has a value of 0.000. Because the value of 0.000 is smaller than  $\leq 0.05$ , there is a difference in the results of health education using powerpoint media for class VII students at SMP IT AL Muthmainnah Jambi City in the pretest and posttest.

**Conclusion:** Present the main conclusions and their implications. There is an influence of health education using PowerPoint media on knowledge and attitudes towards preventing diabetes mellitus in class VII students of SMP IT AL Muthmainnah Jambi City

**Keywords:** Health education; Powerpoint; Diabetes mellitus

### INTRODUCTION

The World Health Organization reported that 422 million people in the world suffered from diabetes mellitus in 2014, of which 1.6 million died due to diabetes mellitus. This number is predicted to increase to 642 people in 2040. Globally, the prevalence of Diabetes Mellitus in adults over 18 years of age increased from 4.7% in 1980 to 8.5% in 2014 (WHO, 2016)

Riskesdas data in 2018, there was an increase in the prevalence of DM in 17 provinces throughout Indonesia from 1.5% (2013) to 2.3% in 2018 from a total population of 250 million (Riskesdas, 2018). Based on the results of Basic Health Research

in 2018, it was reported that there was an increase in the prevalence of Diabetes Mellitus cases in residents aged  $\geq 15$  years, namely 6.9% in 2013 and 8.5% in 2018. The incidence of DM in Jambi Province in the 2007 Riskesdas was 5.2% and decreased in the 2013 Riskesdas results to 1.2% then increased to 1.4% in 2018 (Riskesdas, 2018).

Survei Kesehatan Indonesia (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 West Java at 1.7% with the most cases at 156,977 cases, while the lowest cases were in South Papua 1.1% with 1,684 cases.

Data from the Jambi City Health Service found that there were 2,725 diabetes mellitus sufferers in 2022, ranking 2nd among the 17

non-communicable diseases in Jambi City. Data from the Health Service found 5 health centers with the highest number of DM cases, namely Putri Ayu health center with 441 sufferers, Pakuan Baru health center with 355 sufferers, Rawasari health center with 334 sufferers, Kebun Handil health center with 204 sufferers and Simpang Kawat health center with 200 sufferers. Based on data obtained from the Jambi City Health Service, it is known that diabetes mellitus data shows that the number of sufferers in 2022 will reach 57.90% with a total of 12,232 people. Based on 2022 data, there were 389 cases of diabetes mellitus at the Rawasari Community Health Center and this will increase in 2023 by 44.73% with 582 cases. Based on this initial data, it can be seen that diabetes cases increase every year.

The increase in the prevalence of diabetes mellitus from children to teenagers can be caused by a lifestyle that tends to be at risk of non-communicable diseases such as daily snack habits such as frequently consuming fast food, sweet foods, sugary drinks, boba and not paying attention to diet patterns. healthy life (Putra, et al., 2021; Putra et al., 2022, Sunanda et al., 2023). Based on the description above, researchers are interested in conducting research with the title "The influence of health education using Powerpoint media to improve the knowledge and attitudes of class VII students in preventing diabetes mellitus at SMP IT AL Muthmainnah, Jambi City".

## METHODS

This type of research is quantitative with a non-probability research design with one group pre-test and post-test design without control by providing a questionnaire on knowledge and attitudes towards preventing diabetes mellitus. Sampling in this research was total sampling using the entire population as the sample. The population in this study were all students in class VII A and B of SMP

IT AL Muthmainnah, Jambi City, totaling 39 respondents. The intervention carried out was health education in preventing diabetes mellitus for class VII students at SMP IT AL Muthmainnah, Jambi City, which was implemented on Tuesday, May 21 2024 in class VII.

The independent variable in this study is the use of PowerPoint media regarding diabetes mellitus, while the dependent variable is knowledge and attitudes in preventing diabetes mellitus which has a ratio data scale. The data collection method in this research is a questionnaire which has been tested for validity and reliability at SMP 14 Jambi City on 30 students and was declared suitable for use. Data processing in this research is Editing, Coding, Scoring, Tabulating, and Cleaning.

Data analysis was carried out using Univariate Analysis and Bivariate Analysis. Univariate analysis was carried out to determine the frequency distribution of knowledge and attitudes about preventing diabetes mellitus. Bivariate analysis to determine the effect of health education using PowerPoint media to increase the knowledge and attitudes of class VII students in preventing diabetes mellitus at AL Muthmainnah IT Middle School, Jambi City. The statistical test for bivariate analysis is using the Shapiro-Wilk and Wilcoxon signed rank test using the SPSS application tool at a confidence level of 95% ( $\alpha = 0.05$ ). Hypothesis testing is carried out by comparing the P value at the 95% confidence level with the following criteria; if the distribution is normal ( $P \geq 0.05$ ) then the analysis used is Paired T - Test. If the normality test is not ( $P \leq 0.05$ ) if it is not normally distributed then the Wilcoxon test is carried out if the P-value  $P \leq 0.05$  then  $H_a$  is accepted. Data is presented in tabular and textual form.

## RESULTS AND DISCUSSION

**Table 1.** Characteristics of Respondents

Characterisrics	f	%
<b>Age (years)</b>		
12	17	43,6%
13	19	48,7%
14	2	5,1%
15	1	2,6%
<b>Gender</b>		
Male	24	61,5%
Female	15	38,5%

Based on Table 1, it is known that the respondents were 24 students (61.5%) male and 15 students (38.5%) female and respondents aged 12 years were 17 students (43.6%), respondents aged 13 were 19 (48.7%), respondents aged 14 were 2 students (5.1%), and respondents aged 15 years were 1 student (2.6%).

The results of the statistical data analysis show that there is a difference in average knowledge (difference of 2.03) and average attitude (difference of 2.09) between before being given health education and after being given health education using PowerPoint media.

**Table 2.** Knowledge and attitudes towards preventing diabetes mellitus using powerpoint

Variabel	Mean±SD	Mean Different ± SD	Min-Max	95% CI Lower-Upper	P-value
Knowledge					
Before	6.38±0.910	2.03±0,025	3-7	6.08-6.69	$P \leq 0.001$
After	8.41±0.935		6-10	8.12-8.71	
Attitude					
Before	5.54±0.718	2.09±0,038	3-6	5.29-5.78	$P \leq 0.001$
After	8.44±0.756		7-10	8.20-8.67	

The results of this study show that there is an influence of health education using PowerPoint media in preventing diabetes mellitus

Powerpoint in the world of education can be used as a medium for conveying information to students. Powerpoint can position text, graphics, video, sound and other objects on one or more individual pages called "slides" (Berkhamas Mulyadi et al., n.d.)

According to previous research conducted by Maria Resti Andriani and Wahyudi (2016) with the title "Development of integrative thematic learning media for grade 2 students at SDN Bergas Kidul 03 Semarang Regency".

The research results show that interactive PowerPoint learning media is suitable for use as an alternative learning media, because in developing this media it can make students more active, think critically, focus on the learning process and also foster a sense of enjoyment in learning (Resti Andriani et al, 2016).

Hofsterer stated, "Multimedia is the use of computers to create and combine text, graphics, audio, moving images (video and animation) by combining links and tools that enable users to navigate, interact, create and communicate." Rusman stated that multimedia PowerPoint presentations are more often used using tools in the form of multimedia Liquid Cristal Displays or what we often know as LCD (Mutaharoh, 2017)

According to Yunita, who said that using interactive multimedia by optimizing PowerPoint, the learning motivation of class IV students at SD Negeri 01 Tawangmangu has increased. Apart from that, the interactive PowerPoint media used effectively provides positive student attitudes, students become motivated, increases understanding, and also helps teachers so that students are motivated in the process of learning activities (Yunita, 2014)

In line with research by Puspita et al (2020), the results of statistical tests using the Wilcoxon test obtained a p value of 0.000 (<0.05) using a confidence level of 95%, which means that there is an influence of interactive PowerPoint learning media on the learning outcomes of class 2 students at SDN 1 Karangsoko.

According to research conducted by (Khoiron, 2014) regarding the effectiveness of health education using leaflets and PowerPoint on changes in knowledge, attitudes and behavior in early detection of cervical cancer, it shows that PowerPoint is more effective than leaflets in changing respondents' attitudes.

Attitude is not an action or activity, but is the action of a behavior. This attitude is a

readiness to react to objects in a certain environment towards an object (Edyati, 2014)

Attitude itself has levels, namely receiving, responding, valuing, and responsible. The first level of receiving is that someone receives stimulation which means they can receive the material given. Then, responding where the respondent will provide an answer when asked. Next, by valuing, someone can invite other people to work on, implement or discuss a problem. As well as being responsible, meaning someone can be responsible for the attitude they have chosen (Notoadmodjo., 2010).

## CONCLUSION

There is a difference in the average knowledge and attitudes towards preventing diabetes mellitus in class VII students of SMP IT AL Muthmainnah, Jambi City between before and after being given health education using PowerPoint media. Based on the research results, it was found to be significant in knowledge and attitudes. So it can be concluded "there is an influence of health education using PowerPoint media on knowledge and attitudes towards preventing diabetes mellitus in class VII SMP IT AL Muthmainnah Jambi City"

Thus, it is necessary to disseminate information related to the prevention of diabetes mellitus through interesting and creative health promotion methods and media in schools to support the success of prevention efforts and continue to implement prevention of diabetes mellitus by maintaining a healthy diet and lifestyle to avoid.

## ACKNOWLEDGMENT

On this occasion the researcher would like to thank the Jambi City Health Service, Rawasari Health Center officers in Jambi City, teaching staff at AL Muthmainnah IT Middle School in Jambi City, Jambi Health Polytechnic who have contributed in

providing support for this research as well as colleagues who participated and all respondents so that this research can be carried out.

## CONFLICT OF INTEREST

The author has stated that in this article there is no or potential conflict of interest from either the author or the agency in connection with the research that has been conducted, both based on authorship and publication.

## REFERENCES

- Berkhamas Mulyadi, Y., Elementary School Teacher, P., & Khatulistiwa, P. (N.D.). Development Of Interactive Cd Learning Materials Based On Power Point To Improve Students' Learning Outcomes.
- Edyati. (2014). The Influence Of Health Counseling Using Video Media On The Personal Hygiene Knowledge And Attitudes Of Students Of Primary School Negeri 1 Kepek Pengasih Kulon Progo..
- Development Policy, B., Ministry, K., & Ri, K. (N.D.). In Figures For The 2023 Ski Driving Team In Figures Ministry Of Health Of The Republic Of Indonesia.
- Khoiron, N. (2014). The Effectiveness Of Health Education Using Leaflet Media And Power Point Slide Media On Changes In Knowledge, Attitudes And Behavior In Early Detection Of Cervical Cancer In Pkk Women In The Working Area Of The Kartasura Sukohorjo Health Center.
- Riskesdas Report 2018. (2018). Ministry of Health of Republic of Indonesia.
- Mutoharoh. (2017). The Influence Of Health Education On The Level Of Knowledge About Diabetes Mellitus In Type 2 Diabetes Mellitus Patients In Ngadiwarno Village Sukorejo Kendal.

- Putra, E. S., Junita, J., & Siregar, S. (2021). Konsumsi minuman manis prediktor risiko prediabetes remaja Kota Jambi. *Riset Informasi Kesehatan*, 10(2), 89-97.
- Putra, E. S., & Junita, J. (2022). Rasio lingkaran pinggang tinggi badan dan aktivitas fisik sebagai risiko prediabetes remaja Kota Jambi. *Riset Informasi Kesehatan*, 11(1), 45-53.
- Sunanda, E., Sofiyetti, S., & Muhaimin, A. (2023). Jenis dan Asupan Advanced Glycation EProducts (AGEs) dengan Obesitas Abdominal pada Remaja di Kota Jambi. *Pontianak Nutrition Journal (PNJ)*, 6(2).
- Resti Andriani, M., & Primary School Teacher Education Studies -Fkip Satya Wacana Christian University Salatiga, P. (N.D.). Development Of Interactive Power Point Learning Media Through A Scientific Approach For Integrative Thematic Learning For Class 2 Students Of Sdn Bergas Kidul 03 Semarang District.
- Who. (2016). *Global Report On Diabetes*.
- Yunita, C. (2014). Abstract Increasing Motivation For Learning Science Through The Implementation Of Interactive Multimedia By Optimizing Microsoft Powerpoint Media In Class Iv Students Of State 01 Tawamangu Primary School Year 2013/2014.