

Implementation of *SINERGIS* disc to increase knowledge of *PROLANIS* member in monitoring diabetes mellitus independently during COVID-19 pandemic

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Informasi artikel		ABSTRACT
Article History:		Diabetes mellitus is a disease of blood sugar, protein, and fat metabolism
Accepted	: Feb 2 nd , 2022	disorders which is often referred to as "The Silent Killer" which means it
Revised	: March 29 th , 2022	works like termites, and slowly but damages vital organs. Community
Published	: March 30 th , 2022	empowerment needs to be done considering the tendency to increase the
Revised : March 29 th , 2022 Published : March 30 th , 2022 Keyword: Community empowerment; diabetes mellitus; knowledge; SINERGIS		incidence and prevalence of diabetes mellitus around the world. This study aims to see the effect of the Diabetes Mellitus Integrated Monitoring System (<i>Sistem Monitoring Terintegrasi Kencing Manis</i> / SINERGIS) program on the level of knowledge in people with type 2 diabetes mellitus at Seyegan Public Health Center (PHC). This study used a randomized pretest-posttest control group design. The sample in this study was 40 respondents who were selected with the purposive sampling technique. The research took place at the Seyegan PHC, Sleman, Yogyakarta Special Region. The instrument used was the DKQ-24 (Diabetes Knowledge Questionnaire) questionnaire with 24 question items. The test was a paired t-test. There is a significant difference in the mean value of knowledge between the pretest (14.21) and posttest (19.84) with a difference of 5.63 with the statistical test results of p-value = 0.001 (p <0.05). From this research, it can be concluded that there is an effect of health education on diabetes mellitus using SINERGIS discs on the knowledge level of diabetes mellitus patients.
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Introduction

According to the International Diabetes Federation, there were 10.3 million people with diabetes mellitus in Indonesia, with this data placing Indonesia in 6th place with the most DM sufferers in the world(1) This figure is expected to continue to increase from 2045 to 16, 7 million people with DM in Indonesia(2). Diabetes is often referred to as "The Silent Killer", like termites, works quietly and slowly but damages vital organs with varying signs and symptoms(3). Diabetes is also often called "The Great Imitator" and became "The Mother of all The Diseases"(4). The Health Research and Development Agency of the Ministry of Health 2014 explained that Diabetes Mellitus and its complications are the seventh deadliest disease in the world as well as the third deadliest disease in Indonesia, namely 6.7% with 2786 deaths(5). Diabetes mellitus not only causes losses in the health sector but also has an impact on the economic sector(6). This is to the 2015 IDF data which explains that the continuing increase in the number of diabetics causes 12% of the world's health expenditure or around 727 billion USD to be allocated to deal with the problem. diabetes mellitus(2).





BY SA

The Minister of Health of the Republic of Indonesia for the 2014-2019 period, Nila F Moeloek, when opening the Health Economic Association congress in 2014 stated that in Indonesia, Diabetic Mellitus is in the fourth position as a disease with the highest number of cases, namely 70,584 cases and second place as a disease with hospitalization costs. highest hospitalization or equivalent to 313.64 billion rupiahs(1). Community empowerment needs to be done considering the increasing trend in the incidence and prevalence of diabetes mellitus worldwide(7).

Community empowerment activities under the name "SINERGIS" (Integrated Diabetes Monitoring System) constitute health education in the context of carrying out integrated promotive and preventive efforts. This system can be widely implemented in communities and families regardless of certain age restrictions. Through this activity, it is hoped that it can increase the knowledge and skills of the community in caring for themselves, their families, and their communities related to diabetes mellitus care management. Based on the results of research by Qothrunnadaa (2018) there is a significant difference in dietary knowledge of patients with type 2 diabetes mellitus before and after counseling using the media of diabetic discs(8).

Method

This type of research is a Quasi-experimental design with a randomized pretest-posttest control group design(9). This study compares two experimental groups and a control group(10). The experimental group will receive treatment through the SINERGIC program which consists of counseling and skills practice using Sinergis Discs, while the control group will get treatment with Health Education using PowerPoint media. The inclusion criteria of this study were members of the Chronic Disease Management Program at Seyegan Health Center who had a history of Diabetes Mellitus. The sampling technique in this study was purposive sampling with a sample of 40 people. The independent variable in this study was the synergistic disc media and the dependent variable was the knowledge of the prolanis group members regarding diabetes mellitus. The instrument in this study used a Diabetes Knowledge Questionnaire 24 (DKQ24). Data analysis in this study used the paired t-test to know the differences in knowledge of the control and intervention groups after intervention(11). Below is the "SINERGIS" diabetic disc:



Figure 1. "SINERGIS" disc

Results and Discussion

Research on "Implementation of *Sinergis* Diabetes Discs Health Education Media in the Diabetes Mellitus Integrated Monitoring System (*SINERGIS*) as a Tool to Increase Knowledge of Seyegan PHC *Prolanis* Members in Monitoring Diabetes Mellitus Independently" used a quasi-experimental with pretest and posttest design where respondents are included are those who meet the criteria according to the variable under study¹¹. This research was conducted on July 12, 2020, with a random sampling by dividing the respondents into two groups. The intervention group is treated using *sinergis* diabetes discs as health education media while the control group will only get lecture material with PowerPoint media as health education as is commonly used in *Prolanis*. After data processing and analysis are carried out by the objectives the research results can be presented as follows: Table 1. Characteristics of respondents based on age, gender, level of education, length of

diagnosis of diabetes mellitus, occupation, family history of diabetes mellitus, and recent diabetes mellitus health education

	Control Group		Intervention Group		Amount	
Variable –	(n)	(%)	(n)	(%)	(n)	(%)
Age						
Middle adult	13	48.14	14	51.86	27	100
Elderly people	7	53.84	6	46.16	13	100
Gender						
Male	6	35.29	11	64.71	17	100
Female	14	60.86	9	39.14	23	100
Level of Education						
Primary education	8	50.00	8	50.00	16	100
Middle school	12	54.54	10	45.46	22	100
Profession						
Housewife	9	47.36	10	52.39	19	100
Retired	1	100.00	0	00.00	1	100
Farmer	2	40.00	3	60.00	5	100
Entrepreneur	6	75.00	2	25.00	8	100
Does not work	0	00.00	2	100.00	2	100
Labor	2	50.00	2	50.00	4	100
Teacher	1	100.00	0	00.00	1	100
Family medical history related	to diabet	es mellitus				
There is a family medical history related to diabetes mellitus	10	47.61	11	52.39	21	100
There is no family medical history related to diabetes mellitus	10	52.63	9	47.37	19	100
Recent diabetes mellitus health	educatio	n				
>1 month	2	50.00	2	50.00	4	100
1 – 6 month	14	46.66	16	53.34	30	100
< 6 month	3	50.00	3	50.00	6	100

Table 1 shows that the respondents in this study have different characteristics in terms of age, gender, level of education, length of diagnosis of diabetes mellitus, occupation, family history of diabetes mellitus, and recent diabetes mellitus health education. The results of this study in the form of the frequency distribution of respondents based on the demographic characteristics of the respondents. Based on age, the data shows that respondents are calcified into two groups of age, namely 27 middle adults (67.5%) and 13 elderly people (32.5%).

The distribution of respondents based on gender shows that the frequency of females is 23 people (57.5%) which is more than men, namely 17 people (42.5%). The education level of the respondents shows that 16 people have primary education (40%) and 22 people from middle education (60%). Respondents' professions are diverse, consisting of housewives, namely 19 people (47.5%), farmers which are 5 people (12.5%), entrepreneurs which are 8 people (20%), retired which are 1 person (2.5%) teachers which are 1 person (2.5%), labor which are 4 people (10%) and 2 people do not work (5%). In this study, respondents who had a family medical history related to diabetes mellitus are 21 people (52.5%), and those who did not have a family medical history related to diabetes mellitus have a lower frequency, namely 19 people (47.5%).

All respondents in this study had received health education about diabetes mellitus, it was found that the respondents who received the recent diabetes mellitus health education > 1 month were 4 people (10%), 1 - 6 months were 30 people (75.5%) and <6 months were 6 people (14.5%).

Table 2. The average length of time diagnosed with diabetes mellitus					
	Average (years)	Standard Deviation			
Length of time diagnosed with diabetes mellitus	3,8	2,9			

The length of time diagnosed with diabetes mellitus can be seen in Table 2, that the average length of time the respondent who was diagnosed with diabetes mellitus was 3.8 years, with a standard deviation of 2.63. The shortest duration was 1 year and the longest was 12 years.

Table 3. Frequency distribution of respondents in the control group and intervention before health education interventions

Level of	Control Group		Intervention Gr	oup
knowledge	Frequency	Percentage	Frequency	Percentage
14101110460	(n)	(%)	(n)	(%)
Low	10	50	9	45
Moderate	7	35	10	50
High	3	15	1	5
Total	20	100	20	100

Table 3 shows an overview of the control group's knowledge before being given health education intervention which is lecture material with PowerPoint media as health education as is commonly used in *Prolanis*, the respondents' knowledge was categorized into 3 categories, namely low, medium and high. Of 20 respondents, 10 people (50%) have a low knowledge level and 7 people (35%) have a moderate knowledge level and 3 people (15%) have a high knowledge level about diabetes mellitus. The intervention group's knowledge before being given health education intervention using *sinergis* diabetes discs as health education media, the respondents' knowledge are classified into 3 categories, namely low, medium, and high. Of 20 respondents, 9 people (45%) of them have a low knowledge level about diabetes mellitus and 10 people (50%) of them have a moderate knowledge level and 1 (5%) of them have a high knowledge level.

Lovel of	Control Group		Intervention G	roup
knowledge	Frequency	Percentage	Frequency	Percentage
Kilowledge	(n)	(%)	(n)	(%)
Low	8	40	2	10
Moderate	8	40	4	20
High	4	20	14	70
Total	20	100	20	100

Table 4. Frequency distribution of respondents in the control group and intervention group after health education interventions

Table 4 shows an overview of the control group's knowledge after being given health education intervention which is lecture material with PowerPoint media as health education as is commonly used in *Prolanis*, the respondents' knowledge was categorized into 3 categories, namely low, medium and high. Of 20 respondents, 8 people (40%) had a low knowledge level and 8 people (40%) had a moderate knowledge level, and 4 people (20%) about diabetes mellitus level. The intervention group's knowledge after being given health education intervention using *sinergis* diabetes discs as health education media, the respondents' knowledge is classified into 3 categories, namely low, medium, and high. Of 20 respondents, 2 people (10%) of them have a low knowledge level about diabetes mellitus and 4 people (20%) of them have a moderate knowledge level and 14 (70%) of them have a high knowledge level.

Table.5 Normality of data in the control group and the intervention group

	Pretest		Posttest	
	α	P value	α	P value
Control Group	0.05	0,975	0.05	0,971
Intervention Group	0.05	0,956	0.05	0,914

Before the data is further analyzed, each data has been carried out a normality test to determine the distribution of the data, and then it will be used to select the appropriate test. The parameter used to see the distribution of analytic data in this study is the Shapiro-Wilk parameter because the number of respondents is less than 30 people in each group. The pretest value data in the intervention group were normally distributed with a P-value = 0.956 (α = 0.05) as well as the posttest value data for the intervention group were normally distributed with a P-value = 0.914 (α = 0.05). The data on the pretest value in the control group were normally distributed with a value of P = 0.975 (α = 0.05) as well as the data on the post-test value for the control group with a value of P = 0.971 (α = 0.05). Because all the data to be analyzed are normally distributed, the paired t-test is used in the bivariate test.

Respondents in this study were Type 2 diabetes mellitus sufferers at the Seyegan Health Center Prolanis and no inclusion criteria were limiting certain factors, therefore the researcher conducted a homogeneity test aimed at seeing the homogeneity of research respondents. The homogeneity test is done by comparing knowledge with factors related to knowledge using the One Way Anova test.

Paired T-test is a bivariate test to see the difference in the mean of two paired data. The difference in the mean of the two paired data from the paired T-test will be used to see the effect of an intervention. In this study, the objective of the paired T-test is to determine the effect of health education with *sinergis* disc health education media on knowledge of diabetes mellitus.

interventions in the control group and intervention group					
	Average	Standard Deviation	Difference	Standard Deviation	p-value
Control Group	р				
Pretest score	14,63	12,8			
Posttest score	13,94	8,4	0,69	4,4	< 0,0001
Intervension	Group				
Pretest score	14,21	3,95			
Posttest score	19,84	14,21	5,63	10,15	< 0,0001

Table 6. The results of the comparison of the mean values before and after health	education
interventions in the control group and intervention group	

In the table, the P-value <0.05 and the difference in knowledge (difference) is smaller than two, so statistically, it can be interpreted that there is no significant difference in the mean knowledge between before and after health education using lecture material with PowerPoint media as health education as is commonly used in *Prolanis*.

In the table, the P-value <0.05 and the difference in knowledge (difference) is greater than two, so statistically it can be interpreted that there is a significant difference in the mean knowledge between before and after health education using *sinergis* discs in the intervention group. *Sinergis* discs intervention given to the proven intervention group can improve the level of knowledge about diabetes mellitus significantly. Based on the results of research by Rooiqoh (2018) there is a significant difference in dietary knowledge of patients with type 2 diabetes mellitus before and after counseling using the media of "diabetic discs. The following is photo documentation during the activity using the "SINERGIS" diabetes disc:



Figure. 2 Use of "SINERGIS" diabetic disc

Conclusion

From this research, it can be concluded that there is a positive and strong correlation between health education on diabetes mellitus using Sinergis discs towards the knowledge level of diabetes mellitus patients.

Conduct research on the effect of health education that is appropriate for the population with each specific characteristic that is owned so that it can be maximally accepted by research respondents who have different characteristics. Health education using the

Sinergis disc media can be applied in various government programs to improve the health status of the community through integrated disease service posts (*pos binaan terpadu*/*POSBINDU*) and Chronic Disease Management Program (*Program Pengelolaan Penyakit Kronis*). Increasing health public knowledge will increase awareness of healthy living.

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