

THE CORRELATION BETWEEN WHATSAPP SOCIAL MEDIA NOTIFICATION TO THE RESULTS OF FASTING BLOOD SUGAR LEVEL CONTROL ON THE PARTICIPANTS OF PROLANIS DIABETES MELLITUS PROGRAM AT GRAHA CITRA HUSADA CLINIC

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Abstract

Diabetes mellitus is a degenerative disease that is often found in the practice of primary care, where cases are increasing. Lack of patient knowledge about pathophysiology, complications and management of cases of diabetes mellitus, thus making this case increase over time, as well as complications due to uncontrolled diabetes mellitus. Research Design is Quasi-Experimental with Pretest-Posttest one group design, which aims to examine the relationship between two variables, namely whatsapp social media notifications on fasting blood sugar control results. The results of the research on 46 subjects after the exclusion, 56.52% of subjects aged > 65 years (seniors), 56.52% female-type respondents, 50% high school educated, and 60.87% were retired. From sufficient test results about compliance relationship implementing the management on Whatsapp notification with fasting blood sugar level 7 days after notification using Chi-Square test obtained value P 0895. Based on this it can be concluded that there is no significant relationship between Whatsapp social media notifications on the 7th day fasting blood sugar level after notification. So to change behavior to be good behavior takes longer time and more intense counseling.

Keywords: diabetes mellitus type 2; fasting blood sugar; whatsapp social media notification,

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Introduction

The chronic disease management program (Prolanis) is one of the leading programs implemented by the Health Insurance Management Agency (BPJS) since its established. Prolanis uses a proactive evaluation that is implemented sponsored by participating participants, primary health facilities and health BPJS (Sitompul, Suryawati, & Wigati, 2016). This program is an effort to control the progression of diseases and complicated complications in primary services in order to obtain optimal quality of life with savings and efficiency. Indicators determined by the Health BPJS are

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75% of participants visiting primary health facilities have good results on specific examinations of type 2 diabetes mellitus (T2DM) and hypertension according to clinical guidelines established by professional organizations (Sitompul, Suryawati, & Wigati, 2016).

Diabetes mellitus T2DM disease is one of the problems of health programs in Indonesia. Data from the International Diabetes Federation shows that T2DM sufferers in 2011 had reached 266 million sufferers, with a prediction that it would increase to 552 million by 2030. The household's healthiness survey (SKRT) and Riskedas 2007 shows that non-communicable diseases like T2DM is the main death in Indonesia, proven in 2007 contributed 59.5% of the causes of death in Indonesia. Case prevalence continues to increase, there were 41.7% in 1995, 49.9% in 2001 and 59.5% in 2007 (Balitbang Kemenkes, 2013).

The target coverage of non-communicable disease participants for T2DM in 2019 in West Jakarta was 66,422 participants, while the results of the coverage of T2DM participant coverage until the third quarter of 2019 reached only 26,874, with a glycemic control target of .838 participants. T2DM is very closely related to lifestyle such as lack of movement, unbalanced diet, stress, alcohol consumption and smoking. Therefore the successful management of T2DM diabetes mellitus must be followed by the active role of people with diabetes mellitus by adhering to the four pillars of T2DM therapy namely health education, medical nutrition therapy, physical activity, medication adherence (Perkeni, 2011a).

Metabolic disorders that occur in T2DM will increase the risk of serious complications and reduce quality of life, productivity, and dependence on the environment. This will have a negative impact and a significant economic burden. Therefore a policy from the Government is needed to control this. The 4 pillar approach to T2DM therapy is education, diet, exercise, and medicine through lifestyle improvement (Sitompul et al., 2016); (Perkeni, 2011a).

Education or workshop in general is any planned effort to influence other people, whether individuals, groups or communities so that they do what is expected (Ragil Setyobudi S.KM, 2007). The research of Kirthishanti et al in Surabaya shows the dependency between educational program and the decrease in abdominal circumference for T2DM patients (Kirtishanti et al., 2013). The research of Rahayu et al in Makassar showed that there was an influence of nutrition education on knowledge, attitudes and blood sugar levels in T2DM patients in Makassar.

Medical nutrition therapy as recommended by the PERKENI Consensus with 45-65% carbohydrate composition, 10-20% protein, 20-25% fat, and at least 25 g / day of fiber. The research of Susanti et al Surabaya stated that there is a relationship between diet and blood sugar levels of T2DM patients pasien (Selfi, Simbolon, & Kusdalinah, 2018).

Physical activities are all forms of structured and planned activities with the aim of increasing physical fitness. In people with T2DM, regular exercise can help control blood sugar, maintain or lose weight, and increase glucose by the muscles.

Recommendations for physical activity for people with T2DM are 3 to 5 times a week for 30 to 50 minutes such as walking, jogging, relaxing bicycles, swimming. The results of the study of Sipayung et al in North Sumatra, showed a relationship between physical activity and the incidence of T2DM (Kurniawan & Wuryaningsih, 2016); (Sinaga, 2016).

Pharmacological therapy, is the provision of pharmaceutical preparations in the form of oral preparations or injections where compliance in this case will affect the treatment process (Perkeni, 2011a).

Currently the development of technology has been used in almost all fields, health is one that utilizes the development of this technology in order to support success in treatment. One simple technology that is utilized in the health sector is smartphone technology, such as the Whatsapp social media application. The use of smart phones by the public is a natural thing because currently the price of a smartphone is no longer too expensive and the application is very easy to use (Sugiyono, 2017).

Graha Citra Husada Clinic is a primary health facility that serves BPJS Health participants in West Jakarta since 2014, and has also been carry out Prolanis activities since the beginning to join BPJS Health. At present the clinic has managed 134 people with chronic diseases consisting of T2DM, hypertension or both. The prolanis club in this clinic is the club with the most participants in the BPJS Health area of the West Jakarta branch office. To communicate with participants, Graha Citra Husada Clinic utilizes the Whatsapp social media application. Where the prolanist activities carried out routinely every month one meeting between the first or second week. This activity consists of: 1) Pre-implementation, conducted a reminder to participants by telephone and whatsapp group. 2) Implementation is carried out activities: health consultation, group counseling, gymnastics, blood pressure checks, examination of fasting blood sugar levels and 2 hours post prandial, examination of HBA1C and blood chemistry (twice a year), as well as providing a referral drug for a month. Prolanis is routinely held every month and is attended by almost 75% of participants but the results of fasting blood sugar control are still below the target. This study aims to develop a follow-up method to develop counseling and prevention efforts by using Whatsapp social media notifications that are already available and easily accessible to members of the Graha Citra Husada Prolanis Clinic. The method to be developed reminds participants to always be aware and willing to carry out physical activities, healthy lifestyles, healthy eating patterns, and taking medication regularly and according to the recommendations. This Whatsapp social media notification, easy to follow, can be carried out and if it is consistently done it is hoped that this method can improve the fasting blood sugar levels of prolanis participants, so as to improve the quality of life and prevent further complications komplikasi (Sitompul et al., 2016); (Perkeni, 2011b); (Kemenkes R.I, 2014).

Method

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The study design was quantitative with an experimental approach with "pretest-posttest one group design", with the inclusion criteria being T2DM sufferers registered as prolanis participants at Graha Citra Husada clinic, able to read and write, and willing to become subjects. Exclusion criteria were DMT2 sufferers with dementia, unable to read and write, not willing to be the subject, not responding back to social media notifications for 7 consecutive days. The number of subjects is calculated by the Slovin formula, obtained 64 of 75 total population. Whatsapp Social Media Notification is the independent variable while the fasting blood sugar level is the dependent variable. The total number included in the criteria was 46 subjects.

The study was conducted at the Graha Citra Husada Clinic, Tegal Alur Sub-District, Kalideres Sub-District, West Jakarta, in February 2020. The collection of anthropometric data was carried out by measuring body weight, height and body mass index (BMI) calculation. Measuring fasting blood sugar levels using a glucometer with capillary blood specimens carried out before the intervention and every day. Subjects were sent whatsapp notifications about medical nutrition therapy management, physical activity, and pharmacological therapy through the Graha Citra Husada clinical prosis group on smartphone. The subject's answers are then recorded and analyzed.

Subjects adhere to medical nutritional therapy if eating at least 2 times per day, the type and amount as recommended, when implementing a minimum of 2 of the 3 recommendations in the notification, and not compliant when implementing less than these criteria.

Chi Square test was performed to analyze the relationship between the independent and dependent variables with a confidence level of 90% and a significance level of less than ≤ 0.10 .

Results and Discussions

A. Result

Data collection obtained 64 initial subjects, but subjects with complete variables obtained 46 subjects that can be analyzed further, and done at least 4 days per week, and not compliant if it does not run according to the above criteria.

Table 1 shows that most of the subjects were in the elderly group (56.52%), and the majority of the subjects were 26 female subjects (56.52%).

Table 1
General Characteristics

Karakteristik	Frekuensi n(%)
Umur:	
Lansia Awal (46 – 55 th)	3(6,52)
Lansia Akhir (56 – 65 h)	17(36,96)
Manual (> 65 th)	26(56,52)
Jenis Kelamin	
Pria	20(43,48)
Wanita	26(56,52)

Pendidikan	
SD	10(21,74)
SMP	7(15,22)
SMA	23(50,00)
S 1	6(13,04)
Pekerjaan	
IRT	15(32,61)
PNS	3(6,52)
Pensiunan	28(60,87)

Subjects adhere to physical activities as recommended when doing at least 3 times a week, a minimum time of 30 minutes per time, and moderate moderate exercise intensity such as walking, cycling, swimming, and muscular exercise, and not complying if they do not meet the above criteria. Subjects adhere to pharmacological therapy if they adhere to drug recommendations and dosages, and non-adherents do not comply with drug recommendations and dosages according to doctor's recommendations. Subjects adhere to the recommended procedures for noto.

Table 2 shows the compliance characteristics. There were 71.74%, subjects who did not adhere to the management of medical nutrition therapy, 56.52% did not adhere to the management of physical activity, and 93.48% were adherent to the management of pharmacological therapy.

Table 2
Univariate Table About Compliance in implementing Medical Nutrition Therapy Management, Physical Activity Management, Pharmacological Therapy

PARAMETER UNIVARIAT	Management		TOTAL (%)
	DISOBEDIENT (%)	OBEDIENT (%)	
Management of Medical Nutrition Therapy	33 (71,74%)	13 (28,26%)	46 (100%)
Management of Physical Activity	26 (56,52%)	20 (43,48%)	46 (100%)
Pharmacological Therapy Management	3 (6,52%)	43 (93,48%)	46 (100%)

Table 3 shows the distribution of blood sugar levels where before the intervention there were 56.52% with uncontrolled fasting blood sugar, and after the intervention of 45.65% with uncontrolled blood sugar levels. Table 4 shows that 60.87% of subjects did not comply with the procedures in the notification.

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Tabel 3
Tables of Fasting Blood Sugar Levels Before Notification and Day 7 After Notification

FASTING BLOOD SUGAR	FASTING BLOOD SUGAR		TOTAL	P value
	BEFORE NOTIFICATION	DAY 7 AFTER NOTIFICATION		
UNCONTROLLED	26 (56,52 %)	21 (45,65 %)		
CONTROLLED	20 (43,48 %)	25 (54,35 %)		
Total	46 (100 %)	46 (100 %)		
FASTING BLOOD SUGAR DAY 7 AFTER NOTIFICATION	NOTIFICATION COMPLIANCE		TOTAL	P value
	Disobedient	OBEDIENT		
UNCONTROLLED	8	13	21	0,895*
CONTROLLED	10	15	25	
TOTAL	18	28	46	
FASTING BLOOD SUGAR DAY 7 AFTER NOTIFICATION	PROCEDURES FOR MEDICAL NUTRITION THERAPY		TOTAL	P value
	UNCONTROLLED	14		
CONTROLLED	19	6	25	0,484*
TOTAL	33	13	46	
FASTING BLOOD SUGAR DAY 7 AFTER NOTIFICATION	PHYSICAL ACTIVITIES PROCEDURES		TOTAL	
	UNCONTROLLED	12		9
CONTROLLED	14	11	25	0,938*
TOTAL	26	20	46	

Tabel 4
Compliance Tables Implement Whatsapp Notification Management
Compliance Carry Out Notifications

	Frequency (%)
Disobedient	28 (60,87 %)
Obedient	18 (39,13 %)
Total	46 (100%)

The relationship between adherence to the notification of treatment management with blood sugar levels before and after the intervention was analyzed with the Chi Square test and the results are presented in table 5. The results of the analysis showed no correlation between notification and blood sugar levels (p: 0.895). The relationship between compliance with medical nutrition management with blood sugar levels showed no significant results (p: 0.484). Analysis of the relationship between blood sugar levels with adherence to physical activity showed no significant relationship (p: 0.938). Analysis of the relationship between blood sugar levels and the management of pharmacological therapy cannot be assessed because the distribution of variables does not meet the test criteria.

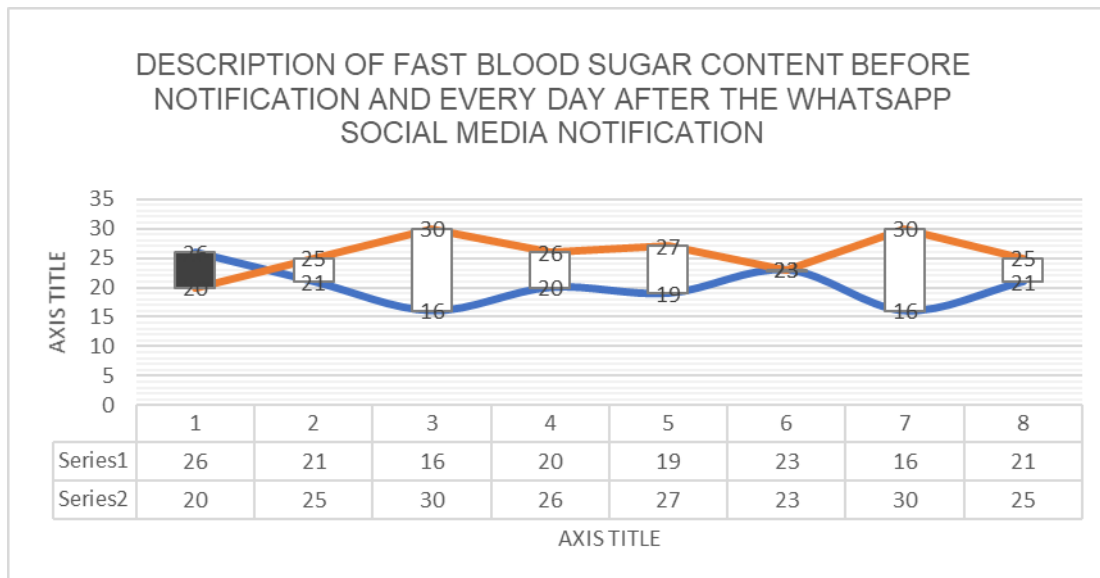


Figure 1
Series 1 Uncontrolled Blood Sugar Levels and Series 2 Controlled Blood Sugar Levels

Figure 1 shows the fluctuations in blood sugar levels every day after notification there was a tendency to decrease from before notification (43.48%) of subjects with controlled fasting blood sugar levels.

B. Discussion

Characteristics of the study subjects showed the greatest tendency in elderly subjects (> 65 years) of 26 subjects according to conditions where with increasing age, peripheral cells' sensitivity to insulin would decrease, called insulin resistance.

There is no relationship between compliance with whatsapp notification management with the results of fasting blood sugar control, Analysis in the field found Lack of understanding of the subject about the content and content of whatsapp notifications, and more relevant supervision is needed, the implementation of management recommendations that are available on Whatsapp social media notifications in the study sample.

Physical exercise of at least 30 minutes per day, with moderate intensity is metabolically predicted to be a 39% reduction in the risk of developing diabetes.^{12,13} But from this study there is no difference, due to the possible understanding of physical activity by subjects that are still not in accordance with Perkeni³ consensus recommendations, namely the frequency of doing physical activity that is 3 to 5 times per week, with moderate intensity, the time to do physical activity for 30-50 minutes per time, with the type of aerobic exercise such as brisk walking, cycling, swimming, if muscle. Non-compliance of subjects in carrying out Physical Activity Management will also make fasting blood sugar levels uncontrolled, and a decrease in Insulin receptors, but from Figure 1 where the results of fasting blood sugar levels before notification and the results of fasting blood sugar levels 7 days after

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notification there is an increase in the number of subjects whose blood sugar is controlled, and there is a decrease in the number of subjects whose blood sugar levels are not controlled, this is interesting because even though they do not carry out physical activities that are recommended by Perkeni³, there are those who continue to carry out physical activities so that it can be seen from a decrease in the number of subjects uncontrolled fasting blood sugar levels.

Analysis with medical nutritional therapy showed that there was no significant effect between medical nutrition therapy measures on fasting blood sugar levels after notification, this should have decreased sugar levels, such as the results of research by Nadimin, et al on the effect of high-fiber DM diet, which helped decrease blood sugar level ²⁶, this did not happen in this study due to the lack of understanding of medical nutrition therapy management, such as not all subjects eat 3 times a day, as well as the amount and type of food that is not balanced, almost all subjects are the age group of seniors, and late elderly where the number of teeth has decreased so that there is a change in diet that should eat lots of fiber into more carbohydrate consumption (Selfi et al., 2018).

This research was conducted in conditions of time that only 7 days have not been able to make a change in behavior both behavior in doing a good diet, physical activity behavior and pharmacological therapy behavior.

Conclusion

There is a difference between fasting blood sugar levels before notification and fasting blood sugar levels 7 days after notification. There is no influence between physical activity on fasting blood sugar levels on the 7th day after notification.

There is no relationship between nutritional therapy on fasting blood sugar levels on the 7th day after notification.

Implications for Primary Services are: always updated about technological developments and information media so that they can be utilized in Therapy, Promotive, Educational, and Rehabilitative. Always see patients as Population at Risk so that each treatment uses the Primary Service approach, holistically and in integration. As Case Manager, we always prioritize the Interprofessional Collaboration approach with other professions.

The implication for the Health Service is to be able to involve private health facilities in capturing cases of non-communicable diseases. Involve private health facilities in providing services for the elderly, especially screening for complications of non-communicable diseases. Whereas for BPJS Health is to further optimize the implementation of Prolanis so that it no longer assesses the achievement of the CBC only from the controlled output of Blood Sugar Levels but rather must see from the Process that ultimately cases of complications due to Diabetes Mellitus can be tackled. From the results of this study it is recommended that examining the use of information technology development can consider the issue of time and intensity of notifications in order to change the subject's behavior.

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