ORIGINAL ARTICLE

Evaluation of Diabetes Patients About Chronic Disease Management Program in Bandung

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ABSTRACT

Introduction: "Prolanis" is a program released by the government to help chronic disease management for patients, particularly with diabetes and hypertension. While the benfits of this program are prevalent, patients' participation level was considered low and continuously decreasing every month. This study aimed to identify the diabetic patients' perception/belief regarding prolanis program and its relationship with patients' characteristic in Bandung, Indonesia. **Methods:** This correlational study was carried out on 235 diabetic patients who were recruited through systematic random sampling from top 12 public health centers in Bandung municipality. The data were collected using a questionnaire that included 46 statements with validity test result r > 0.4 and reliability (Chronbach alpha) 0.73. Data were analysized descriptively and inferentially with significant value p < 0.05. **Results:** The results showed that more than half of the participants perceived that they would be susceptible and gained more severity of their illness if they did not participate in Prolanis (53.2%). Though more than half of them perceived barriers to participate in the Prolanis programme (53.2%), they also perceived that they are confident to take part in the program (51.5%). Only half of the participants perceived the benefits from joinning prolanis program (50.2%). Meanwhile, majority of them (68.1%) perceived that they need information and instructions to participate the program. **Conclusion:** This research shows that though prolanis is considered to be good, but the participants still feel some obstacles in following the program, such as the lack of collaboration of health workers and family support to participate in prolanis. Thus it is important to develop integrative care for DM patient in community.

Keywords: Diabetes, Chronic disease, Management, Primary health care

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INTRODUCTION

Diabetes mellitus (DM) is one of of the major health challenges of the 21st century and the leading cause of death worldwide. International Diabetes Federation (IDF) noted that Indonesia has the highest prevalence of DM in the South East Asia region (10.7 million), as well as the top 7th in the world (1). Another national survey in Indonesia reported 8.5% of Indonesian people above 15 years old to be identified as people with DM based on the blood glucose examination in 2018. It significantly increased from the prevalces found in the previous 5 years survey (6.3%). Moreover, the survey highlighted that West Java as the province with highest number of people with DM (186,809 people) (2).

Not only the prevalences, DM is also identified as a diseases associated with high risk of complications (2) and frequently found associated with other chronic diseases (3–6). It is also reported that DM was significantly related to psychological disorders (7). These potentially worsen the diabetic patients' quality of life as well as increases the mortality rate (8,9). In 2015, DM was noted as the third largest cause of total death in Indonesia (6.7%) (10).

DM requires adequate long-term management which is found to be very challenging. Previous studies reported that diabetes care in Indonesia faced many challenges in all stages including early detection and treatment, complications prevention and long-terms care management. Moreover, these challenges were also hampered by the lack of number and distribution of healthcare professionals as well as the fragile healthcare system (11).

In order to respond to these challenges, the Indonesian government released a chronic disease management program (Prolanis) in 2010 to help people with diabetes and hypertension, particularly to manage their diseases.

It is part of the *Jaminan Kesehatan Nasional* (JKN/National Health Insurance) program run by the *Badan Penyelenggara Jaminan Sosial* (BPJS/Social Assurance Organizing Agency). Technically, it carried out by the primary healthcare service covering some activities like health education and consultations, SMS or telephone reminder, club activities, health monitoring, medication services and home visits (12).

While evidences implied that patients with better participation in Prolanis showed better health outcomes, the participation rate was found to be less than expected. Some studies showed that diabetic patients who participated in Prolanis program showed better blood sugar level, HbA1c, total cholesterol (13) and quality of life (14–16). On the other hand national survey found that more than 70% of Prolanis members attended the programme only for 1-3 times/year (17). Additionally, a study reported that some public health centers in Bandung city in particular, reported only 30% participation of Prolanis program (18).

Individual perception and belief are the crucial factors influencing people to participate in the program. Studies showed that participants from public health center who perceived the program positively were more likely to participate in the program than those who perceived it negatively (19–21).

Though several studies identified the patients' perception on Prolanis program, but some of them conducted the studies in a single setting and used small number of sample (18) and these studies were conducted in different setting and only included patients who were active (21). Therefore, it is important to further identify the diabetic patients' beliefs (perception) on prolanis program based on all HBM components, in a multiple setting, as well as must cover both member who were active and not active in the program

MATERIALS AND METHODS

Study Design
The correlational study employed to identify the perception of diabetic patients on the Prolanis program including perceptions on the susceptibility and severity of diseases, benefits, barriers, self-efficacy, and cues to action as well as the relationship of these perceptions with the patients' characteristics.

Sample and Setting
Samples in this study were were chosen by systematic random sampling from all diabetic patients in the top 12 public health centers (PHCs) in Bandung municipality, West Java – Indonesia. Initially, PHCs were selected based on the number of diabetic patients registered in the PHC. The top 12 PHCs were selected. The patient was selected by checking the name list of diabetic patients in each CHC then patient identified with even

number were included in the study. These procedures resulted in 235 participants.

Instruments
The instruments in this study was adopted from Ariana et al., (18). It consisted of 46 statements and five dimensions of perception based on the Health Belief Model. It covered 9 statements for measuring perceptions of susceptibility and severity, 9 statements perceived benefit, 10 statements perceived barrier, 5 statements indication to action, and 13 statements for measuring self-efficacy. The validity test resulted r >0.4 and the reliability test (Cronbach's alpha) 0.73. Thus, this questionnaire was considered as valid and reliable. In our current study, validity test resulted r and Chronbach alpha 0.83.

The questionnaire was distributed to the patients when they visited the PHC for taking medication. The PHC nurse approached the patient and once patients were willing to participate, the nurse gave the selected patient the questionnaire. While the patients filled the questionnaire, the nurse asked the patients whether they had any questions or felt unclear or had any difficulties related to the questionnaire.

Data Analysis
All collected data were analyzed descriptively and inferentially. Each perception was categorized as positive and negative based on the median value; higher than median value were categorized as positive and vice versa. Inferential (relationship) analyses were done by using Chi Square t-test with significant level at p < 0.05.

Ethical consideration
This study gained the ethical approval from the Medical Faculty Universitas Padjadjaran ethical committee evidenced by the certificate No. 878/UN6.KEP/EC.

RESULTS

According table 1 as much as 49.4% of respondents aged 56-65 years old, with 77% are women and married. Most of the respondents have a background in elementary school. Almost all of them seek health services at the Public health center (99.1%) and predominantly for foot treatment (40%). Almost all the respondents (45.1%) had diabetes for more than 5 years and half of the respondents (59.1%) had co-morbid diseases.

Based on table II, half respondents have negative Perceptions of susceptibility and severity (53.6%), half respondents have negative Perceived benefits (50.2%), half respondents have negative perceived barrier (53.2%), half of respondents have negative Cues to action (68.1%), half of respondents have negative self-efficacy (51.5%).

Table III shows comorbid disease and length of disease

Table 1: General Characteristics and Health information of Respondents (n = 235)

Variables	n	%
Age		
≤ 65 years old	151	64.3
> 65 years old	84	35.7
Gender		
Male	54	23.0
Female	181	77.0
Marital Status		
Not married yet	2	0.8
Married	171	72.8
Widow/er	62	26.4
Religion		
Muslim	226	96.2
Christian	8	3.4
Catholic	1	0.4
Occupation		
Unemployed	209	88.9
Working actively	26	2.6
Education		
Illiterate	3	1.3
Elementary (Primary) School	75	31.9
Junior High School (Secondary)	62	26.4
Senior High School	71	30.2
University	24	10.2
Follow regular diet		
Yes	107	45.5
No	128	54.5
Comorbid Disease		
Yes	139	59.1
No	96	40.9
Length of DM (M± SD = 6.18 ± 5.37)		
≥ 5 years	106	45.1
< 5 years	129	54.9
Fasting blood glucose level (M± SD = 144.85 ± 51.63)		
≥ 180 mg/dL	38	17
< 180 mg/dL	197	83

Table II: Analysis of diabetic patients' beliefs on the chronic diseases management programs (Prolanis) at the Public Health Centers (n=235)

Sub variable	Positive		Negative	
	f	%	f	%
Perceptions of susceptibility and severity	100	46.8	125	53.2
Perceived benefit	117	49.8	118	50.2
Perceived barrier	110	46.8	123	53.2
Cues to action	75	31.9	160	68.1
Self-efficacy	114	48.5	121	51.5

of Diabetes Melitus were significantly correlated with perceived chronic disease management program.

DISCUSSION

Prolanis is a health service system and community proactive approach that is carried out integrally among participants, health facilities and BPJS in the context of health care for BPJS participants who suffer from chronic diseases in order to achieve a better quality of life in an effective and efficient cost (12). The program aims to improve the quality of life with an indicator that 75% of registered participants of Prolanis have a good quality of life on specific examinations of diabetes.

The results of the study showed that most respondents had negative perceptions, it meant that Prolanis activities were not considered good by the diabetic patients. This is in line with the previous research, where diabetic patients with proper consultation and education in prolanis showed better adherence, have less complications of disease and have a good quality of life.

In the theory of Health Belief Model developed by Becker, a person's health behaviour is largely determined by perceptions of susceptibility and severity, perceived benefits, perceived barriers, cues to action, and self-efficacy of individuals that contribute to each other (22). Based on result, the majority of respondents did not perceived susceptible and the disease tended to be more severe if they did not participate in Prolanis activities. It can be seen from the low average score of statements about perceptions of susceptibility and severity that respondents considered the disease would be worse and susceptible to complications if not taken care. Participant with comorbid diseases perceived more susceptability and severity than those without comorbid diseases. Besides the respondents also considered blood sugar levels for people with DM if they have not participated in Prolanis. This is contrast with the study that there is a significant control of blood sugar after joining Prolanis (23). The negative susceptibility and severity of this study might be due to fact that most of the respondents less likely got information about the disease.

Positive perceptions of susceptibility will be beneficial for patients with diabetes mellitus and hypertension. By knowing that they are at risk of complications, they can take action immediately. This is in accordance with the research which explained that disease prevention such as participating in a health program would emerge if someone already perceived susceptibility to an illness. The results of perceived benefits showed that most of the respondents perceived benefits of Prolanis activities, indicated by the highest average score on the statement of perceived benefits. Respondents thought

Table III: Result Bivariate Analysis of diabetic patients about chronical diseases management programs (Prolanis) at Community Health Centres (n = 235)

Variables		Perceived Threat & Severity		Perceived Benefit		Perceived Barriers		Perceived SE	
		M ± SD	P-Value	M ± SD	P-Value	M ± SD	P-Value	M ± SD	P-Value
Gender	Male	2.42 ± 0.46	0.24	2.57 ± 0.39	0.27	0.75 ± 0.65	0.017	2.49 ± 0.36	0.20
	Female	2.51 ± 0.48		2.64 ± 0.36		0.52 ± 0.44		2.56 ± 0.34	
Followed diet recommendation	Yes	2.50 ± 0.50	0.78	2.70 ± 0.30	0.002	0.47 ± 0.44	0.006	2.60 ± 0.30	0.02
	Not	2.48 ± 0.46		2.56 ± 0.41		0.65 ± 0.54		2.50 ± 0.37	
Comorbid diseases	With	2.55 ± 0.45	0.023	2.67 ± 0.32	0.015	0.50 ± 0.44	0.01	2.59 ± 0.31	0.03
	Without	2.41 ± 0.50		2.55 ± 0.42		0.67 ± 0.57		2.49 ± 0.38	
Length of DM[a] (6.18 ± 5.37)		2.49 ± 0.48	0.62	2.62 ± 0.37	0.69	0.57 ± 0.50	0.12	2.55 ± 0.34	0.43
Blood glucose level (144.85 ± 51.63)[b]		2.49 ± 0.48	0.30	2.62 ± 0.37	0.013	0.57 ± 0.50	0.04	2.55 ± 0.34	0.01

Note:
a = correlational analysis between length of diabetes mellitus (DM) and the perceived threat and severity, benefit, barrier, and self-efficacy
b = correlational analysis between length of fasting blood glucose level and the perceived threat and severity, benefit, barrier, and self-efficacy

that participating in Prolanis could reduce the risk of complications, control the condition of the disease and make their health conditions better. This is in line with study that implied Prolanis could control blood sugar in patients with diabetes mellitus and give a good effect on blood pressure levels in the participants (24).

The negative perception of the benefits of prolanis activities is because participants consider their actions would not reduce the threat to their health. However, participants who reported follow regular diet, had comorbid diseases and higher blood glucose level found positively perceived benefit of attending prolanis program. This is consistent with another study (19) stated that individuals will have good perceptions if their actions can reduce the threat to their health. In addition, positive perceptions will have an impact on the level of participation as it is related with respondents' perceptions of the BPJS program, such as utilizing the health care programs in health centers. Individuals with good perceptions are 3.1 times more likely to use health facilities, including Prolanis than individuals who have a negative perception.

The results of this study revealed that most Prolanis participants had negative perceptions on the barriers. It means that the respondents perceived significant barriers when taking part in Prolanis activities. Participants in this study who are male, reported having comorbid diseases and higher blood glucose level perceived more barriers. This is different from previous research (18) that showed that BPJS participants had positive perceptions regarding barriers to participate in Prolanis.

Prolanis participants perceived barriers in this study that was indicated from the highest average score of the perceived barrier statements. The respondents revealed their families did not accompany them to participate in prolanis activities. Family support will influence individuals to participate in Prolanis because they feel

cared for and do not feel inferior because of an illness. Factors that influence participation in Prolanis activities is family support which is closely related to the level of participation of Prolanis.

This study showed that almost all respondents need guidance or information about Prolanis activities so that participants are interested in Prolanis and regularly attend prolanis activities. This can be achieved through information obtained from other people, both from families and health workers about Prolanis. Health workers are one of the providers of information about health programs as well as the factor leading to the increase in the number of Prolanis participants. Beside that, health education about nursing care to reduce anxiety in patients with diabetes mellitus (25).

Basically, the signal to do an action can be obtained from both internal and external. In prolanis activities, information obtained from health workers is very influential on individuals to utilize health services such as Prolanis (19). The results of the present study show that the respondents had negative perceptions of self-efficacy. It means that most prolanis respondents have low efficacy to participate in prolanis activities, which can be seen from the low number of average scores of self-efficacy statements. Respondents feel not confident that they can continue to participate in prolanis even though the conditions have improved. Respondents disbelieved that prolanis activities will have a positive impact. Interestingly, higher self-efficacy were found among participants who are follow thw diet recommendation, reported comorbid diseases and higher blood glucose level. This is in accordance with other studies (18,19) where individuals who have a strong belief in a matter will then do so. Moreover, the individuals with diabetes are advised to use as an alternative method to control blood sugar levels. Thus, diabetes care program can be recommended for practice (26,27,28).

CONCLUSION

Based on the results of this study, it can be concluded that in general most of the respondents considered Prolanis negatively. It can be seen from several perceptions according to HBM theory, that most respondents had a negative perception of susceptibility and severity, perceived benefits and self-efficacy. In other words, some respondents felt that susceptibility and severity that would occur along with their illness if they did not take part in prolanis activities. They perceived the benefits from prolanis and the self-efficacy of the respondents that would lead them to take part in prolanis. Meanwhile, almost all respondents needed guidance from others to take part in prolanis. However, most of the respondents still perceived the barriers in taking part in prolanis, such as family support. The satisfaction level of the patient on the health services provided by the prolanis must be at a high level for assurance of health benefits. The benefits, responsiveness, and empathy dimensions required to be maintained to reach the patient's satisfaction.

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