Improving The Compliance of Patients Type 2 DM to Foot Care with Health Belief Model Approach

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ABSTRACT

Introduction: Diabetes Mellitus (DM) is a chronic disease if uncontrolled can cause acute and chronic complications that result in disability and even death. Compliance in foot care has an important role in the therapeutic management of patients with DM. The purpose of this study was to identify affecting Health Belief Model to improve the compliance of patients Type 2 DM to foot care. **Method:** The research design was correlations with cross sectional approach, conducted on 72 patients with Type 2 DM that managed by Prolanis in Ponorogo. **Result:** The results showed that perception of seriousness (p value 0.014), and the perception of benefits (p value 0.025) significantly influence the compliance of patients with Type 2 DM to foot care ($\alpha = 0.05$). **Conclusion:** Health belief model is an effective effort to improve compliance to foot care, so as to prevent disability and death in patients with type 2 DM.

Keywords: Compliance, Type 2 DM, Foot Care, Health Belief Model

INTRODUCTION

Challenges developing countries are experiencing rapidly growing negative impact on the increasing incidence of diabetes mellitus (DM). This relates to the increasing population, increased life expectancy, urbanization is changing the traditional lifestyle to a modern, rising prevalence of obesity and lack of physical activity (Waspadji, 2009). DM needs to be studied and observed for chronic progressive nature of the disease, the number of patient's increases

and the negative impact both in terms of social, economic and psychological caused. Chronic complications are frequent in patients with Type 2 diabetes mellitus is diabetic foot that can cause disability and even death. One of the factors that determine the success of therapy is the level of compliance (Morisky, 2008). Compliance is a positive behavior of patients in achieving the goals of therapy (Degresi, 2005). During some diabetic patients who come for treatment always get education on self-management of the disease, but many are not obedient to carry out the treatment program, in particular foot care case.

Diabetes is one of the largest global health emergencies of the 21 century. Each year more and more people live with this condition, which can result in life-changing complications. In addition to the 415 million adults who are estimated to currently have diabetes, there are 318 million adults with impaired glucose tolerance, which puts them at high risk of developing the disease in the future (IDF Atlas, 2015).Since 2012, Indonesia finished seventh in the ten countries with the most diabetes sufferers (IDF, 2012). The East Java Province is one of the 13 provinces with prevalence above national prevalence of DM. Chronic complications of DM in Indonesia consists of neuropathy 60%, coronary heart disease is 20.5%, diabetic foot is 15%, retinopathy 10%, and nephropathy 7.1% (Tjokroprawiro, 1999; Waspadji, 2009). In Indonesia, diabetic foot is a problem that cannot be managed (15%), and often ends with a disability and death. According to the data in the General Hospital dr. Cipto Mangunkusomo 2003 (Waspadji 2009) mortality and amputation remains high, respectively by 16% and 28%. DM patients with post-diabetic foot amputation as much as 14.3% will die within a year after the amputation and 37% will die 3 years after amputation.

Based on the survey of researchers, in Ponorogo 80% of patients who maintained Prolanis Doctors are Type 2 diabetic patients.

DM is the fifth leading cause of death in developed countries, mainly due to vascular complications (Roglic 2005 in Purwanti, 2014). One of the chronic complications of DM is diabetic foot, which that is the most common complications experienced by patients with DM. It is amounting to 15% (Cunha, 2005 in Purwanti, 2014). Abnormalities microangiopathy most has a role in causing disorder of diabetic foot neuropathy. Autonomic neuropathy leads to changes in the pattern of the sweat feet, so the skin becomes dry and chapped, and than it can caused mycobacteri infection. Sensory neuropathy caused abnormalities in the muscles and skin, causing changes in the distribution of pressure on the soles of the feet. In this case, the leg going numb so foot protection alert is lost. Motoric neuropathy causes muscle atrophy interosseous. The legs thereby disrupting the balance of the leg muscles, then comes deformity toe (cock up toes), luxations (shifting joints), and the thinning of the fat pads under the regional base of the toes, thus there will be expansion of the areas of emphasis that resulted legs going numb so foot alert protection is lost. If all above are not handled properly, it will become infected with gangrene (Singh, Armstrong and Lipsky, 2005 in Purwanti, 2015).

The Research who conducted by Sutedjo (2010) states that one of the keys to successful management of diabetes is compliance in implementing the treatment regimen both pharmacologic and non-pharmacologic. It can be affected the incidence of complications. Kurtz (1990); Johnson (1992); McNabb (1997) in Haris (2007) identified that non-diabetic patients in the management of the disease varies. Namely, 70-80% non-compliant in the exercise, 35-75% adherence to the diet, 20-80% adherent to use insulin, 30-70% test blood sugar levels, and 23-52% non-compliant conduct foot care.

This study uses the approach of the Health Belief Model (HBM) that developed by Rossentock and Becker in 1974. HBM is a conceptual framework for understanding the behavior of

Variabel	Mean	Median	Mode	SD	Min - Max
Age (years)	59	58	52	8,58	36 - 81
Random blood glucose (mg/dl)	182	173	200	73,6	53 - 444

an individual's health. Glanz, Rimer, and Viswanath (2008) argued that HBM, which include knowledge, perception factor

individuals (perceived susceptibility, seriousness, benefits and barriers), and factor signaling acts (family support), assumed to be able to explain the reason for the behavior of non-compliance with diabetes mellitus in doing management, including foot care.Thenurses can be facilitating in health behavior intervention, one of them with health education.

METHOD

The research design was correlations with cross sectional approach, conducted on 77 Patients with Type 2 diabetes that managed by Prolanis in Ponorogo. The sampling technique was proportional random sampling. The data was taking with questionnaire. Chi Square will analyze the results.

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RESULT

Table 1 Characteristics of respondents by age from June to July, 2016 (n = 77)

Table 2 Characteristics of respondents by gender, income, duration of diabetes, and adherence on June-July, 2016 (n = 77)

Characteristics	frequency	Percentage (%)
Gender		
Male	37	48,1
Female	40	51,9
Income (Rupiahs)		
≥ 1.040.000	63	81,8
< 1.040.000	14	18,2
Time of DM (month)		
≥ 6	76	98,7
< 6	1	1,3
Compliance		
High	23	29,9
Low	54	70,1

Table one and two seen that the majority of the respondents, 40 (51.9%) were female and the mean age was 59 years, with the number of the highest income more than Rp. 1,040,000 namely, 63 people (81.8%). There is one only (1.3%) who suffer DM less than 6 months. Overview Random Blood Sugar Levels during the study average is 182mg/dl, which means blood sugar levels during the study respondents on average despite having anormal blood sugar level, 53 mg/dl, and 444mg/dl.

Table 3 Relationship factors that affecting adherence to compliance of Type 2 diabetic patients to foot care on June-July 2016 (n = 77)

* significance on α = 0,05

The result of the perception of the seriousness of the Chi Square test (p value = 0.014; OR: 5.723), and the perception of benefits (p value = 0.025; OR: 3.266) significantly influence patient compliance with Type 2 diabetes mellitus in doing

foot care (α = 0.05). However, the most significant factor is the perception of seriousness. Therefore, the hypotheses were accepting that there were influence the perception of seriousness, and the perception of the benefits of compliance with Type 2 DM patients in the foot care. Perception of the seriousness of 5 times stronger influence patient compliance with Type 2 diabetes mellitus in doing foot care. However, the average compliance caring for the feet of respondents is low.

DISCUSSION

Foot complications are common in people with DM. There were 10% of people with diabetes would have risk a diabetic foot ulcer in their lives. A foot ulcer canbe defined as a localised injury to the skin and/or underlying tissue, and below the ankle. The change of behavior can also base on knowledge. The results showed that out of 77 respondents mostly have low adherences caring for the

Variable		Compliance		p Value (Chi Square)	OR
		Low f	High f		
knowledge	Low	12	4	0,438	0,602
	High	42	19		
perception vulnerability	Low	38	2	0,603	0,271
	High	16	21		
perception seriousness	Low	23	1	0,014	5,723
	High	31	22		
perception of benefits	Low	16	2	0,025	3,266
	High	38	21		
perception barriers	Low	19	6	0,974	1,076
	High	35	17		
support	Low	43	5	0,537	0,382
	High	11	18		

feet, 54 respondents (70.1%). However, most have a good knowledge about foot care (64 respondents or 83%). In the contrass with theopinion of Notoatmodjo (2010), that knowledge is the lowest cognitive aspects but most important in shaping a person's actions. In the research, it appears that the majority of family supports lower among respondents in motivating caring for the feet. This has resulted in low compliance levels are supported with an average age of respondents was elderly.

The framework of Health Belief Model (HBM) explained that if an individual act against or treating the disease, there are key variables involved in such actions are perceived vulnerability to a disease, the seriousness of the perceived benefits received and barriers experienced as well as matters that motivates it. Actions of someone in seeking treatment and prevention of disease can caused due to the seriousness of an illness perceived such as disability, death or paralysis, and the social impacts.

Compliance is a change in behavior from behavior that does not obey the rules to abide by the regulations. It is the positive behavior of patients in achieving the goals of therapy (Degresi, 2005).Predictive factors that contained in HBM canbe affected to the compliance of respondents

to foot care.In Table 2 and Table 3 can be interpreted that, poorly adherence the majority of respondents can caused have a low susceptibility perception, the perception of a high resistance and low family support, although they were suffered diabetes more than 6 months. HBM often considered as the main framework in behavior related to health, starting from the consideration of the health, especially cognitive processes that influenced by information from the environment (Glandz, 2008). The threats, seriousness, vulnerability, and consideration of the advantages and disadvantages are influenced by demographic variables (age, gender, cultural background), psychosocial variables (personality, social class, social pressures), and structural variables (knowledge and experience on the subject).The first assessment is a perceived threat to the risks that will arise. This refers to the extent to which a person thinks about the disease that the situation is really a threat to himself. Assessment of the perceived threat is based on perceived vulnerability (perceived susceptability) and the perceived seriousness of the (perceived severity).

DESCRIPTION

A principle, all of components in HBM DM are affecting to the patient compliance to foot care. However, there are only two components of the most influential, namely the respondent's perception of the benefits obtained if obedient doing foot care and the perception of perceived seriousness of respondents to the effect that occurs if not obedient caring for the feet. It can cause the demographic background of respondents. Although the most of the respondents have good knowledge, but this is not supported by the motivation from the family.Respondents were very enthusiastic in participating in regular activities Prolanis, but in everyday application on a regular basis is still lacking. Increased self-reliance in managing foot care is very important for people with diabetes. It is an effort to reduce the number of disability and death of patients with diabetes and to improve quality of life of patients with diabetes mellitus type 2. The limitation in this study was not observation, so the results only based on of responses.

CONCLUSION

Patients with Diabetes Mellitus (DM) are very susceptible to complications. One complication that often occurs in

people with diabetes is diabetic foot. This can lead to physical disability due to amputation or death. To avoid this, patients must obey caring for their feet. Health Belief Model (HBM) is one approach that can be used to improve patient compliance in taking care of diabetic foot. Seriousness perception factor (p value = 0.014; OR: 5.723), and the perception of benefits (p value = 0.025; OR: 3.266) significantly influence patient compliance with Type 2 diabetes mellitus in doing foot care (α = 0.05). Perception affects the seriousness over 5 times against keatuhan in treating foot. Suggestions for nursing care, by knowing the dominant factors affecting patient compliance with Type 2 diabetes mellitus in doing foot care, the nurse can work on improving knowledge with health education. Increased knowledge can be expected to improve the perception of benefit for patients with diabetes in doing foot care. Advice for patients with Type 2 DM might be expected to increase compliance with treatment feet. So that, the incidence of chronic complications of the diabetic foot can be prevented at an early stage to reduce the number of disability and death of patients with diabetes and to improve the quality of life of patients with Type 2 DM.

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