

Situational Influences Related to Diabetes Self-Management in Indonesia

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ABSTRACT

Background: Diabetes self-management is needed to prevent the complication of diabetes mellitus. **Objective:** The aim of this study is to identify the relationship between situational influences and diabetes self-management among adults with type 2 diabetes mellitus in Malang City, East Java, Indonesia. **Method:** A cross sectional design was applied in this study. The participant of 127 adults with type 2 diabetes mellitus, aged from 20-59 years were recruited. Participants were selected by multi-stage random sampling in Public Health Centers of Malang City. Instruments included personal factors (education), situational questionnaire and the Summary of Diabetes Self-Care Activities (SDSCA). Pearson product moment correlation were used for analyzing data. **Result:** The results showed that situational influences ($r=-.248$, $p<.05$) were significantly associated with diabetes self-management. However, education ($r=.044$, $p>.05$) were not significantly associated with diabetes self-management. **Conclusion:** Situational influences could be important in improving effective strategies to support sustainable diabetes self-management. **Keywords:** Situational Influences, Diabetes Self-Management, Adult, Indonesia

INTRODUCTION

People with diabetes have a higher risk of serious health problems. The chronic hyperglycemia of diabetes is related to long-term damage, dysfunction, and failure of different organs (American Diabetes Association, 2014). A study by Dries, Sweitzer, Drazner, Stevenso and Gersh (2001) showed that diabetes mellitus is strongly associated with an increased risk for all-cause mortality in patients with ischemic cardiomyopathy. Patients with diabetes mellitus and micro albuminuria are more insulin resistant, resulting in accelerated progression of diabetic kidney disease (Karalliedde & Gnudi, 2014).

The number of people with diabetes mellitus is increasing worldwide. In the year 2013, there were 382 million people worldwide with diabetes, and this is estimated to increase to 592 million by 2035. Indonesia was included top 10 countries for number people with diabetes mellitus aged 20-75 years old (International Diabetes Federation, 2013). East java is one of the province in Indonesia that had the proportion of diabetes sufferers among the general population greater (2.5%) than the national average (2.1%) (Ministry of Health Indonesia, 2014).

The Indonesian Ministry of Health emphasizes that the objective of the diabetes mellitus program is to increase self-management to prevent risk factors of non-communicable diseases (Ministry of Health Indonesia, 2014). A study by Rahayu (2014), found that type 2 diabetes sufferers in both urban and rural areas in Malang, Indonesia showed less than optimal level of diabetes self-management behaviors. One of factors that relate with diabetes self-management is situational influences.

The Health Promotion Model demonstrates that situational influences in the external environment can increase or decrease participation in health-promoting behavior. Situational influences in the external environment have direct or indirect effect on health-promoting behavior (Pender, 2011). In this study, situational influences refer to the external environment surrounding adults with diabetes mellitus that can increase or decrease their commitment to or participation in diabetes self-management.

Some studies showed inconsistent findings between situational influences and diabetes self-management. A previous study by Nuryanto (2013) found that situational influences have a positive correlation with health promoting behavior in elderly patients with hypertension with $r = 0.37$. However, a previous study by Hagerstrom (2010) found that a situational influence, especially depressive symptoms, had no significant relationship to the health-promoting behaviors among patient with diabetes in United State.

Based on information's above, this study aims to identify the relationship between situational influences and diabetes self-management among adults with type 2 diabetes mellitus in Malang City, East Java, Indonesia. The results of this study can be used as a guideline for health care providers to conduct effective intervention in patients with type 2 diabetes mellitus in the future.

METHOD

In this study cross-sectional study design was used. Multi-stage sampling technique was used to recruit the participants. Data were collected from 127 adults with type 2 diabetes mellitus from five Public Health Centers (PHCs) in Malang City, East Java, Indonesia.

Data were collected from participants who met the following inclusion criteria: (a) age 20-59 years old, (b) have diagnosed type 2 diabetes (for at least 6 months based on PHC's medical records), (c) have blood glucose level between 70mg/dl and 300mg/dl, (d) are willing to participate in this study, and (e) are able to read and write Bahasa Indonesia. The exclusion criteria are as follows: (a) suffer from impaired vision such as blindness, (b) have a psychiatric illness that was diagnosed by physician, such as schizophrenia or hallucinations, (c) suffer from cognitive impairment diagnosed by physician, and (d) are hospitalized during the data collection period.

Data were collected by 3 questionnaires which were translated into Indonesian language including demographic characteristic (education), situational influence, and Diabetes Self –Management. Situational influence was measured by a situational questionnaire that was developed by Nuryanto (2013) and modified by the researcher. Nuryanto used this questionnaire to determine situational influences on health promoting behavior in patients with Hypertension in Bali, Indonesia. The researcher has modified the questionnaire to assess external environment surrounding adults with diabetes mellitus that can increase or decrease their commitment to or participation in diabetes self-management. The questionnaire consisted of 17 items. The reliability with Cronbach's alpha was .820

Diabetes self-management was measured by the Summary of Diabetes Self-Care Activities (SDSCA). The SDSCA is a brief self-report questionnaire about diabetes self-management behaviors, which has adequate internal consistency and test-retest reliability (Toobert, Hampson and Glasgow, 2000) In this study will use the revised SDSCA including 15 items and assesses aspects of healthy eating activities (5 items), physical activity (2 items), medication adherence (1 items), blood glucose testing (2 items), and foot care (5 items). The SDSCA is a Likert-type scale in which participants recall how

often they performed diabetes self-management during the past 7 days and answers range from 0 to 7 days. The reliability with Cronbach's alpha was .720.

Data analysis used Statistical Package for the Social Sciences (SPSS Version 16.0) for Windows. Descriptive statistics were used to characterize the sample and to examine the distribution properties of the variables. Pearson product moment was used to identify the relationship between independent and dependent variable.

RESULT AND DISCUSSION

Table 1 shows that one of third of participants had elementary school. The participants earned elementary and senior high school, 37% and 27.6%, respectively.

Table 1 Number and percentage of education of participants (n=127)

Education	n	%
Elementary school (≤ 6 years)	47	37
Junior high school (7-9 years)	24	18.9
Senior high school (10-12 years)	35	27.6
College or university (≥ 13 years)	21	16.5
Median = 9		
Min-Max = 4 – 18		

Table 2 Number and percentage of levels of situational influences (n=127).

Situational influences	n	%
High	37	29.1
Moderate	83	65.4
Low	7	5.5
Mean \pm S.D = 3.27 \pm .58		

Based on table 2, the situational influences had more than half of the participants (65.4%) experienced a moderate level of situational influences. However, approximately 29% of the participants had high situational influences. The situational influences of the participants in details questionnaire shows that some participants were strongly disagree in situational including easy to find the shop that sell foods according to diabetes diet (18.9%), traditional food is appropriate for people with diabetes mellitus (15.7%), PHC set up exercise class regularly (16.5%), PHC staff provide a home visit for people with diabetes who cannot come to clinic (10.2%), have own blood glucose check (23.6%), PHC staffs perform a complete foot exam at least annually (14.2%), and PHC staffs give information about foot care (14.2%). However, approximately 36% of the participants were strongly disagree if there are shops/stores that sell traditional alcohol drink available for me to drink.

Table 3 Correlation between education, situational influences with diabetes self-management (n=127).

Factors	Diabetes self management	
	r	p
Education	.044	.622
Situational influences	.248**	.005

** : Correlation is significant at the .01 level (2-tailed);

* : Correlation is significant at the .05 level (2-tailed)

According to table 3, education was not statistically significant associated with diabetes self-management. However, situational influences was statistically significant associated with diabetes self-management.

This study did not find a significant correlation between the educational level of adults with type 2 diabetes mellitus and their diabetes self-management. It is consistent with previous research by Rahayu (2014) which found that there was no significant difference between education level and diabetes self-management behavior in Indonesia. However, it was contradicted to Alrahbi's study (2014) which found that diabetes self-management associated with levels of education in Omani.

This finding might be caused by nowadays easy to get information related to diabetes self-management. Social media could influence diabetes mellitus in several different ways, the main way being easier access to information. Adults with type diabetes mellitus would have easy access to the information they needed to feel safer and more confident in how to proceed with their condition (Richards, 2013).

However, this study showed that situational influences had significant relationship with diabetes self-management ($r=0.248$; $p<0.05$). This was in line with a previous study by Nuryanto (2013) that found that situational influences, including the environment at the national and local government level, had a positive correlation with health promoting behavior in elderly patients with hypertension.

Situational influences could be important in improving effective strategies to support sustainable health promoting behavior. Situational influences in the external environment had direct or indirect effect on health-promoting behavior (Pender et al., 2011). Adults with type 2 diabetes mellitus who had poor situational influences were less likely to do diabetes self-management. These statements were supported by most of the participant that reported that it was not easy to find shops that sold food based on diabetes diet. A study by Ho (2010) suggested that situational influence would be used an effective empowerment strategy facilitating and enhancing client's health promoting behavior.

CONCLUSION

This result of study supported Pender et al. (2011) that health behavior, especially diabetes self-management was related by situational influences. Therefore, the results of this study can be used as evidence in the development of health promotions and strategic programs to enhance diabetes self-management among adults with type 2 diabetes mellitus.

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