Relationships between self-efficacy, health belief, and self-care among type 2 diabetes mellitus

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ABSTRACT

Introduction: Diabetes mellitus (DM) patients need to be empowered to manage their conditions. Some factors that affected the empowerment of diabetes mellitus patients were self-efficacy, health beliefs, and self-care. Self-efficacy positively correlates with health belief and self-care among patients with type 2 DM. However, such evidence is still limited in the Health Care Centers, especially in Yogyakarta. This research aimed to identify self-efficacy and the relationship between health belief and self-care among Type 2 DM patients.
Methods: This is a correlative analytical of quantitative research using the cross-sectional approach. Purposive sampling was used to collect the samples, which were 83 patients who belonged to the inclusion criteria. This research was conducted in the Primary Health Center in Bantul Yogyakarta between April and May. The statistical tests used the Spearman rank correlation test due to the abnormal distribution.
Results: The mean of self-efficacy, health belief, and self-care were 84.9±9.3; 105,1±7,2; 67,8±7,7, respectively. There was a significant relationship between self-efficacy and health belief at the value of p<0.000, and there was a relationship between self-efficacy and self-care at the value of p<0.000.
Conclusion: Positive correlations were achieved between self-efficacy and health belief and between self-efficacy and self-care in diabetes mellitus patients.

Keywords: Diabetes mellitus; health belief; self-care; self-efficacy.
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INTRODUCTION

International Diabetes Federation stated that 425 million people in the world suffer from Diabetes Mellitus (DM), and 90% of people suffer from Type 2 Diabetes Mellitus (T2DM).[1] In Indonesia, 8.4 million people suffered from DM in 2000, and increased by 21.3 million in 2040. The highest prevalence was T2DM, which was more than 90%.[2] Yogyakarta was the second rank after Jakarta, with a prevalence of 3.4% and 3.1%, respectively.[3]

Self-efficacy was the main factor in improving behavior to a healthy lifestyle. For diabetes patients, it describes the capability of an individual to achieve the goal of managing diabetes mellitus.[4] Adequate self-efficacy would help the individual in decision-making about behavior in diabetes mellitus management. Self-efficacy could affect adherence in managing diabetes mellitus, especially in dietary adherence. The experience in managing DM could be the primary source of adequate self-efficacy.[5]

Health beliefs show the capability of individuals to make decisions to prevent illness. Individuals with adequate health beliefs will have confidence about the potential severe consequences of their condition and believe that adequate action is needed to reduce the susceptibility of their illness.[6] In diabetic patients, health belief is significantly associated with health behavior and predicts self-care behavior significantly.[7,8] Health belief was the critical determinant of self-care behavior in DM. Health belief could promote self-care and also contribute to optimum outcomes in DM management.[9]

Self-care was an essential factor for DM management. Patients with adequate self-care could be empowered to prevent the complications of DM and achieve the optimum outcome of DM management.[10] Diabetes self-care is influenced significantly by emotional adaptation and self-efficacy. These contributed to overcoming the barriers and self-regulation of DM management.[11]

Self-efficacy is also associated with self-care, especially dietary and medication adherence.[12] Self-efficacy, health belief, and self-care are crucial factors in empowering type 2 DM patients to achieve optimum outcomes and seem positively correlated. However, there is limited evidence about self-efficacy and its relationship between health belief and self-care in the Health Care Center of Yogyakarta.

Bantul is one of the regencies and a rural area in Yogyakarta, Indonesia. As a rural area, the community has characteristics that are different from those of urban areas. Self-care activities, primarily healthy diet, and physical activity, were the main factors that affected the burden of type 2 DM in rural areas.[13] Patients of DM in Bantul Regency ranked second after Sleman Regency in the entire Yogyakarta region. A total of 20,991 residents experienced DM in 2021.[14]

This research aimed to identify self-efficacy and the relationship between health belief and self-care among type 2

DM patients in the Primary Health Center in Bantul Regency, Yogyakarta.

METHOD

Research Design and Setting
A cross-sectional approach was conducted in this quantitative research. This research was conducted in Kasihan 2 Health Center between April - May 2021.

Sample
A purposive sampling technique was applied to get specific characteristics of the respondents, and the total sample, according to the Lemeshow formula, was 83 respondents.[15] Determined inclusion criteria were Type 2 DM patients who are willing to join to be respondents; diagnosed with Type 2 DM by the physician; capable of communication using Bahasa Indonesia; 20-79 years old; and registered as a patient in Kasihan 2 Health Center, Bantul. Hence, the exclusion criteria were patients with DM complications and loss of consciousness.

Data Collection
Data were collected only once at a time. The identified variables were self-efficacy, health beliefs, and self-care. This research used three self-reported questionnaires, including the Diabetes Management Self-Efficacy Scale (DMSES), The Diabetes Health Belief Measure (DHBM), and the Summary of Diabetes Self-Care Activities (SDSCA). DMSES, DHBM, and SDSCA were valid and reliable according to r score and Cronbach alpha's score, r score 0,370-0,805 and α 0.939; r score 0,462-0,688 and r score 0,205-0,297 and α 0.72 respectively.[16-18]

Data Analysis
Univariate analysis was performed for data of characteristic respondents (age, gender, level of education, and occupation), self-efficacy, health beliefs, and self-care. A normality test was performed before bivariate analysis among variables using the K-S test ($p < 0,05$). Because the data were not normally distributed, non-parametric tests were conducted among variables using Spearman Rank correlation.

Table 1. Characteristics of the Respondents

Characteristic	n	%	Mean ± SD*
Age (years)	-	-	60,47 ± 7,272
Gender	-	-	
Male	30	36,1	-
Female	53	63,9	-
Education			
None	4	4,8	-
Elementary school	29	34,9	-
Junior high school	17	20,5	-
Senior high school	25	30,1	-
Higher education	8	9,6	-
Occupation			
Government employees	12	14,5	-
Entrepreneur	25	30,1	-
Farmer	1	1,2	-
None	45	54,2	-

*SD: Standard Deviation

Table 2. Characteristics of self-efficacy, health belief, and self-care of the respondents

Variables	Mean	SD	Level
Self-efficacy	84,90	9,337	Low
Health belief	105,11	7,170	Low
Self-care	67,80	7,719	Low

Table 3. Correlation among variables

Variables	Health belief			Self-care		
	n	r	p-value	n	r	p-value
Self-efficacy	83	0,482	0,000[a]	83	0,416	0,000[a]

[a]spearman-rank

Ethical clearance
This research was conducted after the research department at Alma Ata University approved ethical clearance. The ethics approval number was KE/AA/IV/10405/EC/2021.

RESULT

Characteristics of the Respondent
The characteristics of the respondents are shown in Table 1. Most respondents were in the old adult category (55,4%), and most were female (63,9%). Most respondents had an elementary school education level (34,9%), and most had no occupation (54,2%).

Self-efficacy, Health Beliefs, and Self-Care Characteristics
Characteristics of self-efficacy, health belief, and self-care are shown in Table 2. Most of the respondents have self-efficacy scores more than average (61,4%), health belief scores more than average (56,6%), and self-care scores more than average (53%).

Correlation among self-efficacy, health belief, and self-care
Table 3 showed a statistically positive correlation between self-efficacy and health beliefs. The level of correlation is middle correlation, and the correlation between self-efficacy and health belief is significant. The correlation between self-efficacy and self-care is significant, with a positive correlation and a middle level of correlation.

DISCUSSION

Self-efficacy
Self-efficacy theory highlights the significance of the individual and the individual's perceptions of their capabilities as the key determinants of successful outcomes. The present study

showed that most respondents reported that they trust they can come to the health care facilities a minimum of four times a year to control their DM and consult with physicians. Respondents also reported that they trust they can take prescribed medication correctly. These were assisted by the age of the respondents, who already have maturity in thinking and behaving. The study from Ismatika showed that age was one-factor affecting self-efficacy.[19] Self-efficacy was built during the learning process in a lifetime. Older people will have more experience than younger people and solve any problem better than younger people.[20,21]

Health belief

The Health Belief Model (HBM) emphasizes that health-related behavior depends on several factors, including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. The present study showed that most of the respondents believe that a healthy diet prevents increasing blood glucose in DM and that prescribed medicine prevents complications. Most respondents were not working, affecting their scoring process for the health belief questionnaire. Also, if they are not working, they can focus on how to control and manage their disease appropriately. Another study stated that the gender of respondents supported health beliefs.[22,23] Females were more caring about their condition than males because females have more complex experiences with other health problems, e.g., menopause, pregnancy, and a problem with menstruation.[23]

Self-care

Self-care identifies the behaviors performed by the individual in maintaining life and promoting well-being. In this study, most respondents reported wearing footwear during daily activity but rarely applying lotion to their feet. They only apply lotion on their body part, including their hand, body, and legs. Most respondents have good self-care, which is above the average score. Supported by another study, self-care activities among Diabetes Mellitus patients in Semarang-Indonesia have the appropriate self-care activities.[24] In developing countries, self-care activities among Diabetes Mellitus patients focus on daily exercise, regular blood monitoring, and adherence to prescribed diabetes medication.[25]

Self-efficacy and health belief

The present study showed that self-efficacy is associated with health beliefs. Another study supported the idea that self-efficacy affected health beliefs. The higher self-efficacy score affected the higher health belief score in DM patients.[26] This present study showed that patients who trust they can manage their diabetes also believe they can manage their diabetes correctly, including controlling physicians, managing their diet, and prescribing medicine. The positive correlation between self-efficacy and health belief contributed to empowering DM patients to manage their condition. They were easier to behave positively in problem-solving and managing their disease and were also easy to understand and implement in diabetes management education.[27-29]

Self-efficacy and self-care

This present study showed that self-efficacy is associated with self-care. Respondents who have a good score in self-efficacy, particularly in terms of their trust in controlling their disease, also affected their diet management and adherence to the prescribed medication in their daily lives. Supported by other studies, self-efficacy-strengthening programs enhance self-care behavior in DM patients. It is supposed that in the future, the self-efficacy theory can be integrated into diabetes education to increase self-care behavior in DM patients and become one of the methods to empower DM patients in diabetes management.[30-32]

Self-efficacy, health beliefs, and self-care

Self-efficacy, health beliefs, and self-care were the crucial factors that affected the excellent outcomes of type 2 DM. In this study, most of the respondents have low self-efficacy, which affected the health belief level and self-care activities included in the low category. Low categories in these three variables may affect poor outcomes in DM patients. Self-efficacy beliefs positively and directly affected self-care and Quality of Life (QoL) in patients with type 2 DM. However, self-care and self-efficacy tended to have a nonsignificant positive relationship with QoL.[33] Self-efficacy to be the most important predictor of diabetes self-care. Therefore, the use of self-efficacy theory when designing patient education interventions could enhance diabetes self-care.[34]

The findings of this study are expected to be used as a basis for health workers, mainly at the primary care level, to provide an intervention that benefits in increasing self-efficacy and health beliefs. In addition, interventions related to self-care need to be provided to obtain good outcomes for DM patients and prevent type 2 DM complications. Although this research has answered the aim of the study, it still has several limitations. First, the small sample size may not generalize all diabetes patients. Second, there is a lack of objectivity because of the self-reporting questionnaires used to collect data. Third, the study examined self-care performed in the past seven days, which caused the recall bias. The last, since the study was cross-sectional in design, the causal relationship was not decided.

CONCLUSION

In conclusion, self-efficacy positively correlated with health belief and self-care. Personnel in primary health centers should focus on how to treat DM patients to improve their self-efficacy, health beliefs, and self-care, which can affect the empowerment of DM patients in managing their disease. Patient education should also focus on programs related to improving self-efficacy. Future research can be conducted to make an intervention that can increase self-efficacy, health beliefs, and self-care of type 2 DM patients. In addition, creating a self-care instrument that is more suitable for use in developing countries, especially in rural areas with limited facilities, is necessary.

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CONFLICT OF INTERESTS

There is no conflict of interest in this entire study.

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