

# THE RELATIONSHIP BETWEEN DURATION OF DIABETES AND DIABETES SELF MANAGEMENT BEHAVIORS

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## ARTICLE INFORMATION

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## ABSTRACT

**Introduction** Diabetes mellitus (DM) is a chronic disease that has an impact on increasing morbidity and mortality. This occurs due to complications arising from chronic hyperglycemia that are not well controlled. Hyperglycemic control can be achieved through the application of daily diabetes self-management behaviors. The factor that might to influence the application of diabetes self-management behavior is the duration of diabetes. The purpose of this research is to identify the relationship between duration of diabetes and self-management behaviors of people with type 2 Diabetes Mellitus. **Method** A cross-sectional research design was used in this study, and 112 people with type 2 Diabetes Mellitus were recruited. The questionnaire used in this study is The Summary Diabetes Self Care Activity (SDSCA), and Socio-demographic questionnaire. **Result** The results show the significant relationship between duration of diabetes and self-management behaviors (p value < 0.001), which means that the longer the respondent has DM, the more their self-management behaviors increases. **Conclusion** Therefore, nurses need to assist people with type 2 diabetes through providing motivation and education about diabetes self-management.

## 1. Introduction

One of the chronic diseases that can have an impact on increasing morbidity, disability, and death is diabetes mellitus (DM). The prevalence in the world is quite high, namely 366 million people, where more than 90% are type 2 diabetes and by 2030 the number is predicted to increase to 552 million people (*International Diabetes Federation [IDF], 2011, in Wattanakul, 2012*). Smeltzer and Bare (2016) explain that diabetes mellitus is a group of metabolic diseases characterized by an increase in glucose levels in the blood due to defects in insulin secretion, insulin action, or both. Diabetes mellitus if not handled properly will cause several acute and chronic complications. Acute complications that occur in patients with diabetes mellitus

are diabetic ketoacidosis, hypoglycemia, and hyperglycemia, while chronic complications that include such as coronary artery disease, stroke, diabetic nephropathy, diabetic retinopathy. Therefore, to prevent complications, it is necessary to control diabetes through the application of self-management behaviour that is correct and disciplined regularly. Diabetes self-management behaviors that need to be applied include diet management, physical activity (exercise), the use of therapy, monitoring blood sugar, and foot care. There are many factors that might influence people with diabetes in implementing diabetes self-management behavior, one of which is the Duration of diabetes.

Several studies on the duration of DM and diabetes self-management behavior have

been carried out, including research conducted by Yin (2005); Adwan & Najjar (2013); and Xie et al (2020), with the results showing a significant correlation between the duration of DM and self-management behavior ( $p$  value  $<0.01$ ). However, there are other studies that show insignificant results, namely research conducted by Wattanakul (2012).

Based on the description above, the authors are interested in knowing whether diabetes duration is one of the factors that will affect the behavior of people with DM in diabetes self-management, because not all related studies show significant results, even there are two different research results. Therefore, the research question that the authors wants to find out "is there any relationship between the duration of DM and diabetes self-management behavior in people with type 2 diabetes".

## 2. Method

The research design used in this study was a descriptive analytic design with a cross sectional approach. The population of this study were all people with type 2 diabetes who were undergoing outpatient care at the Bekasi hospital. The sample was taken using purposive sampling technique. There were 112 people who were participated in this study. The questionnaire used in the data collection was a demographic questionnaire and Summary Diabetes Self Care Activity (SDSCA).

Data analysis was performed by univariate and bivariate analysis. Univariate analysis was used to describe the variable duration of DM, while bivariate analysis was carried out to examine whether there was a relationship between the duration of DM and diabetes self-management behavior. The statistical test used for bivariate analysis was the Spearman rank correlation test, and the data processing included editing, coding, processing or data entry and cleaning. This research was also conducted by applying the principles of research ethics, namely the principles of Beneficence, the Principles of Respect for Human Dignity, and the Principles of Justice.

## 3. Results and Discussion

The following shows the data from the results of univariate and bivariate analysis of the two variables studied.

Variable	Mean	Median	SD	Min-Maks	CI 95%
Duration of diabetes (years)	8,2	6	6,4	1-30	7,0-9,4

Table 1. Characteristics of respondents by duration of diabetes (n=112)

In table 1, the analysis results show that the average respondent's duration of diabetes was 6 years. With an estimated 95% interval it was believed that The respondent's duration of diabetes was 7 years to 9.4 years. The shortest Duration of diabetes was 1 year and the longest was 30 years with a standard deviation of 6.4 years.

Independent Variabel	Dependent Variabel	R	P value
Duration of diabetes	Self-management behaviors	0,268	0,004*

Table 2. Analysis of the relationship between duration of diabetes and diabetes self-management behaviors (n = 112)

The results of the relationship analysis (spearman rank correlation test) for the duration of diabetes and self-management behavior in people with type 2 diabetes are 0.268 with a probability value of 0.004 ( $p$  value  $<0.05$ ). These results indicate that there was a significant relationship between duration of diabetes and diabetes self management behavior. The relationship between these two variables was positive, which means that the longer the respondent has DM, the more their self-management behavior increases.

The results showed that The average of respondents' duration of DM was 6 years, with the shortest length of DM was 1 year and the longest was 30 years. From the estimation results, it can be concluded that people with diabetes who seek an outpatient treatment at the Bekasi hospital have diabetes with a duration of 7 years to 9.4 years. In line with the results of this study is a study conducted by Wattanakul (2012) where the average length of DM from the respondents

he studied was 6.8 years. Not much different from the results of research by Adwan and Najjar (2013), That the average of diabetes duration was 5 years. Meanwhile, a study by Yin (2005) showed a quite different result. It was shown that the duration of diabetes of his respondents was 10.4 years, but the lowest length with the highest was the same as this study, namely 1-30 years. Analysis of the relationship between the duration of DM and diabetes self-management behavior in this study showed a significant relationship, meaning that the longer the respondent had diabetes, the more diabetes self-management behavior would increase.

The results of this study are in line with the results of research by Adwan and Najjar (2013); Yin (2005) which also showed a significant relationship between diabetes duration of people with DM and diabetes self-management behaviors. Similar results are also shown by research Xie et al., (2020), where adherence to self-management is influenced by the diabetes duration of people with DM. In contrast to the results of Wattanakul's study, the duration of DM was not related to self-management behavior. It is possibly because they had more regularly attended clinics for follow-up consultations. We infer that more follow-up visits with a physician may enable patients to gain more knowledge about their disease and health condition and thus increase their motivation to perform self-management

In addition, people who have had diabetes for a long time may have adapted better to their disease and not be too resistant if they are advised to integrate healthy lifestyle changes. Bandura (1997, in Yin, 2005) also suggests that people who have long had DM have more experience with self-management. Evidenced by the respondents studied, those who did self-management for more than 5 days were respondents who had diabetes for more than 20 years.

According to the analysis of the researchers, a significant relationship between the duration of DM and diabetes self-management behavior is because people who have been diagnosed with DM for years may already understand the procedures or rules for treating DM so that it is easier to

apply self-management behavior regularly compared to people with DM who have just been diagnosed. In addition, people who have had diabetes for a long time may have adapted better to their disease and not be too resistant if they are advised to integrate healthy lifestyle changes.

#### 4. Conclusions

In conclusion, the results obtained indicated that there was a relationship between duration of DM and diabetes self-management behaviors of people with type 2 Diabetes Mellitus. It is possibly because they had more regularly attended clinics for follow-up consultations, so they have more knowledge and motivation to perform self-management.

Therefore, nurses need to assist DM patients by monitoring them in the application of diabetes self-management, providing motivation and if necessary providing education about diabetes self-management. For further researchers, it is hoped that they can examine what factors can prevent DM patients from carrying out diabetes self-management so that preventive measures can be anticipated, thus diabetes self-management can always be performed and people with DM can avoid various complications.

#### 5. Giving Thanks

The first thanks I give is to God who has given me the ability and health so that I can write this manuscript. I also thank my family for supporting me and showing their understanding while I have been busy writing this manuscript. I would also like to thank the Director of Nursing Academy of Pasar Rebo and all staff who have The first thanks I give is to God who has given me the ability and health so that I can write this manuscript. I also thank my family for supporting me and showing their understanding while I have been busy writing this manuscript. I would also like to thank the Director of Nursing Academy of Pasar Rebo and all staff who

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