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# Long working relationship with Nurses' Level Of Knowledge About Diabetes Mellitus Management In Hospital St. Elisabeth Semarang

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### ABSTRACT

Diabetes Mellitus (DM) is a disorder of carbohydrate, protein and fat metabolism characterized by hyperglycemia or increased levels of glucose in the blood caused by abnormalities in insulin secretion or decreased insulin action. Hyperglycemia can adversely affect various organs of the body such as diabetic neuropathy, foot ulcers, diabetic retinopathy, diabetic nephropathy and blood vessel disorders. Complications due to uncontrolled blood sugar can result in high morbidity rates that can affect the quality of life of the sufferer. The increasing prevalence of diabetes mellitus (DM) shows the importance of prevention efforts. DM management consists of pharmacological and non-pharmacological therapy. One of the non-pharmacological therapies is changing the behavior of DM patients. So it takes active education from nursing staff who help the nursing process for 24 hours in the hospital. The provision of education by nurses depends on the desire and ability of a nurse to provide education, and is supported by the level of knowledge of the nurse about diabetes mellitus management. This study aims to determine the length of work with the level of knowledge of nurses about diabetes mellitus management. This research is a quantitative research with a cross sectional study design. Data were collected with a questionnaire about the length of work and knowledge of nurses about diabetes mellitus management. The study was conducted from November to December 2021 with a sample size of 60 respondents. The sampling method in this study used purposive sampling in accordance with the inclusion and exclusion criteria. The source of data in this study is primary data. The population of this study were nurses in the inpatient ward of St. Elisabeth Semarang.

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## INTRODUCTION

Diabetes Mellitus (DM) is defined as a collection of symptoms in a person due to the body experiencing disturbances or unable to control blood sugar levels. These problems can be caused by inadequate secretion of the hormone insulin or impaired insulin function (resistance to insulin levels) or can also be a disorder of both or a combination of these two conditions or chronic metabolic disorders due to the pancreas not producing. Patients with diabetes mellitus

whose daily life is not managed properly or an unhealthy lifestyle will increase the risk of complications. These complications can be caused by insulin deficiency or can also be caused by inadequate insulin action. Complications that arise can be acute or chronic. Included in these acute complications occur related to a sudden increase in blood sugar levels, while chronic complications can occur due to an increase in blood sugar levels that lasts for a long time. Patients with diabetes mellitus usually complain of typical symptoms such as polyphagia (a lot of eating), polydipsia (a lot of drinking), polyuria (a lot of urine/frequent urination at night), increased appetite but weight loss quickly (5-10 kg in 2-4 weeks), easily tired and tingling. Although diabetes mellitus is a chronic disease that does not cause death directly, it can be fatal if it is not managed properly. The management of diabetes mellitus must be carried out jointly or in a multidisciplinary manner that includes pharmacological and non-pharmacological therapy to prevent acute and chronic complications.

Hyperglycemia that occurs from time to time can cause damage to various body systems, especially nerves and blood vessels. Some of the consequences of diabetes that often occur are: Increased risk of heart disease and stroke, Neuropathy (nerve damage) in the feet which increases the incidence of foot ulcers, infections and even the need for leg amputations. Diabetic retinopathy which is one of the main causes of blindness, occurs due to damage to small blood vessels in the retina, diabetes is one of the main causes of kidney failure, the risk of death of diabetics in general is twice that of non-diabetics. With good metabolic control, keeping blood sugar levels in the normal category, complications due to diabetes can be prevented/delayed. Data on the percentage of diabetes mellitus complications in Dr. Cipto Mangunkusumo Jakarta (RSCM) in 2011 the most complications were neuropathy experienced by 54% of patients with diabetes mellitus who were treated at RSCM in 2011 followed by diabetic retinopathy and proteinuria. Chronic complications of DM in Indonesia consist of neuropathy 60%, coronary heart disease 20.5%, diabetic foot 15%, retinopathy 10%, and nephropathy 7.1%<sup>4</sup>. Improper management of diabetes mellitus causes the patient's blood glucose to become difficult to control and can lead to various complications such as diabetic neuropathy, diabetic nephropathy, stroke, blindness and diabetic ulcers which will affect the quality of life of patients with diabetes mellitus.

The increasing prevalence of DM and complications shows the importance of prevention efforts. Prevention of DM is to strive for blood glucose levels in the body to be normal. Efforts to reduce blood sugar levels are through the four pillars of DM management such as education, meal planning, physical exercise and pharmacological therapy<sup>5</sup>. Improving the health indicators of DM patients and the quality of life of DM patients requires health education in treatment, which aims to teach patients about DM management in improving their quality of life and managing their disease independently<sup>6</sup>. Education monitoring blood glucose levels is very important because it is an indicator that determines the diagnosis of DM. Blood glucose levels can be checked during, and when fasting. A person is diagnosed with DM if the results of the examination of blood sugar levels are 200 mg/dl, while fasting blood sugar levels are 126 mg/dl. Education that can be provided is not only about blood glucose but can also be in the form of a healthy diet, good physical activity for DM, proper use of drugs, regular foot care, and proper utilization of health care facilities. Education in the form of health education is very important for DM patients, where patients need to obtain minimal information after the diagnosis of DM is established, both basic knowledge about diabetes, self-monitoring, causes of high blood glucose levels, oral hypoglycemic drugs, meal planning, care, physical activity, signs of hypoglycemia and complications. People with DM who have sufficient knowledge about DM, then subsequently change their behavior, so that they will be able to control the condition of the disease. Providing the right information can improve patient compliance in undergoing a comprehensive treatment program, so that blood glucose level control can be achieved. With more compliance, it will be easier to absorb information related to their disease so that DM

patients can relatively live normally if they know their condition and how to manage the disease. Conducting health education about DM is not easy for nurses. Many things affect the health education, namely knowledge, motivation, workload and so on. Despite adequate facilities, good organization and management, without high motivation and adequate level of knowledge, it is difficult to conduct health education for patients properly.

## METHOD

This study is a quantitative study with a descriptive analytic research design, using a cross sectional approach which was conducted on 60 respondents with the aim of knowing the length of work and the level of knowledge of nurses about diabetes mellitus management. This research was conducted at St. Hospital. Elisabeth Semarang. The data collection technique was carried out using a length of work questionnaire and the level of knowledge of nurses about diabetes mellitus management. The sampling method in this study used purposive sampling in accordance with the inclusion and exclusion criteria. The inclusion criteria in this study were nurses who served in the inpatient room and were willing to be respondents. Meanwhile, the exclusion criteria in this study were nurses who were not on duty when the study was conducted, were on leave or had a study permit. The source of data in this study is primary data. The independent variable in this study is the length of work while the dependent variable is the level of knowledge of nurses about diabetes mellitus management. Data analysis using univariate analysis, bivariate with computer using chi-square statistical test

## RESULTS AND DISCUSSION

### Prevalence of Research Subjects

Research conducted at St. Hospital. Elisabeth Semarang on January 10, 2022 to February 8, 2022. The population in this study were nurses. The sample in this study were 60 nurses who were taken using purposive sampling technique.

#### 1. Univariate Analysis

**Table 1.** Age Frequency Distribution  
Nurse Hospital St. Elisabeth Semarang (n= 60)

Age	Total (n)	Percentage (%)
22 - 30	27	45
31- 38	19	31,7
39 - 56	14	23,3
Total	60	100

Based on table regarding age, most of the respondents, namely 27 people (45%) are between 22-30 years old

**Table 2.** Distribution of Last Education Frequency  
Nurse Hospital St. Elisabeth Semarang (n= 60)

Last Education	Total (n)	Percentage (%)
DIII Keperawatan	37	61,7
S1/Ners	23	38,3
Total	60	100

Based on table regarding the latest education, most of the respondents, namely 37 people (61.7%) have the latest education, namely DIII Nursing

**Table 3.** Distribution of Working Time  
Nurse Hospital St. Elisabeth Semarang (n= 60)

Length of Employment	Total (n)	Percentage (%)
< 3 Years	6	10
≥ 3 Years	54	90
Total	60	100

Based on table regarding the length of work, most of the respondents, namely 54 people (90%) had a long working period of more than 3 years.

**Table 4.** Distribution of Knowledge Levels  
Nurse Hospital St. Elisabeth Semarang (n= 60)

Knowledge Level	Total (n)	Percentage (%)
Knowledge Enough	3	5
Good Knowledge	57	95
Total	60	100

Based on table regarding the level of knowledge, most of the respondents, namely 57 people (95%) have a good level of knowledge.

2. Bivariate Analysis

**Table 5.** Relationship of Length of Work with Nurses' Knowledge Level  
About Diabetes Mellitus Management at St. Hospital. Elisabeth Semarang

Length of Work	Knowledge Level				Total	P value	
	Knowledge Enough		Knowledge Good				
	n	%	n	%			
< 3 Years	0	0	6	10	6	10	>0.001
≥ 3 Years	3	5	51	85	54	90	
Total	3	5	57	95	60	100	

Table shows that most nurses who have worked 3 years have good knowledge as many as 51 nurses (85%). Nurses who have worked <3 years have good knowledge of 6 nurses (10%). Table shows the results of the test of the relationship between the length of work with the level of knowledge of nurses about the management of diabetes mellitus at St. Hospital. Elisabeth Semarang. Fisher's test results obtained p value > 0.001 (p <0.05) so that H1 is rejected and H0 is accepted, which means that there is no relationship between the length of work and the level of knowledge of nurses about the management of diabetes mellitus at St. Elisabeth Semarang

**Characteristics of the Research Subject**

60 respondents, most are aged between 22-30 years. In working age affects productivity, the average age of nurses is in the productive age so that they have the opportunity to achieve better performance productivity. Productive age is middle adulthood, at this age nurses will focus their hopes on getting a job, choosing life partners and forming a family and

socializing. The second characteristic is the level of education, where most nurses have a DIII Nursing education level, which is 37 nurses. Knowledge is closely related to education. The higher a person's education, the wider his knowledge will be. Knowledge is expected to change a person's mindset which will ultimately affect decision making.

The next characteristic is long working time. Based on the available data, it was found that most of the nurses had worked for more than 3 years, namely as many as 54 nurses. The learning process can provide the ability to perform skills if these skills are practiced. The higher a person's skills are greatly influenced by the length of a person's work. Based on the results of the bivariate analysis, it showed that most of the nurses who had worked 3 years had good knowledge as many as 51 nurses (85%). Nurses who have worked <3 years have good knowledge as many as 6 nurses (10%). Fisher's test results obtained p value > 0.001 (p < 0.05) so that H1 is rejected and H0 is accepted, which means that there is no relationship between the length of work and the level of knowledge of nurses about the management of diabetes mellitus at St. Elisabeth Semarang.

The results of this study are in line with research conducted by Khairir Rizani, 2018 where the level of knowledge of nurses as much as 56.3% is in the good category. The statistical test in this study used the gamma correlation test. For education level variable with p value = 0.980. For the variable length of work, the p value = 0.919. So it can be concluded that there is no relationship between the level of education and the length of work of nurses with nurses' knowledge of cardiopulmonary resuscitation in the emergency department of Moch General Hospital. Ansari Saleh Banjarmasin<sup>13</sup>. The results of this study are also in line with the research conducted by Fathoni (2014) with the title of the relationship between the level of knowledge of nurses about basic life support (BLS) and the behavior of nurses in the implementation of the primary survey at RSUD dr. Soediran Mangun Sumarso where out of 20 respondents with SPK, D3 Nursing and S1 Nursing education levels showed a level of knowledge about basic life support (BLS) with a good category of 75% and 25% enough and there were no respondents with a poor knowledge category.

## CONCLUSION

Based on the results of research and discussion, conclusions can be drawn The length of time a nurse has worked in the inpatient ward of St. Hospital. Elisabeth Semarang obtained as many as 54 nurses (90%) have a long working time which is more than 3 years. The level of knowledge of nurses about diabetes mellitus management at St. Hospital. Elisabeth Semarang obtained as many as 57 people (95%) have a good level of knowledge. Fisher's test results obtained p value > 0.001 (p < 0.05) so that H1 is rejected and H0 is accepted, which means that there is no relationship between length of work and level of knowledge of nurses about diabetes mellitus management at St. Hospital. Elisabeth Semarang

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