

**THE RELATIONSHIP BETWEEN THE DURATION OF  
DIABETES MELLITUS AND DIABETIC NEUROPATHY IN  
THE INTERNAL MEDICINE POLYCLINIC OF LINGGAJATI  
GENERAL HOSPITAL**

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***ABSTRACT***

Based on data by IDF (International Diabetic Federation), Indonesia has been the 5th country in the world as the biggest diabetes mellitus with the prevalence approximate 9.1 billion people and increasing every year, tha the burden of the country. Diabetic neuropathy is the common complication which presents in diabetic patients, researchers suggest fifty percent of patients with diabetes will get the diabetic neuropathy complication. This study aimed to know the relationship between duration of Diabetes Mellitus Disease and Diabetic Neuropathy also clinical manifestations in Internal Medicine Polyclinic Linggajati General Hospital in January to May 2020 period. Sampling technique is consecutive sampling with Inclusion Criteria including identity, gender, age, symptoms and DM duration, statistical test using Chi Square in SPSS 16.0. There is a significant relationship between duration of Diabetes Mellitus and Diabetic Neuropathy (p value = 0.02 ) . There is a relationship between duration of Diabetes Mellitus and Diabetic neuropathy and the clinical features are woman most gender, most age range is 50-60 years old, most DM duration is 5-10 years, and most symptoms is Numbness.

**Keywords: Diabetic Neuropathy, Diabetes Mellitus Duration, Clinical Manifestations**



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## INTRODUCTION

The prevalence of type 2 DM is higher than other types of DM in the world. The prevalence of type 2 DM is thirty to fifty percent<sup>1</sup>.

IDF (International Diabetic Federation) data in 2015 estimates that the number of people with DM in Indonesia is very large (ranked 5th in the world out of the 10 countries with the most DM), namely around 9.1 million prevalence which continues to increase every year from 5.7% (in 2007) to 6.9% (in 2013), which is a very heavy burden. <sup>2</sup> It is feared that if there are no comprehensive efforts to overcome this situation, there will be an increase in DM cases with comorbid complications which will result in a significant increase in health costs and requires handling with complex technology.

According to 2018 Riskesdas (Basic Health Research) data, there was an increase in the prevalence of DM sufferers, namely 6.9% in 2013 to 10.9% in 2018. In West Java province itself the prevalence rose from 0.9 % to 2.0%, This data shows that DM sufferers increase every year.

Presentation of complications of diabetes mellitus reported by RSUP Dr. Cipto Mangunkusumo namely neuropathy (54%), diabetic retinopathy (33.40 %), proteinuria (26.50%) and peripheral arterial disease (10.90%) and diabetic foot ulcers (8.70%). This shows that neuropathy is the most frequent complication of DM.<sup>5</sup>

Diabetic neuropathy pain is the main problem faced by diabetes mellitus (DM) patients. The number of diabetes sufferers is increasing day by day, causing an increase in the prevalence of diabetic neuropathy pain. The number of diabetes sufferers in Indonesia in 2000 was 8.4 million which increased to 9.1 million in 2013 and is estimated that in 2030 it will reach 21.2 million. BPJS patient data in 2016 stated that diabetes mellitus sufferers experienced chronic complications of neuropathy who were recorded at the Internal Medicine Polyclinic at Dr. RSUD. M. Soewandhi was still quite high in 2016, as many as 961 people (71.90%) of which 497 people were caused by diabetes mellitus type 2.<sup>6</sup>

Fifty percent of diabetes sufferers will experience complications of diabetic peripheral neuropathy. Diabetic peripheral neuropathy has typical clinical manifestations characterized by pain. Pain has a big impact on the sufferer's life. Pain will interfere with activities, mood, mobility, work productivity, social relationships and sleep, causing a decrease in the sufferer's quality of daily life.<sup>8</sup>

Among patients with diabetes mellitus (n=1338), there were approximately 577 patients (43.1 % ) who were diagnosed with painful peripheral neuropathic diabetes. Diabetic peripheral neuropathy pain is independently associated with age (where the incidence of pain occurs more often in old age but is not significantly different  $p = 0.07$  ), gender (more women than men respectively 46.2% and 39.3%  $p = 0.01$ ), duration of diabetes, fasting glucose levels, hypertension HbA1c, and previous cerebrovascular events.

According to medical record data from the internal medicine polyclinic of Linggajati Regional Hospital, it is proven that the number of patients suffering from DM increases every year as well as the increasing number of patients who are

diagnosed and have complaints of diabetic neuropathy. Based on this data, researchers are interested in conducting research on medical record data to see the clinical picture. Diabetic neuropathy in DM patients at the Linggajati Regional Hospital polyclinic and factors associated with the incidence of diabetic neuropathy.

### RESEARCH METHOD

This type of research is a retrospective analysis using medical record data from diabetic neuropathy sufferers who came to the internal medicine clinic at Linggajati Regional Hospital for the period January 2020 to May 2020.

The research sample was taken using a consecutive sampling method where patients who met the inclusion criteria were taken as samples. The inclusion criteria for this study were patients who came for treatment to the internal medicine polyclinic at Linggajati District Hospital who were diagnosed with diabetic neuropathy by a specialist in internal medicine and had complete data including patient identity, gender, age, complaints and length of time suffering from DM. This research also aims to determine the relationship between the length of time suffering from DM and the complaints felt by patients using the Chi Square statistical test to assess its significance.

### RESULTS AND DISCUSSION

From the results of research on the medical records of patients in the Linggajati Regional Hospital's internal medicine clinic for the period January 2020 to May 2020, it was found that there were 150 diabetes mellitus patients, of which 149 people were diagnosed with diabetic neuropathy by specialists. Based on gender, the majority are women. The age range of most sufferers is 50-60 years. Based on the duration of suffering from DM, it is 5-10 years and the most common complaint is numbness.

Gender	Number of people)	Percentage (%)
Man	52	34.9
Woman	97	65.1
Amount	149	100%

**Table 1 Frequency of Diabetic Neuropathy Sufferers Based on Gender**

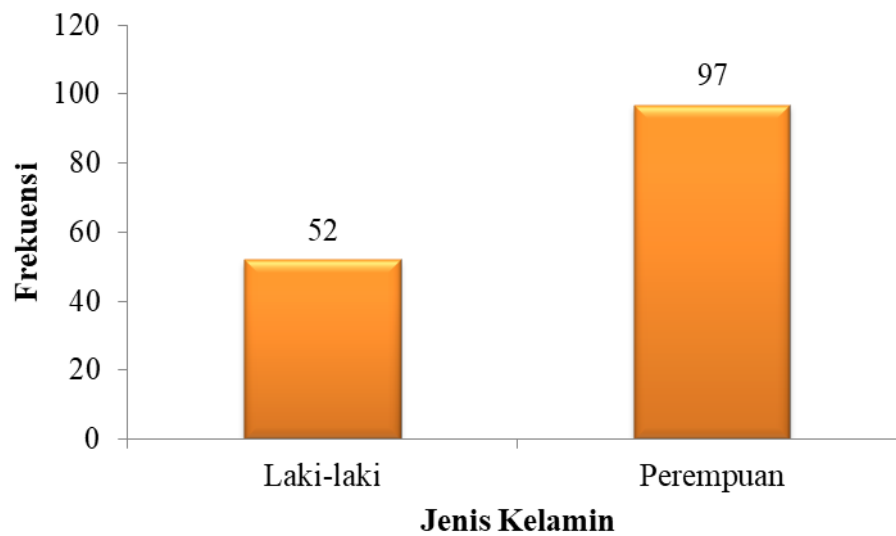


Figure 1 Bar Diagram of Frequency of Diabetic Neuropathy Sufferers Based on Gender

Age (years)	Number of people)	Percentage (%)
<40	29	19.5
40-50	33	22.1
50-60	49	32.9
>60	38	25.5
Amount	149	100%

Table 2 Frequency of Diabetic Neuropathy Sufferers Based on Age

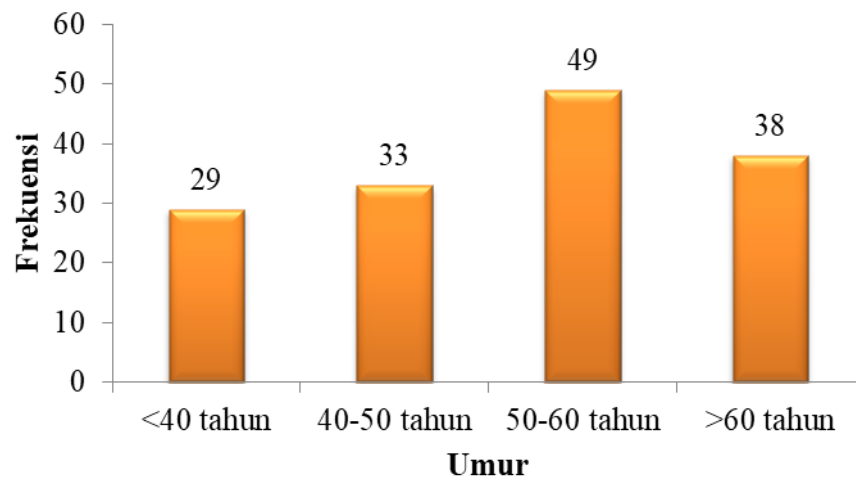


Figure 2 Bar Diagram of Frequency of Diabetic Neuropathy Sufferers Based on Age

Suffering from DM for a long time	Number of people)	Percentage (%)
< 5 years	65	43.6
5-10 years	71	47.7
>10 years	13	8.7
Amount	149	100%

Table 3 Frequency of Diabetic Neuropathy Sufferers Based on Length of Time Suffering from DM

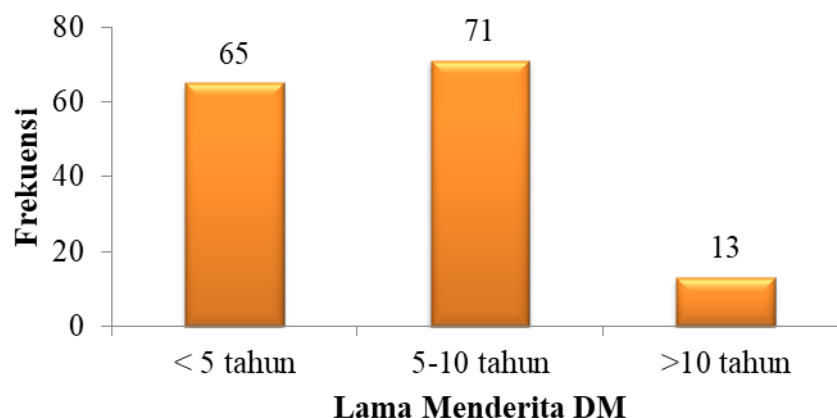


Figure 3 Bar Diagram of Frequency of Diabetic Neuropathy Sufferers Based on Length of Time Suffering from DM

Complaint	Number of people)	Percentage (%)
Bale	68	45.6
Painful	56	37.6
Hot	15	10.1
Rigid	10	6,7
Amount	149	100%

Table 4 Frequency of Diabetic Neuropathy Sufferers Based on Complaints

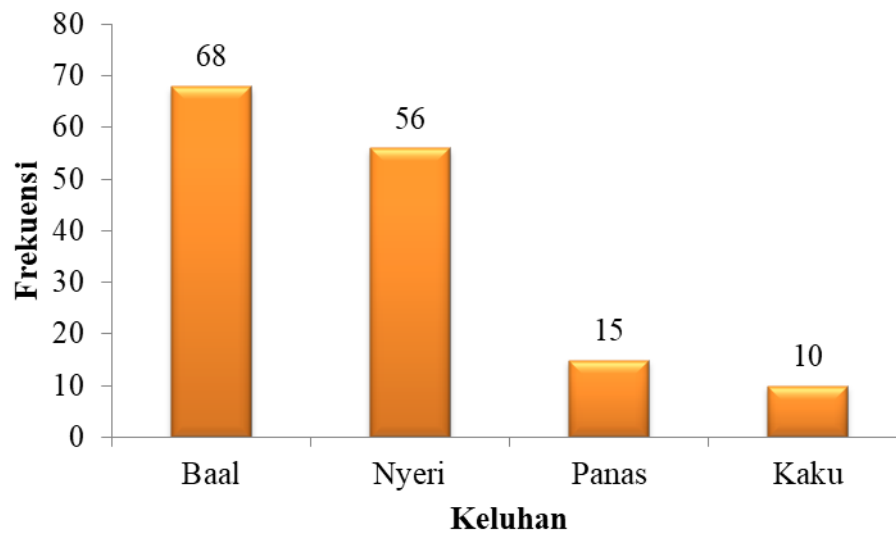


Figure 4 Bar Diagram of Frequency of Diabetic Neuropathy Sufferers Based on Complaints

From the results of statistical tests using Chi Square, it was found that  $p$  value = 0.02 ( $p < 0.05$ ), which means there is a significant relationship between the length of time suffering from DM and the patient's complaints of neuropathy.

Suffering from DM for a long time	Diabetic Neuropathy	$p$ value
< 5 years	65	$p = 0.02$
5-10 years	71	
>10 years	13	

Table 5 Chi Square Test Results of the Relationship between Length of Time Suffering from DM and Diabetic Neuropathy

## DISCUSSION

From this research, it was found that the number of diabetes mellitus sufferers from January to May 2020 was 350 people. Of this number, 149 patients diagnosed with DM neuropathy met the inclusion criteria. This is in accordance with research by *The Rochester Neuropathy Study*, which found that of 278 DM patients, 164 patients (59%) suffered from peripheral neuropathy.<sup>10</sup> This is also in accordance

with research by Kuate-Tegueu, 2015 which states that fifty percent of DM sufferers will experience neuropathy complications.<sup>11</sup>

Based on gender, it was found that there were more women, namely 97 people, but statistically there was no significant relationship in accordance with Ziegler's 2006 research which stated that gender did not influence the incidence of diabetic neuropathy.<sup>12</sup>

Based on the age range, the most common sufferers from diabetic neuropathy are 50-60 years old, namely 49 people, this is also in accordance with research by Darsana, namely that the most frequent sufferers are in the 45-59 year old range, namely 54 people (66%) of the total. patient. This is also in accordance with research conducted by Priyantono at Kariadi General Hospital, Semarang, that the majority of diabetic neuropathy sufferers were aged 45-65 years, namely 79 people (89%) of all patients.<sup>13</sup>

Based on the length of time suffering from diabetes mellitus, it is found that the maximum is 5-10 years. In accordance with Prasetyo's research in Semarang, it also shows that DM sufferers who have clinical symptoms of neuropathy are patients with a time span of 1-10 years.<sup>14</sup>

The most common clinical symptom found in patients at Linggajati Regional Hospital is numbness. Research conducted at RSUP Prof. Dr. RD Kandou Manado had the most patients with clinical symptoms of cramps, namely 70 people out of 140 people (84.3%), but this is only subjective because it is only based on the patient's complaints or clinical symptoms. It would be better if the diagnosis of diabetic neuropathy was supported by an objective examination. using a standardized scoring system such as *Diabetic Neuropathy Symptom* (DNS) or *Diabetic Neuropathy Examination* (DNE) because it has sensitivity and specificity in diagnosing diabetic neuropathy.<sup>15</sup>

From the results of the chi square statistical test, there is a significant relationship between the length of time suffering from DM and complaints of diabetic neuropathy ( $p=0.02$ ) in accordance with previous research Simanjuntak 2020 and Mildawati 2019 which obtained p values of 0.02 and 0.04 respectively. which means that there is a significant relationship between the length of time suffering from DM and complaints of diabetic neuropathy.<sup>16</sup>

## CONCLUSION

From the results of research conducted at the Linggajati Kuningan Regional Hospital's Internal Medicine Polyclinic, it can be concluded that there is a relationship between the length of time suffering from diabetes mellitus and diabetic neuropathy and clinically the majority of sufferers are women with an age range of 50-60 years with a length of time suffering from DM of 5-10 years and the



most common clinical symptom is numbness.

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