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Research Article

Characteristics of Diabetes Mellitus Occurrence at Imelda General Hospital for Indonesian Workers in 2024

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Abstract: Diabetes mellitus (DM) is a metabolic disorder characterized by chronic hyperglycemic conditions. The hyperglycemic condition is caused by abnormalities in insulin secretion, insulin action, or both. DM is a global epidemic that causes high rates of morbidity and mortality, primarily due to microvascular and macrovascular complications. The number of diabetes mellitus (DM) patients has dramatically increased in the last 20 years. The purpose of this research is to identify the factors influencing the occurrence of Diabetes Mellitus at Imelda Pekerja Indonesia General Hospital in 2024. The research method uses a descriptive method to describe the object being studied. The research population consists of 292 with non-probability sampling using the consecutive sampling method. A sample of 40 respondents. Using a questionnaire. The research results show that out of 40 respondents, 15 respondents (37.5%) have good knowledge criteria, 24 respondents (60%) have sufficient knowledge criteria, and 1 respondent (2.5%) has poor knowledge criteria. It can be concluded that there are two factors influencing a person's knowledge: internal factors and external factors. The internal factors are education, age, and occupation, while the external factors are the environment and socio-cultural aspects.

Keywords: Dialysis, Food1, Patient Experience

1. Introduction

Diabetes mellitus (DM) is a metabolic disorder characterized by chronic hyperglycemic conditions. The hyperglycemic condition is caused by abnormalities in insulin secretion, insulin action, or both. DM is a global epidemic that causes high rates of morbidity and mortality, primarily due to microvascular and macrovascular complications. The number of diabetes mellitus (DM) patients has dramatically increased in the last 20 years.

Based on data from the World Health Organization (WHO), the number of adult diabetes sufferers is estimated to increase from 177 million people in 2000 to 370 million people in 2030 (Wild et al., 2004). The prevalence of diabetes across all age groups worldwide increased rapidly from 2.8% in 2000 to 4.4% in 2030. Meanwhile, according to the International Diabetes Federation (IDF), it is estimated that there are 463 million people aged 20-79 worldwide suffering from diabetes, which in 2019 was equivalent to a prevalence of 9.3% of the total population in the same age group. The prevalence of diabetes in 2019 based on gender was 9% in women and 9.65% in men, and this increased with the aging of the population to 19.9% or 111.2 million people aged 65-79 years. The number is predicted to continue increasing until it reaches 578 million in 2030 and 700 million in 2045 (Ministry of Health of the Republic of Indonesia, 2020).

Countries in the North Africa-Arab region and the Western Pacific rank first and second with the highest prevalence of diabetes among the population aged 20-79 years among the 7 regions in the world, at 12.2% and 11.4%, respectively. The Southeast Asia region, where Indonesia is located, ranks third with a prevalence of 11.3%. The IDF also projects

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the number of diabetes sufferers among the population aged 20-79 in several countries around the world that have identified the top 10 countries with the highest number of sufferers. China, India, and the United States occupy the top three positions with 116.4 million, 77 million, and 31 million cases, respectively. Indonesia ranks 7th among the 10 countries with the highest number of sufferers, which is 10.7 million. Indonesia is the only Southeast Asian country on that list, so the extent of Indonesia's contribution to the prevalence of diabetes cases in Southeast Asia can be estimated (Ministry of Health of the Republic of Indonesia, 2020). The proportion of deaths caused by DM in the age group 45-54 years in urban areas ranked 2nd at 14.7%, while in rural areas it ranked 6th at 5.8% in 2007 (Mustika et al., 2017).

Based on the initial study conducted at Imelda General Hospital Medan, Indonesia, involving 292 diabetes mellitus patients in 2024, the researchers observed that among the patients, there were 166 female patients and 126 male patients.

Based on the impact on the quality of life of patients with diabetes mellitus in various conditions such as physical, psychological, social, and environmental, most patients have a negative influence on their quality of life, whether they experience complications or not. This is believed to be because the diabetes they suffer from is difficult to cure. Studies conducted on diabetes mellitus patients found that most of them experience depression and require appropriate treatment because it can cause severe damage to their quality of life (Yudianto, Rizmadewi & Maryati, 2010). The impacts that can occur due to diabetes mellitus include both physical and psychological domains, such as diabetic retinopathy, diabetic nephropathy, and diabetic neuropathy, which occur in the physical domain. Meanwhile, in the psychological domain, the potential impacts include loss of hope, depression, loneliness, helplessness, anxiety, anger, grief, shame, and guilt. Other possible effects are becoming passive, being dependent on others, feeling uncomfortable, confused, and suffering (Smeltzer & Bare, 2016).

The risk factors for the occurrence of type II diabetes consist of two, namely non-modifiable factors and modifiable factors (Rovy, 2018). The factors that cannot be modified are age, gender, and hereditary factors (Ujani, 2016). The risk factor for diabetes often appears after the age of ≥45 years. Until now, there is indeed no clear mechanism regarding the relationship between gender and diabetes, but in the United States, many diabetes patients are female. DM is not a contagious disease, but it can be passed down to the next generation (Ramadhan, 2017). Someone whose immediate family members, such as parents or siblings, have a history of diabetes will be at a higher risk of developing diabetes (Sukmaningsih, Heru SubarisKasjono, & Werdani, 2016).

The results of the study at RSUP Prof Kandou Manado conducted by Kakanusa state that the age risk factor has an odds ratio value of 7.6, making the risk for those over 45 years old eight times greater compared to those younger. (Kekenusa, Ratag, & Wuwungan, 2013). The research results also show that there are several respondents under the age of 45 who also experienced DM occurrences. This also shows that it is not only age factors but there are other factors that can cause the occurrence of DM. But statistically, this study shows that the older a person is, the higher the prevalence of experiencing diabetes. This study explains that a family history is one of the risk factors for the occurrence of type II diabetes mellitus (DM), and someone with a family history of DM has a higher risk of developing DM compared to those without a family history of DM. DM is one type of disease with a hereditary component. It is consistent that the risk for a child, if one of their parents has diabetes, is 15%, and the risk is 75% if both parents have diabetes. (Trisnawati & Setyorogo, 2014)

2. Literature Review

Diabetes Mellitus (DM) is a metabolic disorder marked by chronic hyperglycemia due to either insulin secretion deficiencies, insulin resistance, or both. As global statistics show a rapid increase in DM prevalence, several studies have been conducted to explore the underlying risk factors and health consequences of this disease.

According to the World Health Organization (WHO), the global burden of diabetes is projected to rise from 177 million in 2000 to 370 million by 2030, with the Southeast Asia region — including Indonesia — ranking third in global prevalence at 11.3% [14][15]. The

International Diabetes Federation (IDF) reports that in 2019, 463 million adults aged 20–79 had diabetes, with Indonesia ranking 7th globally in total cases [14].

Risk factors contributing to DM are often classified as modifiable and non-modifiable. Non-modifiable risk factors include age, gender, and family history. Studies by Trisnawati and Setyorogo (2014) and Ujani (2016) support the notion that individuals with a family history of diabetes have a significantly increased risk. In fact, if both parents are diabetic, a child's risk may increase to 75%. Similarly, Kekenusa et al. (2013) found that individuals above 45 years old are eight times more likely to develop diabetes than those under 45.

Modifiable risk factors, on the other hand, include lifestyle elements such as smoking, obesity, physical inactivity, and poor dietary habits. Akter, Goto, and Mizoue (2017) conducted a meta-analysis showing that smoking significantly increases the risk of type 2 diabetes among Japanese adults [3]. Moreover, environmental and socio-cultural factors, such as access to healthcare information and education level, also influence knowledge and management of diabetes, as highlighted by Fathurohman and Fadhilah (2016) [4].

Local studies have mirrored these global findings. For instance, Imelda (2019) identified similar demographic and socio-economic determinants of DM in patients at a primary care facility in Medan, Indonesia [5]. Another study conducted by Rusdi (2020) emphasized the importance of addressing hypoglycemia in diabetic patients, especially in rural settings [10].

However, a notable gap remains in understanding how educational and occupational backgrounds specifically influence diabetes awareness and self-management. The current study aims to fill this gap by evaluating these demographic elements among Indonesian workers at Imelda General Hospital. The results confirm that while most respondents have adequate knowledge (60%), a significant portion still lacks comprehensive understanding of the disease, especially among those with lower education levels and limited access to health information.

This review underscores the need for integrated health education and targeted interventions to reduce the burden of diabetes in vulnerable populations.

3. Proposed Method

This type of research is quantitative with a descriptive method, which is a research method conducted to describe the object being studied. This research pattern aims to describe the characteristics of the occurrence of Diabetes Mellitus in the general hospital. Imelda Indonesian Workers. Place and Time of the Research. The research was conducted at the Imelda General Hospital for Indonesian Workers. This research was conducted from March to June 2024.

Population is the entirety of the research subjects that share similar characteristics, even if the percentage of similarity is small, or in other words, all individuals who will be used as research objects. (Arikunto, 2013). The population in this study consists of all Diabetes Mellitus patients treated at Imelda General Hospital, Indonesian Workers Medan, with a total number of patients. The data on Diabetes Mellitus patients at Imelda General Hospital for Indonesian Workers in Medan in 2024 shows a total of 291 patients, with a higher prevalence of females (166) compared to males (125) according to the medical records of Imelda Hospital in 2024. Therefore, the average number of patients receiving treatment each month is approximately 58 patients.

4. Results and Discussion

After conducting research on 40 respondents with the title "Factors Contributing to the Occurrence of Diabetes Mellitus at Imelda General Hospital for Indonesian Workers in 2024." Then the results are presented in the following table.

Tabel 1 Frequency distribution of respondents based on age regarding the factors causing Diabetes Mellitus at Imelda Pekerja Indonesia General Hospital for the period of May - June 2024.

No	Age	Frequency	Presentation (%)
1	40-50	12	30,0

2	51-60	20	50,0
3	61-70	6	15,0
4	71-80	2	5,0
	Total	40	100

From the table above, it can be seen that out of 40 respondents aged 51-60 years, the majority are knowledgeable, with 20 respondents (50.0%). Respondents aged 40-50 years are a minority, with 12 respondents (30.0%). Respondents aged 61-70 years are also a minority, with 6 respondents (15.0%), and respondents aged 71-80 years are a minority, with 2 respondents (5.0%).

Tabel 2 Frequency Distribution of Respondents based on the level of employment regarding the factors causing Diabetes Mellitus at Imelda General Hospital, Indonesian Workers, period May - June 2024.

No	Work	Frequency	Presentation (%)
1	Wirasawasta	11	27,5%
2	Petani	10	25,0%
3	Iburumahtangga	15	37,5%
4	Guru	3	7,5%
5	PNS	1	2,5%
	Jumlah	40	100

From the table above, it is known that the educational characteristics of the respondents are mostly at the level of housewives, with a total of 15, which is (37.5 %), minority Respondents at the farmer employment level were 10, amounting to (25.0%), while the minority of respondents at the entrepreneur employment level were 11 as much as (27.5%), a minority of respondents at the teacher employment level were 3 as much as (7.5%), and a minority of respondents at the civil servant employment level were 1 as much as (2.5%).

Tabe 3 Distribution of Respondents by Gender at Imelda General Hospital Indonesian Workers Period May – June 2024.

No	Knowlegde	Frequency	Presentation (%)
1	Laki-laki	-12	30,0
2	Perempuan	28	70,0
	Total	40	100

From the table above, it can be seen that the characteristics of the Respondents based on gender show that the majority are Female, with 28 Respondents (70%), and the minority are Male, with 12 Respondents (30%).

Tabel 4 From the table above, it can be seen that the characteristics of the Respondents based on gender show that the majority are Female, with 28 Respondents (70%), and the minority are Male, with 12 Respondents (30%).

No	Pendidikan	Frequency	Presentation (%)
1	SD	6	15,0
2	SMP	20	50,0
3	SMA	10	25,0
4	DIII/S1/S2	4	10,0
	Jumlah	40	100

From the table above, it can be seen from 40. The majority of respondents who
Educated as SMP As many as 20 respondents (50.0%), minority
Educated as SMA As many as 10 respondents (25.0%), minority
Educated as SD As many as 6 respondents (15.0%), minority
Educated as D3/S1,S2 As many as 4 respondents (10.0%), minority

Tabel 5 Frequency distribution of respondents based on the duration of exposure to factors causing Diabetes Mellitus at Imelda General Hospital for Indonesian Workers, period May - June 2024

No	LamaTerkenanya	Frequency	Presentation (%)
1	<6 mont	-	
2	7-11 mont	-	
3	1-3year	9	22,5
4	>3 year	31	77,5
	Jumlah	30	100

From the table above, it can be seen from 40 The majority of respondents who have been affected the longest Diabetes Mellitus The majority of respondents have been affected for more than 3 years. Diabetes mellitus was reported by 31 respondents (77.5%), and the minority of respondents who had been affected for the longest period of 1-3 years. Diabetes Mellitus in 9 respondents (22.5%)

Tabel 6 Distribution of Respondents based on the level of Knowledge about the Factors Causing Diabetes Mellitus at Imelda Pekerja Indonesia General Hospital for the period of May - June 2024.

No	Knowledge Level	Frequency	Presentation (%)
1	Good	15	37,5
2	Enough	24	60,0
3	Less	1	2,5
	Total	40	100

Based on the table above, it can be concluded that the level of knowledge about the factors causing Diabetes Mellitus at Imelda Pekerja Indonesia General Hospital during the period of May - June 2024. The majority with sufficient knowledge amounted to 24 respondents (60%), the minority with good knowledge amounted to 15 respondents (37.5%), and the minority with poor knowledge amounted to 1 respondent (2.5%).

5. Comparison

Based on the research results, it was found that out of 40 respondents, the number of respondents who have knowledge about the factors causing Diabetes Mellitus at Imelda Pekerja Indonesia General Hospital during the period of May - June 2024, were categorized as good with 15 respondents (37.5%), sufficient with 24 respondents (60%), and poor with 1 respondent (2.5%). It can be concluded that knowledge is influenced by several factors such as education, occupation, gender, and age. From the results of the above research, it can be seen that in terms of sufficient knowledge, compared to the respondents' knowledge about the factors causing Diabetes Mellitus, the knowledge is lacking. This is caused by the lack of information sources and counseling about the factors leading to the occurrence of Diabetes Mellitus. In fact, information is becoming increasingly accessible because the facilities and infrastructure are adequate.

6. Conclusions

After the researchers conducted a study on the factors causing Diabetes Mellitus at Imelda General Hospital for Indonesian Workers from March to June 2024, the data was processed in the form of distribution tables. From the data analysis results, the researcher can conclude that the factors leading to the occurrence of Diabetes Mellitus play an important role for Diabetes Mellitus patients. In this case, healthcare professionals play a role as a factor in providing education to improve the health status and enhance the quality of health for

individuals with Diabetes Mellitus. From the perspective of the creator, each client has a different level of knowledge. Thus, healthcare workers are required to be able to perform their functions well. Factors contributing to the occurrence of Diabetes Mellitus at Imelda Pekerja Indonesia General Hospital during the period of May - June 2024 show that the majority had sufficient knowledge, totaling 24 respondents (60%), a minority had good knowledge, totaling 15 respondents (37.5%), and a small number had poor knowledge, totaling 1 respondent (2.5%).

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