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# Sociodemographic and knowledge profile of patients with type 2 diabetes mellitus at Royal Prima General Hospital

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**ABSTRACT**

This study utilized a descriptive design with a cross-sectional approach, conducted from April to May 2024 at Royal Prima General Hospital, Medan. A total sampling technique was employed, including all 64 registered T2DM patients. Sociodemographic and knowledge data were collected via questionnaire and analyzed using univariate analysis to generate frequency distributions and percentages. The findings revealed that the majority of respondents were aged ≥45 years (62.5%), male (53.13%), had a low education level (≤9 years of schooling) (53.13%), and were unemployed (51.56%). Nevertheless, a majority of patients (62.5%) possessed a good level of knowledge regarding their disease. The profile of T2DM patients is consistent with that of a socioeconomically high-risk population. The high level of knowledge observed in the majority of patients may not guarantee optimal disease management due to potential structural and economic barriers. Therefore, intervention strategies for T2DM must be multifaceted, moving beyond education to address socioeconomic obstacles that impede the translation of knowledge into effective self-care behaviors.

**Keywords:** type 2 diabetes mellitus, sociodemographic characteristics, knowledge, patient profile

## Introduction

Diabetes Mellitus (DM) is a chronic metabolic disorder characterized by elevated blood glucose levels (hyperglycemia). This condition arises when the body either fails to produce sufficient insulin or cannot effectively utilize the insulin it produces. Over time, DM can lead to serious damage to vital organs, including the heart, blood vessels, eyes, kidneys, and nervous system. The global epidemic of Type 2 Diabetes Mellitus (T2DM), the most common form of the disease, continues to show a significant increase. Key drivers of this trend include the rising prevalence of global obesity, sedentary lifestyles, high-calorie diets, and population aging.[1–3]

The scale of this problem is reflected in data from the International Diabetes Federation (IDF), which estimated that in 2019, at least 483 million people aged 20-79 worldwide were living with diabetes. This figure is projected to increase to 578 million by 2030 and 700 million by 2045.[4] In Indonesia, diabetes

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mellitus has become a critical public health issue. Data indicate that DM is the third leading cause of mortality (6.7%), following stroke (21.1%) and heart disease (12.9%).[5]

This increasing trend in DM prevalence in Indonesia is further confirmed by data from the national Basic Health Research (Riskesdas). The diagnosed prevalence of DM, based on blood glucose measurements in the population aged 15 and over, rose from 6.9% in 2013 to 8.5% in 2018. A 2018 report from the Indonesian Ministry of Health highlights the additional challenge of low awareness; only about 25% of individuals with diabetes are aware of their condition. This lack of awareness appears more pronounced in specific socioeconomic groups, such as individuals with no formal education (13.7%) and those employed as farmers or farm laborers (9.90%).[5] At the regional level, the province of North Sumatra faces a significant disease burden. In 2019, data showed that out of a total of 249,519 diabetes patients, only 144,521 (57.92%) were recorded as receiving medical care. This indicates that over 40% of patients are not directly accessing healthcare services, suggesting a potential gap in disease management within the region.[6]

A cornerstone of T2DM management is patient adherence to lifestyle recommendations, particularly dietary compliance. Dietary adherence, defined as the patient's willingness to follow nutritional advice from healthcare professionals, is crucial for maintaining stable blood glucose levels and preventing complications.[7] However, its implementation presents considerable challenges. A study by Anggi and Rahayu[8] at dr. Drajat Prawiranegara Regional General Hospital found that 80% of DM patient respondents still frequently consumed sugary foods and beverages and did not adhere to their prescribed diet. Successful dietary adherence is influenced by a confluence of factors, including self-motivation, educational level, knowledge, and support from family and healthcare providers.

Although the government has established minimum service standards for DM control through various regulations, implementation on the ground faces numerous obstacles. Royal Prima Hospital in Medan, a key healthcare provider in the city, treats a large number of patients with this condition. primary aim of the research is to create a detailed, descriptive snapshot of the Type 2 Diabetes Mellitus (T2DM) patient population at that specific hospital.

## Method

This study was designed as a descriptive study. This design was selected to describe the profile of patients with Type 2 Diabetes Mellitus (T2DM) based on their sociodemographic characteristics and level of knowledge at a single point in time. All research activities, from data collection to analysis, were conducted at Royal Prima General Hospital in Medan. Field data collection was carried out from April to May 2024. The population for this study comprised all patients diagnosed with Type 2 Diabetes Mellitus who were registered at Royal Prima General Hospital, totaling 64 individuals. Given the limited and accessible size of the population, a total sampling technique was employed. Therefore, the sample size was equal to the population, consisting of 64 patients who met the inclusion criteria.

This study utilized both primary and secondary data. Primary data were obtained directly from respondents through structured interviews guided by a questionnaire. The questionnaire was designed to gather information on respondent characteristics and their level of knowledge regarding Type 2 Diabetes Mellitus. Secondary data, which served as supporting information, were obtained from patient medical records at Royal Prima General Hospital to confirm diagnoses and other relevant data. The variables investigated in this study were sociodemographic characteristics (including age, gender, educational level, and employment status) and the patients' level of knowledge about Type 2 Diabetes Mellitus.

Upon collection, the data underwent a multi-stage processing procedure. The first stage was editing, which involved checking the completeness and consistency of the questionnaire responses. In cases of incomplete data, the researcher performed re-verification with the respondent. The second stage was coding, where qualitative responses were assigned numerical codes to facilitate analysis. This was followed by data entry, the process of inputting the coded data into a computer program. The final stage was tabulating, where the data were organized into frequency distribution tables to provide a preliminary overview. Data were analyzed using univariate analysis to describe each research variable. This analysis aimed to generate frequency distributions and percentages for each variable: sociodemographic characteristics (age, gender, education, occupation) and level of knowledge. The results are presented in frequency distribution tables to provide a clear depiction of the respondent profile, in accordance with the study's objective.

## Results

The study included a total of 64 patients diagnosed with Type 2 Diabetes Mellitus. The demographic and personal data reveal a distinct profile for this patient group. In terms of age, the majority of the patients were 45 years or older. This older age group consisted of 40 individuals, accounting for a significant 62.5% of the total sample. The remaining 24 patients, or 37.5%, were 45 years old or younger. This suggests that the patient cohort is predominantly middle-aged and older, which is characteristic for Type 2 Diabetes. The gender distribution was relatively balanced, with a slight predominance of male patients. There were 34 males, making up 53.13% of the group, while the other 30 patients, or 46.87%, were female. Regarding educational background, a small majority of the patients had a lower level of formal education. Specifically, 34 patients (53.13%) had completed nine years or less of schooling, equivalent to a junior high school graduation level. The remaining 30 patients (46.87%) had attained a higher level of education, such as graduating from high school or university.

Table 1. T2DM patient characteristics (n= 64)

| Characteristic | n | % |
|---|---|---|
| Age (years) | | |
| ≥ 45 | 40 | 62,50 |
| ≤ 45 | 24 | 37,50 |
| Gender | | |
| Male | 34 | 53,13 |
| Female | 30 | 46,87 |
| Education | | |
| Higher education ≥ 9 years (High School/University graduate) | 30 | 46,87 |
| Lower education ≤ 9 years (Junior High School graduate) | 34 | 53,13 |
| Employment Status | | |
| Working | 31 | 48,44 |
| Not Working | 33 | 51,56 |
| Knowledge | | |
| Good | 40 | 62,50 |
| Less | 24 | 37,50 |

When looking at employment, a slight majority of the patients were not working. Thirty-three individuals, representing 51.56% of the sample, were unemployed. The other 31 patients (48.44%) were currently working. Finally, the assessment of the patients' knowledge, presumably about their condition, showed that a majority were well-informed. Forty patients, or 62.5%, were categorized as having "Good" knowledge. The other 24 patients, making up 37.5% of the group, were assessed as having "Less" knowledge. In summary, the typical T2DM patient in this sample is over 45 years old, slightly more likely to be male, and has a slightly higher probability of having a lower level of formal education and being unemployed. Despite these factors, a significant majority of the patients demonstrate a good level of knowledge about their condition..

## Discussion

This report provides a discussion of the characteristics of a cohort of 64 patients with Type 2 Diabetes Mellitus (T2DM), contextualized with findings from broader scientific literature. The patient sample is defined by a majority who are aged 45 years or older, a slight male predominance, and a tendency towards lower educational attainment and unemployment. Notably, a significant portion of the group (62.5%) demonstrated good knowledge regarding their condition.

The finding that a majority of patients (62.5%) are 45 years or older aligns firmly with established epidemiological data. T2DM is widely recognized as a condition whose prevalence increases significantly with age. A global analysis published in The Lancet and data from the International Diabetes Federation consistently show the highest burden of T2DM among individuals aged 50 and above. For instance, a 2017 global burden of disease study noted that prevalence jumps from 4.4% in the 15-49 age group to 15% for those aged 50-69. The age profile of the current sample is therefore highly representative of a typical T2DM population.[9]

The study identified a slight male majority (53.13% male vs. 46.87% female). Globally, the gender distribution of T2DM is complex and can vary by region and age. While some large-scale analyses report a slightly higher number of men with diabetes worldwide, others emphasize that women often face a greater burden of risk factors and worse cardiovascular outcomes post-diagnosis. A review in Diabetologia (2023) highlights that men are often diagnosed at a younger age and lower body mass index, whereas women may develop T2DM in the context of greater metabolic disruption, particularly post-menopause. The modest male predominance in this sample is not unusual and falls within the range of variation seen in many clinical studies.[10]

A critical finding is the link between T2DM and socioeconomic indicators. In this sample, a slight majority had lower educational attainment (53.13% with ≤ 9 years of schooling) and were not working (51.56%). This pattern is strongly supported by extensive research demonstrating an inverse relationship between socioeconomic status and T2DM risk.[11] Large-scale European studies, such as the EPIC-InterAct study, have definitively shown that a lower educational level is a significant predictor of incident T2DM. This association is only partially explained by higher Body Mass Index (BMI), suggesting other factors related to health literacy, lifestyle choices, and access to preventative care are at play.[12] The finding of higher unemployment aligns with a systematic review and meta-analysis published in the Social Science & Medicine journal, which found that unemployment is associated with a 1.7-fold increased odds of having T2DM. The stress associated with unemployment, along with potential changes in lifestyle and diet, are considered contributing factors.[13]

In the Indonesian context, where this analysis is situated, studies based on national health research (Riskesdas) confirm that lower socioeconomic groups, including agricultural workers and the unemployed, have a higher likelihood of undiagnosed or poorly managed diabetes. The characteristics of the patient group in this study are therefore consistent with recognized social determinants of health that influence T2DM prevalence and management, both globally and locally.

A noteworthy and positive finding from the table is that a majority of the patients (62.5%) were assessed as having "Good" knowledge. This is a crucial element, as patient education and knowledge are cornerstones of effective diabetes self-management. Research consistently demonstrates that informed patients are better equipped to adhere to medication, monitor blood glucose, and make appropriate lifestyle modifications, which are essential for controlling the disease and preventing complications.[14]

A 2023 study published in the Malahayati International Journal of Nursing and Health Science involving patients in Jakarta found a significant positive relationship between diabetes knowledge and self-care practices. However, the finding in the current sample also presents a potential paradox. Despite a majority having good knowledge, the group still reflects socioeconomic characteristics (lower education, unemployment) that are known risk factors for poorer health outcomes. This suggests that while knowledge is necessary, it may not be sufficient to overcome structural and economic barriers to optimal health. Factors such as the cost of healthier foods, access to safe recreational spaces for exercise, and the financial and psychological stress of unemployment can impede the translation of knowledge into effective self-care behaviors. A study conducted in Binjai, Indonesia, emphasized that self-care behavior is a critical mediator between patient factors and quality of life, highlighting the importance of moving beyond knowledge to practical application.[15]

In conclusion, the characteristics of this cohort of 64 T2DM patients are highly consistent with established patterns in scientific literature. The sample's profile—older, with a slight male majority, and reflecting socioeconomic challenges—mirrors populations at high risk for T2DM globally and within Indonesia. The finding that most patients possess good knowledge is encouraging but must be viewed in the context of these overriding socioeconomic determinants.

This discussion underscores that effective T2DM management strategies must be multi-faceted. Beyond providing education, interventions must address the social and economic barriers that prevent patients from acting on their knowledge. For clinicians and public health policymakers, particularly in regions like North Sumatra, this means focusing on accessible and affordable care, promoting health literacy in ways that transcend formal education levels, and integrating social support systems to help patients navigate the complex challenges of managing this chronic condition.

## Conclusion

The profile of Type 2 Diabetes Mellitus (T2DM) patients in this study—predominantly individuals aged 45 years and older with lower educational attainment and who are unemployed—is highly consistent with the high-risk population characteristics widely identified in both global and national scientific literature. However, a central finding of this study highlights a significant paradox. Although the majority of patients (62.5%) demonstrated a "Good" level of knowledge regarding their condition, this knowledge exists within a socioeconomic context that places them at a higher risk for suboptimal health outcomes. The implication of this finding is profound: knowledge, while a critical foundation, is evidently insufficient as the sole driver for effective disease management.

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