

Description of the Level of Knowledge of Diabetes Mellitus Patients about Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict

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ABSTRACT

As a chronic condition that affects the body's glucose metabolism, diabetes mellitus requires comprehensive treatment, including gymnastics. It has been proven that gymnastics, as a nonpharmacological therapy, can help people with diabetes mellitus control blood sugar levels and improve quality of life. The purpose of this study was to determine the level of knowledge of patients with diabetes mellitus about gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict. Eleven respondents with varying age and gender participated in a descriptive study with a cross-sectional design. A questionnaire measuring the level of knowledge of gymnastics among diabetes mellitus patients in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict, was used to collect data. 45.5% knew the definition of gymnastics. 100.0% knew the purpose of gymnastics. 72.7% knew the benefits of gymnastics. 72.7% know the types of gymnastics. 27.3% know the frequency of gymnastics. 63.6% know the duration of gymnastics. 54.5% know the intensity of gymnastics. 54.5% know the preparation for gymnastics. 54.5% know the factors that must be considered before gymnastics. 18.2% knew the use of footwear. Given the findings that a large number of respondents continued to choose the wrong answers, this study suggests a comprehensive strategy that incorporates organized instruction using accessible media of all ages.

Keywords: Diabetes Mellitus, Gymnastics, Knowledge

INTRODUCTION

Diabetes mellitus is non-communicable disease that is increasingly prevalent in Indonesia and around the world. Hyperglycemia, or elevated blood glucose levels above normal limits, is the hallmark of diabetes mellitus, a metabolic disease that results from decreased insulin action or secretion, or both. Diabetes can affect all ages. Diabetes mellitus is categorized as a chronic disease that requires complex treatment to prevent acute as well as long-term effects (Pranata, S. and Munawaroh, K., 2020).

There are six pillars in the management of diabetes mellitus, including education, diet, gymnastics, medication, and self-monitoring of blood glucose. Without proper

management, diabetes can lead to serious complications ranging from heart problems, kidney damage, to the threat of amputation due to non-healing wounds. Therefore, people with diabetes are expected to implement the six pillars of diabetes mellitus management.

In Indonesia, especially in rural areas, awareness of the importance of managing diabetes mellitus through a healthy lifestyle, including gymnastics, is still low. Many patients with diabetes mellitus do not fully understand the benefits of gymnastics, such as gymnastics, in managing blood sugar levels.

With each passing year, the number of people with diabetes mellitus is increasing. However, efforts to manage diabetes, such as the implementation of physical activity, are still very limited. Many patients rely solely on

medical treatment and diet, without utilizing gymnastics especially gymnastics as part of their treatment program due to lack of knowledge.

Gymnastics helps diabetic patients avoid obesity, reduce blood sugar, and avoid atherogenic consequences such as blood lipid problems, high blood pressure, and blood hypercoagulation. Since active muscles use glucose more efficiently, gymnastics generally lowers blood glucose levels (Qowi, N.H., Harmiardi, S. and Lestari, T.P., 2022).

Therefore, this study aims to describe the level of knowledge of diabetes mellitus patients about gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village, Candi Subdistrict. By describing this, it is expected to increase awareness and acceptance of gymnastics as part of diabetes mellitus management.

RESEARCH METHOD

This research design is a descriptive study with a cross-sectional approach in Neighborhood Unit 01 Community Unit 01 Kebonsari Village on February 09, 2025. The data collection method used a questionnaire given to all respondents directly. And analyzed using descriptive analysis using tables. The population of this study is people with diabetes mellitus in Neighborhood Unit 01 Community Unit 01 Kebonsari Village, totaling 11 people and the entire population will be used as a sample.

RESULT

Table 1
Distribution of General Data of Respondents in Diabetes Mellitus Patients in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

General Data	<i>f</i>	%
Age		
39 years old	2	18,2
49 years old	1	9,1
53 years old	1	9,1
58 years old	1	9,1
59 years old	1	9,1
60 years old	5	45,5
Gender		
Male	4	36,4
Female	7	63,6

(Source: Primary Data)

Most of the respondents in this study were 60 years old (45.5%) and female (63.6%).

Table 2
Distribution of Diabetes Mellitus Patients' Knowledge of the Definition of Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Definition of Gymnastics	<i>f</i>	%
Incorrect	6	54,5
Correct	5	45,5
Total	11	100,0

(Source: Primary Data)

Most respondents (54.5%) gave incorrect answers regarding the definition of gymnastics, while 45.5% were able to answer correctly.

Table 3
Distribution of Diabetes Mellitus Patients' Knowledge about the Purpose of Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Purpose of Gymnastics	<i>f</i>	%
Correct	11	100,0
Total	11	100,0

(Source: Primary Data)

All respondents (100,0%) gave the correct answer regarding the purpose of gymnastics.

Table 4
Distribution of Diabetes Mellitus Patients' Knowledge about the Benefits of Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Benefits of Gymnastics	<i>f</i>	%
Incorrect	3	27,3
Correct	8	72,7
Total	11	100,0

(Source: Primary Data)

Most respondents (72.7%) were able to answer correctly regarding the benefits of gymnastics in the management of diabetes mellitus, while the other 27.3% did not show proper understanding.

Table 5
Distribution of Diabetes Mellitus Patients' Knowledge about Types of Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Types of Gymnastics	<i>f</i>	%
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Incorrect	3	27,3
Correct	8	72,7
Total	11	100,0

(Source: Primary Data)

Most respondents (72.7%) answered correctly regarding the types of gymnastics recommended in the management of diabetes mellitus, while the other 27.3% did not have the right understanding.

Table 6

Distribution of Diabetes Mellitus Patients' Knowledge about the Frequency of Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Frequency of Gymnastics	f	%
Incorrect	8	72,7
Correct	3	27,3
Total	11	100,0

(Source: Primary Data)

Most respondents (72.7%) gave incorrect answers regarding the recommended frequency of gymnastics, while only 27.3% answered correctly.

Table 7

Distribution of Diabetes Mellitus Patients' Knowledge about the Duration of Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Duration of Gymnastics	f	%
Incorrect	4	36,4
Correct	7	63,6
Total	11	100,0

(Source: Primary Data)

A total of 63.6% of respondents answered correctly regarding the recommended gymnastics duration, while the other 36.4% still did not have the right understanding.

Table 8

Distribution of Diabetes Mellitus Patients' Knowledge of Gymnastics Intensity in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Gymnastics Intensity	f	%
Incorrect	5	45,5
Correct	6	54,5
Total	11	100,0

(Source: Primary Data)

Most respondents (54.5%) answered correctly regarding the recommended gymnastics intensity, while the remaining

45.5% did not show an appropriate understanding.

Table 9

Distribution of Diabetes Mellitus Patients' Knowledge about Gymnastics Preparation in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Gymnastics Preparation	f	%
Incorrect	5	45,5
Correct	6	54,5
Total	11	100,0

(Source: Primary Data)

A total of 54.5% of respondents answered correctly regarding the preparation before doing gymnastics, while the other 45.5% did not have the right understanding.

Table 10

Distribution of Diabetes Mellitus Patients' Knowledge about Things to Pay Attention to Before Gymnastics in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Things to Consider Before Gymnastics	f	%
Incorrect	5	45,5
Correct	6	54,5
Total	11	100,0

(Source: Primary Data)

A total of 54.5% of respondents answered correctly regarding the things that need to be considered before doing gymnastics. Meanwhile, 45.5% of respondents did not understand this aspect correctly.

Table 11

Distribution of Diabetes Mellitus Patients' Knowledge about the Use of Footwear in Neighborhood Unit 01 Community Unit 01 Kebonsari Village Candi Subdistrict in February 2025

Footwear Usage	f	%
Incorrect	9	81,8
Correct	2	18,2
Total	11	100,0

(Source: Primary Data)

Most respondents (81.8%) did not understand the importance of using footwear, and only 18.2% answered correctly.

DISCUSSION

The results showed that patients' understanding of the fundamental aspects of gymnastics in the management of diabetes

mellitus still varied. As many as 54.5% of respondents did not understand the definition of gymnastics, which reflects a lack of conceptual understanding of physical activities that include strength, speed, and flexibility (Suciana, S., Fauzia, R.L., Herliawati, P.A. et al., 2024). Visual and interactive education is a strategic solution to improve this initial understanding.

All respondents (100%) have identified the purpose of gymnastics as an effort to reduce blood glucose levels and prevent metabolic complications. This is in line with (Widianti, A.T. and Proverawati, A., 2018), which explains that gymnastics supports increased metabolism and glucose utilization by active muscles. The focus of further education needs to be directed at technical implementation and consistent daily routines.

Most respondents (72.7%) understood the benefits of gymnastics for diabetes management, but 27.3% did not understand its positive impact. This lack of knowledge can reduce patients' motivation to be active in gymnastics. Communicative education such as visual media and hands-on practice has the potential to increase patients' understanding and intrinsic motivation (Qowi, N.H., Harmiardillah, S. and Lestari, T.P., 2022).

In terms of gymnastics type, 72.7% of respondents recognized light aerobics as the main recommendation. These activities involve the use of large muscles such as walking and swimming, which have been shown to be effective in diabetes management (Colberg, S.R., Sigal, R.J., Yardley, J.E. et al., 2016). However, hands-on training and practical modules are still needed so that patients can choose the type of gymnastics that suits their individual conditions.

Frequency, duration, and intensity of gymnastics were the most misunderstood aspects, respectively by 72.7%, 36.4%, and 45.5% of respondents. (PERKENI, 2020) recommends gymnastics 3-4 times per week, the duration of each activity is 30 minutes and performed with mild-moderate intensity. Lack of knowledge about the ideal time is at risk of causing non-optimal physical activity, both in terms of benefits and safety. The low level of knowledge regarding the frequency, duration and intensity of gymnastics

indicates the need for educational interventions that are more applicable and contextualized.

In addition, 45.5% of respondents did not understand the aspects of preparation before doing gymnastics and things that need to be considered before gymnastics, such as checking blood sugar levels. In fact, intense physical activity without monitoring glucose levels can cause hypoglycemia, especially in patients with high risk. Checking blood sugar before gymnastics is a crucial step for the safety and effectiveness of gymnastics (Setiawan, M., 2021).

In addition, only 18.2% of respondents knew the importance of using appropriate footwear. This lack of understanding risks foot injuries due to diabetic neuropathy (Sitanggang, A., Sijabat, F., Sihaloho, E. et al., 2022). Educational interventions on footwear selection and foot self-examination need to be integrated in diabetic patient health programs.

CONCLUSION

This study shows that the knowledge of diabetic patients on the aspects of gymnastics is still diverse. Most respondents understood the purpose (100%) and benefits of gymnastics (72.7%), but understanding of the definition, frequency, intensity, and preparation of gymnastics was limited. Knowledge of the frequency of gymnastics was the lowest (27.3%), followed by understanding the use of safe footwear (18.2%).

SUGGESTION

Based on the results of the study, it is recommended that diabetes mellitus patients improve their understanding of gymnastics as part of disease management strategies, especially in reducing blood glucose levels and improving quality of life. Health workers are expected to develop and implement periodic education programs, for example through posbindu or health communities, to strengthen patient knowledge about the benefits and proper gymnastics techniques. Future researchers are recommended to study the gymnastics behavior of diabetic patients in more depth, using a mixed approach (quantitative and qualitative) to obtain more comprehensive data.

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