

Research Article



## THE RELATIONSHIP BETWEEN EDUCATION AND KNOWLEDGE ABOUT DIABETES MELLITUS IN THE COASTAL AREA OF LAPULU DISTRICT

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### ABSTRACT

**Background:** Diabetes mellitus (DM) is a condition of chronic hyperglycemia that is often accompanied by various metabolic disorders due to hormonal disorders, which can cause various chronic complications. Based on data from the Kendari City Health Service in 2020, in Kendari City there were 3,030 people suffering from DM and in Lapulu Village, one of the cases was that many people suffered from diabetes mellitus. The aim of this research was to determine Relationship Between Education With Knowledge About Diabetes Mellitus In The Coastal Area Of Lapulu District.

**Methods:** This type of research is quantitative research with a Cross Sectional analysis design. The research population is the people of Lapulu Village, Kendari City. The number of samples in this study was 43 people using a purposive sampling technique. The analysis method used is fisher's exact test.

**Results:** The results of this study obtained a significant value of  $p = 0.000$  or less than 0.05.

**Conclusion:** There is a relationship between education and knowledge about diabetes mellitus in the Coastal Area of Lapulu Village. Suggestions for community health centers of Abeli to carry out routine activity programs to increase public knowledge about Diabetes Mellitus, namely by conducting routine health education or counseling every month.

**Keywords:** Education, Knowledge, Diabetes Mellitus

## INTRODUCTION

Diabetes mellitus is a chronic metabolic disorder caused by the pancreas not producing enough insulin or the body being unable to use the insulin it produces effectively.(1) Insulin is a hormone that regulates the balance of blood sugar levels. As a result, there is an increase in the concentration of glucose in the blood (hyperglycemia). Diabetes mellitus is a chronic disease which, through its serious complications, can impact an individual's quality of life. The World Health Organization (WHO) warns that the number of diabetes sufferers is increasing rapidly.(2)

This disease is also known as a disease resulting from modern lifestyles where people prefer to eat fast food, lack of physical activity because they use technology such as using motorized vehicles rather than walking. This disease is characterized by hyperglycemia and disorders of carbohydrate, fat and protein metabolism which are associated with absolute or relative deficiencies in insulin action and/or secretion. Symptoms complained of by Diabetes Mellitus sufferers are polydipsia, polyuria, polyphagia, weight loss, tingling.(3)

The World Health Organization (WHO) warned that the number of diabetes sufferers was increasing rapidly. It is estimated that the world prevalence of diabetes among adults aged 20 - 79 years was 6.4% (285 million) in 2010, and will increase to 7.7% (439 million) in 2030 (4). Diabetes is an important health problem because high morbidity and mortality. The incidence of diabetes mellitus globally is 45.8% (or 174.8 million cases) of all cases of diabetes mellitus in adults are estimated to be undiagnosed and people with untreated diabetes mellitus are at greater risk of

complications than those who receive treatment.(5)

The International Diabetes Federation (IDF) organization estimates that there are 463 million people aged 29-79 years in the world who suffer from diabetes in 2019, in other words, equivalent to a prevalence rate of 9.3% of the total population of the same age. Indonesia is ranked 3rd in Southeast Asia with a prevalence of 11.3% and Indonesia is ranked 7th in the world. In Indonesia, almost all provinces showed an increase in prevalence in 2013-2018, except East Nusa Tenggara. Southeast Sulawesi itself experienced an increase in prevalence of 1.3%, namely from 22,683 to 22,982 cases.(1)

IDF projects that the number of people with diabetes in SEA Region will increase 68% reaching 152 million by 2045 and the prevalence of diabetes will increase 30% reaching 11.3% in 2045. In 2021, 65.3 billion USD was spent on diabetes in SACA Region, representing 6.7% of the total spent worldwide. The proportion of undiagnosed diabetes is third highest in the SEA Region with 51.2%. The proportion of pregnancies affected by hyperglycaemia is the highest among IDF Region with 25.9%. Only 10.1 billion USD was spent on diabetes in SEA Region, representing 1% of the total spent worldwide, despite the region being home to 16.8% of people with diabetes worldwide.(4)

Indonesia is one of the 10 countries with the largest number of diabetes sufferers. The prevalence of diabetes mellitus in urban Indonesia is 5.7%, and impaired glucose tolerance is 10.2% (2). Riskesdas (2018) stated that the prevalence of diabetes mellitus based on blood tests in residents aged  $\geq 15$  years in 2013 was 6.9%, and in 2018 it was 10.9%.

Southeast Sulawesi is one of the provinces in Indonesia where the morbidity

rate for diabetes mellitus is included in the top 10 non-communicable diseases, which is second only to hypertension. The most cases of Diabetes Mellitus in Southeast Sulawesi are Kendari City.(6) Based on data from the Kendari City Health Service in 2021, in Kendari City there were 2,030 people suffering from DM.(7) Lapulu Village, the working area of the Abeli Health Center is one of the cases where there are many diabetes mellitus sufferers. Based on Basic Health Research (RisKesDas), the number of people with diabetes aged less than 15 years who claim to have diabetes is 1.2%, while those who do not know that they have diabetes is 4.5%.(8) Diet must be disciplined, namely schedule, quantity, and the type of food consumed.

One of the factors that influences an individual's level of knowledge about diabetes mellitus is their level of education. Education gives individuals the ability to access, understand, and use health information effectively. Higher levels of education are associated with better ability to understand health information and adopt healthy lifestyles. Conversely, individuals with lower levels of education tend to have limited access to health information, which can contribute to low knowledge about diabetes mellitus.(9)

Research examining the relationship between education level and knowledge about diabetes mellitus is important. The results of this study are expected to provide an overview of how much influence education has on the level of public understanding of diabetes mellitus. This information can be the basis for designing more effective and inclusive health education programs, especially for groups of people with low levels of education. Thus, efforts to prevent and manage diabetes mellitus can be carried out more optimally.(8-9) Based on

this background, researchers are interested in conducting research on "The Relationship Between Education With Knowledge About Diabetes Mellitus In The Coastal Area Of Lapulu District".

## MATERIAL AND METHODS

This type of research is quantitative research with a Cross Sectional analysis design.(10) The research population is the people of Lapulu Village, Kendari City. The number of samples in this study was 43 people using a purposive sampling technique. The analysis method used is Fisher's exact test.

## RESULTS

Study This implemented in May-June 2023 with the aim to determine the Relationship Between Education With Knowledge About Diabetes Mellitus In The Coastal Area Of Lapulu District. The results obtained depicted in the following table:

### Characteristics of Respondent

**Table 1. Distribution respondents based on Characteristics Respondent**

Characteristics	n	%
<b>Age</b>		
40-59	26	52.4
60-89	17	47.6
<b>Gender</b>		
Man	13	30.2
Woman	30	69.8
<b>Total</b>	<b>43</b>	<b>100</b>

Distribution results respondents based on characteristics can outlined in table 1 which shows that age more many at age 40-59 as many as 26 respondents (52.4%) and 30 respondents (69.8%) is a Woman.

### Knowledge of Respondent

**Table 2. Distribution of Respondents Based on Knowledge in Lapulu Village**

Variables	n	%
<b>Knowledge</b>		
Good	6	14
Less	37	86
<b>Total</b>	<b>43</b>	<b>100</b>

Table 2 shows that the respondents' knowledge was mostly in the less category with 37 respondents (86%) and the smallest was in the good category with 6 respondents (14%).

### Education of Respondent

**Table 3. Distribution of Respondents Based on Education in Lapulu Village**

Variables	n	%
<b>Education</b>		
Low	37	86
High	6	14
<b>Total</b>	<b>43</b>	<b>100</b>

Table 3 shows that the respondents' education was mostly in the low category with 37 respondents (86%) and the smallest was in the high category with 6 respondents (14%).

### The relationship between education with knowledge about diabetes mellitus

The relationship between education and knowledge about diabetes mellitus in the Coastal Area of Lapulu Village, Kendari City can be seen in the following table:

**Table 4. Relationship between Education and Knowledge of Diabetes Mellitus in the Coastal Area of Lapulu Village**

Num ber	Educati on	knowledge				Total		Statisti k Test  <i>P Value</i> = 0,000
		Good		Less		n	%	
		n	%	n	%			
1.	Low	0	0	37	100	37	100	
2.	High	6	100	0	0	6	100	
<b>Total</b>		<b>6</b>	<b>14</b>	<b>37</b>	<b>86</b>	<b>43</b>	<b>100</b>	

Table 4 shows that out of 43 respondents (100%), 37 respondents (100%) have low education and all of them have poor knowledge. Meanwhile, 6 respondents (100%) have high education and all of them have good knowledge. Based on statistical tests using Fisher's exact test, the p value is obtained = 0.000 (p value <0.05). This shows that there is a relationship between education and knowledge about diabetes mellitus in the Coastal Area of Lapulu Village, Kendari City

### DISCUSSION

Based on the results of research conducted by researchers in the coastal area of Lapulu Village, it was found that out of 43 respondents, 37 respondents (86%) had low education and all of them had insufficient knowledge. The respondents' lack of knowledge included not knowing what diabetes mellitus is, the factors causing diabetes mellitus, signs and symptoms of diabetes mellitus, and normal blood sugar levels. According to researchers, this is because respondents with low education face difficulties in accessing reliable sources of health information or understanding the

medical terminology used in diabetes management guidelines.

This is in line with Nutbeam (2021), who stated that individuals with low levels of education often have limited health literacy, which can hinder them in understanding the risk factors, symptoms, and management of diabetes mellitus.(9) Green & Kreuter (2023) stated that low education can limit access to health information because individuals in this group tend to rely on informal or invalid sources of information. This has an impact on their low knowledge of chronic diseases such as diabetes mellitus, which in turn can affect their attitudes and behaviors towards disease prevention and management.(11)

The results of this study are in line with research conducted by Wardaya (2021), where the level of knowledge of the people of Kertaungaran Village, Kuningan Regency, the majority are less knowledgeable.(12) Poor knowledge is indicated by respondents who do not understand the signs of below normal blood sugar levels, namely weakness, paleness, trembling, feeling hungry, heart palpitations and excessive sweating.(13)

Based on the results of the study, it was found that respondents who had insufficient knowledge were mostly female, worked as housewives, were 60-69 years old, and had elementary school education. The results of this study are in line with research conducted by Wardaya (2021), where the level of knowledge of the people of Kertaungaran Village, Kuningan Regency, was mostly lacking in knowledge. The lack of community knowledge is caused by factors of age, gender, education, and occupation.(14)

The results of the study, it was found that respondents who had less knowledge were mostly female, worked as housewives, were 60-69 years old, and had elementary school education. The results of this study

are in line with research conducted by Wardaya (2021), where the level of knowledge of the people of Kertaungaran Village, Kuningan Regency was mostly less knowledgeable. The lack of community knowledge is caused by factors of age, gender, education, and occupation.(15)

Kiky, et al (2020) stated in their research that normally as a person gets older, there will be physical, psychological, and intellectual changes.(16) The maturity of society's age makes them mature in thinking and have broader scientific insights so that they can apply the knowledge gained well. This shows a discrepancy between facts and theories, which can be caused by other factors besides age that affect the level of knowledge of respondents.

In addition, Wawan's research (2010) in Wardaya (2021) stated that knowledge is closely related to education, where someone with low education will have less knowledge. Arisma (2017) in his research stated that community education is directly proportional to knowledge where the majority of people who have less knowledge have low education.(17-18)

The results of the study showed that the majority of respondents who had low knowledge worked as housewives. The results of this study are in line with Arisma's research (2016), where a person's job affects their level of physical activity (15). Lack of knowledge was found in respondents who worked as housewives. According to Sinurat (2018), work is closely related to social and cultural interactions, while social and cultural interactions are closely related to the process of exchanging information and knowledge.(19-20)

Respondents who have a high education are 6 respondents (14%) and all have good knowledge. According to the researcher, this is because respondents with a

high education will encourage their behavior to be more proactive in caring for their health, such as conducting routine blood sugar checks and following treatment guidelines.

This is in line with Santoso et al (2023) who stated that individuals with higher levels of education tend to have better knowledge about medical conditions such as diabetes mellitus, including how to prevent, manage, and avoid further complications. This may be due to their ability to access more complex medical information and higher critical thinking skills to understand various sources of information.(21)

In addition, Mendes et al (2023) stated that individuals with higher education are more likely to attend health education programs that discuss diabetes, and are more likely to seek information related to the disease through digital media or other scientific sources. The ability to access this broader information allows them to be better prepared to take preventive measures, such as following a healthy diet and having regular check-ups, all of which contribute to better diabetes management.(19)

Based on statistical tests using Fisher's exact test, the  $p$  value = 0.000 was obtained ( $p$  value  $<0.05$ ). This shows that there is a relationship between education and knowledge about diabetes mellitus in the Coastal Area of Lapulu Village, Kendari City. This study is in line with research conducted by Rahimian et al (2021), where patients with higher levels of education had a significantly higher average diabetes knowledge score than patients with lower education ( $p$ -value  $<0.01$ ). (22) In addition, research by Diallo et al (2021) found that education level had a significant effect on students' knowledge about diabetes with a  $p$ -value  $<0.05$ .(23)

## CONCLUSION

Based on the research conducted, it can be concluded that there is a relationship between education level and knowledge about diabetes mellitus in the Coastal Area of Lapulu Village. Suggestions for community health centers in the Coastal Area of Lapulu Village to carry out routine activity programs to increase public knowledge about Diabetes Mellitus, namely by conducting routine health education or counseling every month.

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