Factors Related To The Prevention Of Diabetes Mellitus In The Elderly In The Working Area Of Suak Ribee Health Center, West Aceh Regency

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Abstract

In diabetes mellitus, a macromolecular metabolic illness, the body's capacity to regulate blood glucose levels is compromised due to an imbalance between the production and response of endocrine hormones. Diabetic adults make up 537 million people globally, spanning the ages of 20 to 79. This research aims to better understand how to keep the elderly in the Suak Ribee Health Center's service area in West Aceh Regency from developing diabetes mellitus. Analytical survey research using a cross-sectional methodology is what this study is all about. A total of forty-eight participants were surveyed throughout the study period (March–April 2023). There was no significant link between knowledge and prevention of diabetes mellitus (p-value = 1.000) and attitude toward having a significant relationship ($p = 0.003 < 0.05$) according to the findings of the bivariate analysis using the Chi-Square test. Finding no statistically significant correlation between knowledge and diabetes mellitus prevention, this research draws no conclusions. At the same time, there is a strong correlation between attitude and avoiding diabetes mellitus.

Keywords: Elderly; Diabetes Mellitus; Prevention

Introduction

Diabetes mellitus is a macromolecular metabolic disorder characterized by the body's inability to supply or respond properly to endocrine hormones, thereby interfering with the body's ability to maintain proper glucose levels in the blood. The disease is often chronic and occurs when the endocrine glands are no longer able to produce the necessary hormones, or when the body does not respond properly to the hormones produced. This endocrine hormone plays an important role in regulating the process of breaking down aldohexosis from the food we consume, so that glucose can be channeled from the blood to cells in the body to provide energy (Kumar *et al.,* 2020). Especially for the elderly, diabetes mellitus can be a challenge that requires special attention. Knowing and understanding diabetes in the elderly is the key to improving their quality of life.

World Health Organization data shows that when life expectancy among the old rises, so does the proportion of the population classified as elderly (Cahyani et al., 2022). Diabetes mellitus is more common among the elderly. The body's productivity often declines after the advanced stage is reached. The physiological functions of the elderly deteriorate with age, making them more prone to disorders like diabetes (Syaharania et al., 2023).A total of 537 million persons (ranging in age from 20 to 79) are now managing

diabetes, according per the International Diabetes Federation's study. In 2030, 643 million adults, or 1 in 9 people, will have this ailment, and by 2045, 784 million adults, or 1 in 8 people, will have it. There were 6.9 million fatalities in 2021 attributable to diabetes mellitus. Approximately 240 million persons, or 44% of the total, do not have a diabetes diagnosis. Furthermore, poor glucose tolerance increases the chance of acquiring type 2 diabetes in 541 million persons globally, or 1 in 10 million adults (IDF, 2022).

After cancer, asthma, and chronic obstructive pulmonary disease (COPD), diabetes mellitus ranks as one of Indonesia's non-communicable diseases (NCDs), according to statistics from Riskesdas 2018. The International Diabetes Federation reports that 10.6% of the population in Indonesia has diabetes. The age categories of 55–64 years (6.3%) and 65–74 years (6.0%) had the highest documented numbers of diabetes in Indonesia. The majority of people engage in mild physical exercise (33.5%), and the prevalence is greater among women (1.8) (Ministry of Health of the Republic of Indonesia, 2019). In 2022, there were 189,464 cases of diabetes in Aceh province (West Aceh Health Office, 2022). In 2021, there were 1,997 cases of diabetes in West Aceh Regency. The following year, there was a rise to 3,885 cases (West Aceh Health Office 2022). Initial data from the Suak Ribee Health Center UPTD in Johan Pahlawan District, West Aceh Regency, indicates that 1.13 percent of diabetes diagnoses in 2021 were among the elderly. Women accounted for 0.67 percent and males for 0.46 percent. In addition, there will be a 1.46% rise in the number of people suffering with DM in 2023. Just 0.85% of women and 0.61 % of males experienced this. As to the SDGS, the objective of the government A third of all fatalities should be prevented by 2030, with a particular emphasis on the four leading NCDs cardiovascular disease (CVD), diabetes mellitus (DM), cancer, and chronic obstructive pulmonary disease (COPD) that account for 60% of all deaths. (Sulistyowati, 2017).

According to Sulistyowati, (2017) 80% of non-communicable diseases are caused by unhealthy behavior. DM disease is caused by several risk factors such as lack of knowledge about DM, people only know that the disease they suffer from is wet DM disease. The wrong diet and tendency to be excessive cause obesity, such as consuming ready-to-eat foods, and offal foods. Apart from that, the lack of public awareness in maintaining their health, people also lack physical activity, so the accumulation of fat is caused by a poor attitude pattern. Knowledge has an influence on diabetes mellitus prevention behavior. where a person with good knowledge was 3,645 times more likely to implement diabetes mellitus prevention behaviors compared to someone with less knowledge. Increased knowledge can be key in encouraging better prevention behaviors against diabetes mellitus (Supriyatna *et al*.,2020).

In addition, there are theories that support according to (Indriani et al., 2018) quoting Lawrence Green's theory, that people's behavior is influenced by 3 main factors, namely: (1) Predisposition factors include knowledge, attitudes, actions, beliefs, beliefs (2) Supporting factors include the availability of health facilities or facilities and (3) Driving factors include the attitude and behavior of officers or reference groups from community behavior (Wulandari, 2023).

The author is interested in researching "Factors Related to the Prevention of Diabetes Mellitus Incidence in the

Elderly in the Working Area of the Suak Ribee Health Center, West Aceh Regency" based on the description above. This research aims to better understand how to keep the elderly in the Suak Ribee Health Center's service area in West Aceh Regency from developing diabetes mellitus.

Methods

Analytical survey research using a cross-sectional methodology is what this study is all about. This cross-sectional study will use instantaneous measures to see whether there is a link between independent (risk variables) and dependent (dependent factors). This study's instantaneous measurement is an examination of faktor related to the prevention of diabetes mellitus in the edldery in the working area of suak ribee health center west aceh regency. The variables being measured or observed are those that are carried out simultaneously and only once.

The study was conducted at the West Aceh district's Suak Ribee Health Center's operational region between March and April 2023. There are 578 seniors who make up the study's population; they all live in or around the Suak Ribee Health Center in West Aceh Regency. The lameshow, WHO hypothesis test formula is used in this investigation with varied amounts. The number of responders was 48 according to the sample calculation. In addition, the purposive sampling approach was used to do the sample. Interviews employing questionnaire tools were used to carry out the sample technique. In addition, univariate and bivariate analysis were used for data analysis in this research. The chi-square test was used to examine the correlation between the knowledge and attitude factors and the diabetes mellitus preventive variable.

Results

Characteristics of Respondents

Data and questionnaires were administered to 48 seniors at the Suak Ribee Health Center's Working Area, West Aceh Regency. Table 1 displays the following respondent characteristics:

Tabel 1. Frequency Distribution Based on Characteristics of Elderly Respondents in the Working Area of the Suak Ribee Health Center, West Aceh Regency

Characteristics of Respondents	Frequency	Percentage (%)
Gender		
Woman	34	70,8
Man	14	29,2
Education		
SD	20	41,7
JUNIOR	3	6,3
SMA	19	39,6
PT	6	412,5
Employment status		
Work	34	43,8
Not working	27	56,3
DM		

Characteristics of Respondents	Frequency	Percentage (%)
History		
Exist	17	35,4
None	31	64,6
Total	48	100

From the data in table 1, we can deduce that fourteen (or 29.2%) of the 48 respondents were male and thirty-four (70.8%) were female. Out of the total number of responders, 20 had completed elementary school (41.7%), 3 had completed junior high, 19 had completed high school (39.6%), and 6 had completed secondary school (12.5%). Twenty-one people(43.8%) were employed, while twenty-seven people(56.3%) were unemployed. Thirteen participants (35.4% of the total) had a prior diagnosis of diabetes mellitus, whereas thirty-one (64.6%) did not.

Tabel 2. The Relationship Between Knowledge and Prevention of Diabetes Mellitus in the Elderly in the Working Area of the Suak Ribee Health Center, West Aceh Regency

Knowledge	Prevention of Diabetes Mellitus						*P-Value PR* (95% CI)	
	Less Good		Good		Total			
	N	*%*	*N*	*%*	N	%		
Not Good	6	46,2	7	53,8	13	100	1,000	0,9
Good	17	48,6	18	51,4	35	100		(0,48 - 1,87)

Of the respondents surveyed, 17 (or 48.6%) had strong knowledge but inadequate preventative skills, as shown in table 5. By the same token, 6 respondents (46.2%) exhibited inadequate preventative knowledge. In the West Aceh Regency, the elderly at the Suak Ribee Health Center did not have a statistically significant link between their knowledge and prevention of diabetes mellitus, according to the findings of bivariate analysis using the Chi-Square test, which yielded a p-value of 1,000. After running the numbers, we got a Prevalens Ratio of 0.9.

Tabel 3. The Relationship Between Attitude and Prevention of Diabetes Mellitus in the Elderly in the Working Area of the Suak Ribee Health Center, West Aceh Regency

Attitude	Prevention of Diabetes Mellitus						*P-Value PR* (95% CI)	
	Not Good		Good		Total			
	N	*%*	*N*	*%*	N	%		
Negative	7	100	0	0,0	7	100	0,003	2,5
Positive	16	39,0	25	61,0	41	100		(1,74 -3,75)

Table 6 reveals that out of the total number of responders, 16 (or 39.0%) had a good attitude but only moderate levels of prevention. At the same time, 7 people have a positive mindset but aren't very adept at preventing. In the operating area of the Suak Ribee Health Center, West Aceh Regency, there is a statistically significant association between attitude and prevention of diabetes mellitus in the elderly, as stated by the p-

value of 0.003, acquired by bivariate analysis using the Chi-Square test. A Prevalens Ratio value of 2.5 was derived from the investigation.

Discussion

The Relationship between Knowledge and Prevention of Diabetes Mellitus in the Elderly in the Working Area of Suak Ribee Health Center, West Aceh Regency

Bivariate analysis using the Chi-Square test showed a p-value = 1,000, which means that there was no significant association between knowledge and the prevention of diabetes mellitus in the elderly in the working area of the Suak Ribee Health Center, West Aceh Regency. These findings demonstrate that older adults are aware of diabetes mellitus and its prevention strategies, but that this awareness does not translate into action. The findings of this study are consistent with those of Widiasari (2021). Additionally, the research found no statistically significant correlation (p = 0.156) between knowledge and diabetes mellitus preventive strategies. This suggests that in a variety of contexts, knowledge alone may not be enough to influence precautions. Other factors such as motivation, social support, access to health facilities, and lifestyle habits may have more influence on the prevention of diabetes mellitus in the elderly. The similarity of results between this study and the Widiasari (2021) study indicates that there is a need to dig deeper into other factors that influence diabetes mellitus prevention behavior. More comprehensive and holistic interventions may be needed to improve preventive behaviours among older adults.

Knowledge is an important factor in shaping behavior, including in the prevention of diabetes mellitus. To prevent the occurrence of a disease, it is necessary to understand the definition, signs and symptoms, risk factors and how to prevent it. Knowledge sources can be obtained through health promotion, such as an environment that encourages clean and healthy living behaviors, as well as through Health Education (Silalahi, 2019). A person with good knowledge will not necessarily apply good preventive behavior. This is because the knowledge they have is not applied in their lives. Knowledge about diabetes mellitus can be the basis for a person to take preventive measures so as not to experience the disease (Puji, 2018). knowledge has a close relationship with education, broad knowledge can be influenced by high education. However, a low level of education does not necessarily mean a person's low knowledge. Increased knowledge is not only obtained through formal education but can be obtained through experience and informal education (Husen et al, 2021). In addition, a person's level of knowledge is also influenced by the advancement of communication and information technology. The rapid development of technology greatly supports the world of education, allowing information to be obtained not only from books but also from newspapers, television and especially the internet. This makes it easier to access new insights quickly and easily (Siregar 2020).

The Relationship between Attitude and Prevention of Diabetes Mellitus in the Elderly in the Working Area of the Suak Ribee Health Center, West Aceh Regency

Results from a bivariate Chi-Square test in the West Aceh Regency office of the Suak Ribee Health

Center indicated a p-value of 0.003, indicating a statistically significant association between attitude and the prevention of diabetes mellitus in the elderly. Good preventive behavior in the elderly is directly tied to having a positive attitude towards the prevention of diabetes mellitus. The findings of this research are consistent with those of Arifa et al. (2023), who found a significant (p = 0.024) correlation between attitudes and practices aimed at preventing diabetes mellitus. Positive attitudes may play a significant role in promoting effective preventive actions, according to these studies.

The similarity of results between this study and the research of Arifa et al. (2023) reinforces the argument that a positive attitude is very important in efforts to prevent diabetes mellitus. A good attitude may reflect a high level of awareness and motivation to implement the necessary precautions, such as maintaining a healthy diet, exercising regularly, and having regular health check-ups. Therefore, interventions that aim to improve the attitude of the elderly towards the prevention of diabetes mellitus can be an effective strategy in reducing the risk of this disease. Educational programs that not only provide information but also motivate positive attitude changes are needed. This can be done through ongoing health counseling, training, and support programs to ensure that older people have attitudes that support effective diabetes mellitus prevention behaviors.

Attitude is an individual's response or reaction to the situation or condition he or she faces. Factors such as family support, experience and adequate facilities can also directly affect a person's attitude and encourage positive behavior. A person's attitude can also be influenced by his knowledge, age and self-confidence in facing problems (Suharyat 2016). A person must not only have knowledge, but also be able to apply in the form of an attitude that is able to manage, control and continue to improve the quality of life (selfia, 2024). This study supports Green's theory of behavior which states that a person's attitude can affect their behavior. Attitudes have a strong relationship with behavior, especially in the context of seeking health services. Differences in attitudes regarding health can affect a person's behavior in maintaining their health (Sofyanti, *et al*., 2022)

Conclusion

In the West Aceh Regency, Working Area of the Suak Ribee Health Center, there was no real correlation between knowledge and the prevention of diabetes mellitus in the elderly.Meanwhile, in the Working Area of the Suak Ribee Health Center, West Aceh Regency, there is a strong correlation between attitudes and the prevention of diabetes mellitus in the elderly. It is hoped that people can carry out a healthy lifestyle by maintaining a diet, avoiding fast food, doing good physical activity and also not smoking to prevent diabetes mellitus. In addition, for further research, it can explore other strategies beyond knowledge and attitudes that can affect prevention, such as social support and the availability of health facilities, facilities and infrastructure.

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