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Factors related to the uncontrolled fasting blood sugar among type 2 diabetic patients attending Kopang Health Center, Central Lombok Regency, Indonesia

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Abstract

Background: Prevalence of DMT2 is increasing every year, becoming a significant global health problem. Many DMT2 sufferers are not well controlled, prone to serious complications such as heart, kidney, and nervous system.
Purpose: To determine Blood Sugar fluctuations in Diabetes Mellitus Type-2 (DMT2) to improve knowledge, positive attitudes, and healthy behaviors to achieve optimal blood sugar control.
Method: Quantitative observational analytical research with Cross Sectional design. The population is 349 people with a sample of 186 respondents which is determined by simple random side. Data collection uses interview guidelines/questionnaires that have been tested for validity and reliability. Bivariate data analysis used Chi Square and Multivariate analysis multiple logistic regression.
Results: P value of knowledge 0.000 < 0.05, had a significant effect. The p-value of attitude was 0.002 < 0.05, Positive attitude had a significant effect on stabilizing blood sugar. An optimistic, confident, and highly motivated attitude is important to control diabetes. The behavioral p value of 0.003 < 0.05 had a stabilizing effect on blood sugar.
Conclusion: Good knowledge has a significant effect on stabilizing blood sugar. An important understanding affects diabetes control. Accurate information empowers informed long-term health decisions. A positive attitude greatly affects blood sugar control. Optimistic, high spirits achieve better health control. Decisions of the right actions stabilize blood sugar is important for DMT2 health, prevent complications improve quality of life.

Keywords: Attitudes; Behaviors; Diabetes Mellitus Type-2 (DMT2); Knowledge.

INTRODUCTION

The prevalence of Diabetes Mellitus Type-2 (DMT2) in Indonesia continues to increase from year to year, this information indicates that the number of sufferers continues to grow. There are still many people who do not understand the symptoms and risks of DMT2, so many cases have not been diagnosed and are late in getting treatment. The distribution and availability of health service facilities that handle DMT2 are still uneven, especially in remote areas. There are still limited education and assistance efforts for DMT2 patients to carry out disease management independently. The ever-increasing cost of DMT2 treatment and care is an economic burden for patients and families, as well as the national health system. Many DMT2 patients experience chronic complications such as heart disease, kidney failure, blindness, and amputation that can reduce quality of life. Prevalence of diabetes

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mellitus (DM) as a result of the riskesdas survey, collecting data on the prevalence of various diseases including diabetes mellitus, found that the prevalence of DM: 8.5%, in 2020 the prevalence of DM: 8.9%, in 2021 the prevalence of DM: 9.1%, in 2021 the prevalence of DM: 9.3% and in 2022 the prevalence of DM: 9.5% (Ministry of Health Republic Indonesia, 2022). Blood vessel complications can damage blood vessels, which can lead to heart disease, stroke, or kidney disease. Damage to the peripheral nerves, especially in the legs and arms, causes numbness, tingling, and pain in the extremities (Adi, Ketut, Dharma, Eva, & Hikat, 2019). Diabetes mellitus (DM) is currently one of the global health threats. Diabetes mellitus (DM) is a non-communicable disease with significant morbidity and mortality worldwide. This creates a major public health and economic challenge. Integrating screening programs with secondary care services will increase screening rates for vision-threatening retinopathy and provide opportunities for timely intervention to prevent advanced retinopathy in DMT2 patients (Salavatian, Hashemi-Madani, Emami, Hosseini, Falavarjani, & Khamseh, 2024). Previous research explained that the impact of DMT2 disease resulted in retinopathy, so further treatment was needed. Considering this disease requires early knowledge and appropriate actions to prevent complications from occurring.

The results of this study emphasize the importance of good knowledge in patients with a diagnosis of type 2 diabetes in providing acceptable care to patients with low levels of education to ensure good treatment and care (Isa, Alma'Norliana, Ismaliza, Yusof, & Hami, 2024). This study showed good knowledge and attitudes about diabetes among the participants. Although the practice is still lacking, the right educational program can help diabetics improve their practice. With the right help, patients can manage diabetes more effectively. Dedication and consistent effort will yield positive results. Continuous behavior modification is the key to better diabetes management. These efforts have long-term benefits for patients' health and quality of life (Alenbalu, Egenasi, Steinberg, & Aluko, 2024). This study is one of the first clinical trials to examine the development of diabetes mellitus (DM) up to 12 months after diagnosis. The study provides new insights into DM in patients newly diagnosed with DMT2 and tests interventions aimed at reducing DM in the early stages of diabetes (Hansen, Jensen, Petersen, Pouwer, Larrabee Sonderlund, & Søndergaard, 2024). The study conducted in Malaysia highlighted the importance of good knowledge early after diagnosis for diabetic patients, especially those with low levels of education, to understand DM and implement sustainable management (Isa et al., 2024). People with Diabetes Mellitus who have low knowledge and poor attitudes experience bad experiences, due to unhealthy lifestyle practices and experience complications of retinopathy (Pardhan, Raman, Biswas, Jaisankar, Ahluwalia, & Sapkota, 2024). Good knowledge and the right attitude are needed to the community so that patients diagnosed with Diabetes mellitus can control themselves and apply a healthy lifestyle to avoid complications.

Designing interventions that help patients with chronic diseases to develop skills in practice, self-management, and joint decision-making to improve better health status (de Leon, Campos, Santos, Brito, & Almeida, 2024). This study reveals problems related to the competence of health service providers in serving the community for DMT2 patients, considering that this disease requires good education and the use of special drugs so that professional personnel are needed (Mohamed, Abbassi, & Sabry, 2024). The importance of knowing and conducting a study of the level of public knowledge about diabetes mellitus so that there is no misunderstanding. The results showed that diabetes knowledge, life satisfaction, stress, and duration of diabetes could predict patients' quality of life. This study highlights the importance of health literacy in maintaining and improving the quality of life in diabetes. Therefore, it is necessary to pay more attention to these effective variables when planning educational programs and designing appropriate interventions. Improving understanding of type 2 diabetes will make patients more aware of their disease, more committed to medical orders, and have better self-care. This can reduce stress,

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anxiety, or depression which is often a vicious cycle for diabetic patients. Thus, improved health can provide a better quality of life for diabetic patients (Jafari, Moshki, Ghelichi-Ghojogh, & Nejatian, 2024).

The study found that most type 2 diabetic patients had poor diabetes self-care practices, low diabetes knowledge, lack of social support, dependence on oral medications, and felt little benefit from self-care practices (Bekele, Habtewold, Deybasso, & Mekuria Negussie, 2024). Diabetes Mellitus is a dangerous disease so it is necessary to know the causes and good treatment, especially for people with low education, so as not to misbehave and act. The results showed that DM patients who were newly diagnosed in primary care had poor knowledge of chronic kidney disease (CKD). To prevent chronic disease in high-risk diabetic patients, healthcare providers must provide appropriate and effective education to all diabetic patients, especially those with low levels of educatio immediately after diagnosis DM (Isa et al., 2024). This study is one of the first clinical trials to examine the development of DD (Differential Diagnosis) from diagnosis to 12 months after diagnosis. Many previous interventions have not directly targeted DM as the primary outcome. This study provides new insights into the development of DM in patients newly diagnosed with DMT2 and examines interventions designed to reduce DM in the early stages of diabetes, contributing to a better understanding of the development of DM and how these interventions affect patient well-being (Mohamed et al. 2024). Diabetes mellitus is a disease that cannot be cured, it requires knowledge and the right attitude and actions to overcome it. This study aims to determine the causes of Blood Sugar Fluctuation in patients with Diabetes Mellitus Type-2 (DMT2).

RESEARCH METHOD

This study is a quantitative observational analytical research with a Cross Sectional design. Aiming to analyze Blood Sugar Fluctuation in patients with Diabetes Mellitus Type-2 (DMT2) in Community Health Center. The research location is in the working area of the Kopang Health Center, Central Lombok Regency, West Nusa Tenggara Province. The population consisted of 349 people with a sample of 186 respondents determined by simple random sampling.

Fasting blood sugar levels are divided into 2 categories, categorized "controlled" if <125 mg/dL and categorized as "uncontrolled" if ≥125 mg/dL. Data on respondents' knowledge about diabetes was obtained by direct interviews using a questionnaire, then categorized as good if the total score was 5; moderate if the score is between 3-4 and poor if the total score is <3. The respondent's attitude variable was obtained using a questionnaire consisting of 5 questions related to diabetes. On positive questions, a score of 1 is given for an agree answer and 0 for a disagree answer. Meanwhile, negative questions are given a score of 1 for a disagree answer and 0 for a disagree answer, and are categorized as good if the total score is 5, moderate if the score is between 3-4 and in the bad egory if the total score is <3. Actions/behavior are divided into three categories, namely bad (if the respondent answers "Yes" to 1-3 questions out of a total of 5 questionnaire questions), moderate (if the respondent answers "Yes" to 3-4 questions out of a total of 5 questions), and good (if the respondent answer es" to all questions from a total of 5 questionnaire questions).

However, before filling in the question sheet, the researcher asked the respondent whether the respondent knew about Diabetes Mellitus. Data collection uses interview guidelines/questionnaires that have been tested for validity and reliability. Bivariate data analysis used Chi Square and Multivariate analysis multiple logistic regression. This research has been approved by the health faculty of Qamarul Huda Badaruddin University with the following ethical code: 177/EC/FKES-UNIQHBA/YPPQH/XI/2023.

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RESEARCH RESULTS

Table 1. Characteristics of Respondents (N=186)

Variable	Results
Age(Mean±SD)(Range)(Year)	**(55.0±6.7)(35-65)**
Age (n/%)	
35-39	4/2.0
40-44	12/6.4
45-49	22/11.9
50-54	42/22.6
55-59	46/24.8
60-65	60/32.3
Gender (n/%)	
Male	110/59.1
Female	76/40.9
Education (n/%)	
Elementary School	42/22.6
Junior High School	86/46.2
High School	32/17.2
Diploma Degree	14/7.5
Bachelor Degree	12/6.5
Fasting Blood Sugars (n/%)	
Uncontrolled (≥125 mg/dL)	104/55.9
Controlled (<125 mg/dL)	82/44.1
Knowledge (n/%)	
Poor	87/46.8
Moderate	35/18.8
Good	64/34.4
Attitude (n/%)	
Poor	66/35.5
Moderate	46/24.7
Good	74/39.8
Healthy Behavior (n/%)	
Poor	57/30.6
Moderate	52/28.0
Good	77/41.4

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Based on the results of data analysis, it is known that the average age of respondents is 55 years with a standard deviation of 6.7 and the youngest range is 35 years, the oldest is 65 years. Of the total respondents, there were 38 people (20.43%) who were in the age range of 35-49 years, while 148 people (79.57%) were aged 50-65 years, indicating the dominance of older respondents. Based on gender, there were 110 men (59.14%) and 76 women (40.86%). Based on the results of univariate analysis, it is known that the number of respondents in this study was 186 respondents. Categorized by education level; Junior High School as much as 46.2%. Based on the results of univariate analysis, it is known that the number of respondents in this study was 186 respondents. The number of respondents who experienced uncontrolled fasting blood sugar was 104 (55.9%) respondents, while respondents who experienced controlled fasting blood sugar were 82 (44.1%) respondents. Respondent characteristics were based on level of knowledge with 46.8% in the poor knowledge category, 18.8% in the moderate category, and 34.4% in the good category. Based on attitudes, the poor category was 35.5% of respondents, the fair category was 24.7% of respondents, the good category was 39.8% of respondents. Based on Healthy behavior the Poor category was 30.6% of respondents, the Moderate category was 28.0%, and the Good category was 41.4% of respondents.

Table 2. Factors Related To The Uncontrolled Fasting Blood Sugar

Variables	Fasting Blood Sugars		p-value
	Uncontrolled (≥125 mg/dL) (n=104)	Controlled (<125 mg/dL) (n=82)	
Knowledge (n/%)			
Poor	64/61.5	23/28.0	0.000
Moderate	16/15.4	19/23.2	
Good	24/23.1	40/48.8	
Attitude (n/%)			
Poor	43/41.3	23/28.0	0.002
Moderate	33/31.7	13/15.9	
Good	28/27.0	46/56.1	
Healthy Behavior (n/%)			
Poor	49/47.1	8/9.8	0.003
Moderate	32/30.8	20/24.3	
Good	23/22.1	54/65.9	

The results of the statistical test showed that the knowledge factor test obtained a p value of 0.000 < 0.05, meaning that good knowledge had a significant effect on the stability of blood sugar levels. Having good knowledge about diabetes management greatly affects the stability of blood sugar levels. By understanding the important principles, you can take effective action to maintain health. Accurate information empowers individuals to make informed decisions for long-term health. Good knowledge is the key to controlling diabetes. The attitude factor obtained *a* p-value of 0.002 < 0.05, meaning that a positive attitude had a significant effect on the stability of blood sugar levels. Having a positive attitude can have a significant influence on the stability of blood sugar levels. With an optimistic mind and high spirit, it can achieve better control over health. When sufferers accept the challenge with confidence, actions to maintain blood sugar levels become more effective. A positive attitude will motivate the sufferer to continue to fight for better health and a healthy quality of life.

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Healthy behavior factors obtained *p values* of 0.003 < 0.05, meaning that the right action affects the stability of blood sugar levels. Maintaining stable blood sugar levels is very important for health and well-being. By making the right action decisions, optimal control of blood sugar levels can be achieved. Consuming nutritious foods, exercising regularly, and monitoring blood sugar levels regularly will have a significant positive impact on long-term health. Patients who take the right steps, will experience increased energy, better health, and a happier quality of life.

Table 3. Mutivariate Analysis using Logistic Regression

Variable	B	Wald	Exp (B)	p-value	95% C.I.for Exp (B)	
					Lower	Upper
Knowledge	0.736	11.456	2.088	0.001	1.363	3.198
Attitude	0.986	17.478	2.680	0.002	1.688	4.255
Healthy Behavior	1.347	31.344	3.847	0.000	2.400	6.166

The results of the multivariate analysis showed that the dominant factors affecting the stability of blood sugar in patients with Diabetes Mellitus were Healthy behavior with a p-value of 0.000 and an Exp (B) value of 3.847. This means that actions have a dominant effect on blood sugar stability. Healthy behavior play a dominant role in influencing the stability of blood sugar levels for people with Diabetes Mellitus. By adopting healthy lifestyle habits, such as eating nutritious foods, exercising regularly, and monitoring blood sugar closely, optimal control can be achieved. Every step taken with high discipline and commitment will have a positive impact, both on the stability of blood sugar levels and on the quality of health. Appropriate action is key to managing Diabetes Mellitus to improve the quality of life of the sensor.

DISCUSSION

This research states that there is a significant relationship between patient knowledge and blood sugar stability in Diabetes Mellitus patients, good knowledge will influence attitudes and actions in behavior. The findings of a cross-sectional study in Bangladesh concluded that there was a significant relationship between dietary patterns, nutritional knowledge, diabetes self-management behavior and glycemic control in adults with type 2 diabetes mellitus (DMT2). The study suggests that increasing nutritional knowledge can lead to better dietary practices and increase the likelihood of diabetes self-care behaviors (Ahmed, Ripon, Islam, Ullah, Sultan, Sajid, & Rahman, 2024). The results of this study confirm previous research that good knowledge about diet and nutrition in DM patients affects blood glucose stability. There is a clear need for educational interventions such as health promotion programs to increase understanding and awareness and increase their knowledge about DM (Orok, Kabiawu, Aderohunmu, & Obalolu, 2024).

The results of this study highlight the importance of developing and providing educational campaigns on stroke prevention to people with diabetes in the community. Our findings point to an important role in providing health knowledge to reduce the incidence of stroke among certain vulnerable groups and minimize that burden on society. These efforts can increase awareness of stroke risk and encourage healthy behaviors among people with diabetes, contributing to a reduction in stroke incidence and its social impact (Lai, Hu, Lee, Lu, Yen, & Chu, 2017). DMT2 patients have an average knowledge of diabetes which can affect the utilization of health services for diabetes management. Innovations in improving diabetes knowledge and health behavioural change are recommended specifically for women, those with low education and lower incomes, to improve self-management and better health outcomes (Siddique, Islam, Banik, & Rawal, 2017).

This study explains that there is a significant relationship between the attitude of patients towards

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blood sugar stability. Positive attitudes of sufferers affect lifestyle and recommendations for handling DMT2. Human attitudes are based on knowledge. Previous research explained that good knowledge will show a positive attitude and perceived risks related to DM (Ahmed et al., 2024). Parents in the pre-diabetic stage have a great opportunity to increase their knowledge and positive attitude towards lifestyle changes. Through comprehensive counseling, they can broaden their pre-diabetes understanding and be motivated for a healthy diet, regular physical activity, as well as weight monitoring. These proactive measures will help prevent progression to more severe diabetes. With the right support and empowerment, pre-diabetic parents can play a key role in realizing an effective pre-diabetes prevention and control program (Pakpour, Molayi, & Nemati, 2024). Diabetes prevention initiatives in Kenya should adopt a comprehensive, multiphase approach. Improving individual education and skills will encourage positive lifestyle changes. In addition, the promotion of a health-supporting social and physical environment can reinforce healthy behaviors at the population level. This intervention is urgently needed in low-income communities, which are at high risk

The intervention promotes seeking medical help in patients with DM to prevent traditional Chinese therapy, as it can affect delays in seeking medical interventions for leg ulcers, information previously unknown. It is hoped that there will be an increase in resources that can encourage the development of rural health centers from the policy level. Healthcare providers can further explore emotional integration and cultural adjustment in providing comprehensive care (Zhu, Nuntaboo, Liu, & Long, 2024). Previous research identified structural and individual barriers and facilitators that Houston's Latino residents experience related to diabetes and depression. More advocacy is needed to ensure institutions and health care providers consider the structural components for Latino patients and their families to have better access to care and medication adherence. Personal barriers and facilitators also inform the possibility of delivering culturally appropriate healthcare access (Borja, Valdovinos, Rivera, Giraldo-Santiago, Gearing, & Torres, 2024).

This study found the significance of the relationship between Healthy behavior on the stability of blood sugar in DMT2 patients. The patient's Healthy behavior are influenced by good knowledge and positive attitudes. Good knowledge of their health condition allows sufferers to understand the importance of appropriate behavior in handling their disease. Positive attitudes, such as strong motivation and a sense of optimism, also play an important role in encouraging sufferers to implement behaviors that are in accordance with their knowledge. Thus, good knowledge and positive attitudes together influence the behavior of sufferers in managing their health conditions. In diabetic patients, depression is associated with decreased cognitive function and an increased risk of dementia. Although antidepressant treatment can be a potential solution, its effects in mitigating these negative effects still require further research. However, early identification and management of depressive conditions in this population is essential to maintain overall mental health and cognitive function. With a holistic approach that addresses both physical and mental conditions, it is hoped that it can improve the quality of life of diabetic patients who experience depression (Chow, Verdonschot, McEvoy, & Peeters, 2022).

Healthcare providers should prioritize interventions that not only address patient concerns but also contribute to improving the quality of health by implementing diabetes interventions (Fariba et al., 2024). These findings enrich our understanding of healthy eating negotiations among three generations of Pakistani Brits with type 2 diabetes. These results underscore the importance of dietary modifications and interventions tailored to cultural backgrounds. With a culturally responsive approach, health promotion efforts can be more effective in supporting healthy lifestyles for this population. A better understanding will facilitate more relevant and impactful interventions (Iqbal, Iqbal, & Kagan, 2024). The study provides important insights into the factors that lead to delayed presentation among patients with proliferative diabetic retinopathy. These findings reveal that many individuals in the late-arriving

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population have undiagnosed diabetes. In addition, the reasons for the delay among patients who know their status include a lack of knowledge about diabetic retinopathy, negative attitudes towards screening and treatment, and difficulties in accessing health services. By understanding these factors, more targeted interventions can be designed to improve early detection and effective management (Zhao, Chandra, Liu, Zhang, Xu, & Li, 2024).

Because of the very high risk of hypoglycemia in type 2 diabetic patients who do not have self-monitoring of blood sugar, simple risk assessment strategies such as the Severe Hypoglycemia Questionnaire (SHQ) seem to be an effective solution. The SHQ method is proving to be an easy and cost-effective screening tool in the Indian context, and has the potential to be utilized more widely. By translating and validating SHQ into different local languages, the tool can provide greater benefits to India's linguistically diverse population that does not yet have access to adequate health services. This will allow for early identification of at-risk people and the offer of appropriate management to prevent dangerous complications (Awasthi et al., 2024). The study found that most participants had poor glycemic control, accompanied by self-reported oral conditions as well as oro-mucosal lesions. Although the status of oral hygiene and the use of dental services is quite good, routine oral care must be prioritized to improve the quality of life related to the oral health of DM patients. Dynamic dentist-doctor collaboration is important to prioritize and emphasize oral health as a vital component of holistic care for DM patients (Oluwatoyin, Arinola, Olufemi, & Jokotade, 2024).

Adults with diabetes mellitus (DM) in this study had a significantly higher prevalence of mental disorders, psychological distress, and psychiatric medication consumption than the non-DM control group. This emphasizes the importance of implementing screening strategies and psychological interventions to improve the mental health of DM patients in Spain. The main focus should be on women and those aged 35 to 59, the most at-risk group. By identifying and treating mental health problems early, it is hoped that it can improve the quality of life and overall health outcomes for the population of DM patients (Lopez-Herranz, Jiménez-García, Ji, de Miguel-Diez, Carabantes-Alarcon, Maestre-Miquel, & López-de-Andrés, 2021).

The results of our study show a two-way association between diabetes, depression, and anxiety. Early detection and integrated management are important to reduce complications. Nutrition offers an effective solution for diabetes control and mental health (Basiri, Seidu, & Rudich, 2023). Building positive health behaviors and psychological well-being is the foundation for achieving diabetes treatment goals and improving quality of life. A holistic strategy that prioritizes physical, mental and social aspects can maximize treatment outcomes and empower diabetic patients to manage their condition effectively (American Diabetes Association Professional Practice Committee, 2022).

This study revealed the adverse impact of socioeconomic and educational gradients on diabetes knowledge among primary care patients with type 2 diabetes. The study explains that poor self-care behavior, especially lack of physical activity, exacerbates the effects of diabetes knowledge on glycemic control. These results suggest the need to focus on populations with poor access to diabetes care, which could lead governments to allocate resources to improve diabetes education and knowledge and encourage people with type 2 diabetes to increase self-care activities, especially physical activity. More research is needed to estimate the effects of interventions on diabetes knowledge and strategies to improve self-care in socially disadvantaged circumstances, especially in low-income groups (Silva, Cuatecontzi, de la Torre, León, Serna, Orea, & Prada, 2020).

CONCLUSION

Good knowledge has a significant effect on blood sugar stability. Having a good understanding greatly affects diabetes control. An important principle allows for effective action for long-term health. Accurate information empowers informed decisions, Pengetahuan menjadi kunci kendali diabetes. A positive attitude greatly affects blood sugar control. An optimistic attitude and high enthusiasm achieve

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better health control. Confident patients, sugar level action becomes effective. A positive attitude motivates oneself to live a healthy life. Appropriate actions affect blood sugar control. Maintaining blood sugar stability is very important for the health of People with Diabetes Mellitus Type-2 (DMT2). Taking the right action decisions can achieve optimal sugar level control. Eating nutritious food, exercising regularly, monitoring blood sugar, has a significant positive impact on long-term health. Patients who take the right steps will feel increased energy, better health, and a happier quality of life.

REFERENCES

Adi, S. S., Ketut, S., Dharma, L., Eva, D., & Hikat, P. (2019). Pengelolaan dan pencegahan diabetes melitus tipe 2 dewasa di Indonesia. *Perkumpulan Endokrinologi Indonesia*, *133*.

Ahmed, S., Ripon, M. S. H., Islam, M. F., Ullah, A., Sultan, S., Sajid, M., & Rahman, T. (2024). Association of dietary intake and nutrition knowledge with diabetes self-management behavior among Bangladeshi type 2 diabetes mellitus adults: A multi-center cross-sectional study. *Endocrine and Metabolic Science*, *14*, 100156.

Alenbalu, M., Egenasi, C. K., Steinberg, W. J., & Aluko, O. (2024). Diabetes Knowledge, Attitudes, and Practices in adults with type 2 diabetes at primary health care clinics in Kimberley South Africa. *South African Family Practice*, *66*(1), 5838.

American Diabetes Association Professional Practice Committee. (2022). 5. Facilitating behavior change and well-being to improve health outcomes: Standards of Medical Care in Diabetes—2022. *Diabetes care*, *45*(Supplement_1), S60-S82.

Basiri, R., Seidu, B., & Rudich, M. (2023). Exploring the interrelationships between diabetes, nutrition, anxiety, and depression: implications for treatment and prevention strategies. *Nutrients*, *15*(19), 4226.

Bekele, N. T., Habtewold, E. M., Deybasso, H. A., & Mekuria Negussie, Y. (2024). Poor self-care practices and contributing factors among adults with type 2 diabetes in Adama, Ethiopia. *Scientific Reports*, *14*(1), 13660.

Borja, S., Valdovinos, M. G., Rivera, K. M., Giraldo-Santiago, N., Gearing, R. E., & Torres, L. R. (2024). "It's Not That We Care Less": Insights into Health Care Utilization for Comorbid Diabetes and Depression among Latinos. *International Journal of Environmental Research and Public Health*, *21*(2), 148.

Chow, Y. Y., Verdonschot, M., McEvoy, C. T., & Peeters, G. (2022). Associations between depression and cognition, mild cognitive impairment and dementia in persons with diabetes mellitus: A systematic review and meta-analysis. *Diabetes research and clinical practice*, 185, 109227.

de Leon, E. B., Campos, H. L. M., Santos, N. B., Brito, F. A., & Almeida, F. A. (2024). Patient activation levels and socioeconomic factors among the Amazonas population with diabetes: a cross-sectional study. *BMC Health Services Research*, *24*(1), 169.

Hansen, S. H., Jensen, T. M., Petersen, G. S., Pouwer, F., Larrabee Sonderlund, A., & Søndergaard, J. (2024). Effect of an entry-to-care intervention on diabetes distress in individuals with newly diagnosed type 2 diabetes: a study protocol for a cluster-randomized trial. *Trials*, *25*(1), 207.

Isa, S., Alma'Norliana, J. A., Ismaliza, I., Yusof, A., & Hami, R. (2024). CKD Knowledge and Its Associated Factors Among Patients with Type 2 Diabetes Mellitus Attending Follow-up in a Penang Primary Health Clinic. *Journal of Health Science and Medical Research*, *42*(2), 2023981.

Iqbal, S., Iqbal, H., & Kagan, C. (2024). Intergenerational differences in healthy eating beliefs among British Pakistanis with type 2 diabetes. *Diabetic Medicine*, *41*(4), e15222.

Jafari, A., Moshki, M., Ghelichi-Ghojogh, M., & Nejatian, M. (2024). Role of diabetes health literacy, psychological status, self-care behaviors, and life satisfaction in predicting quality of life in type 2 diabetes. *Scientific Reports*, *14*(1), 1635.

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Lai, Y. J., Hu, H. Y., Lee, Y. L., Ku, P. W., Yen, Y. F., & Chu, D. (2017). A retrospective cohort study on the risk of stroke in relation to a priori health knowledge level among people with type 2 diabetes mellitus in Taiwan. *BMC Cardiovascular Disorders*, *17*, 1-8.

Lopez-Herranz, M., Jiménez-García, R., Ji, Z., de Miguel-Diez, J., Carabantes-Alarcon, D., Maestre-Miquel, C., & López-de-Andrés, A. (2021). Mental health among spanish adults with diabetes: findings from a population-based case–controlled study. *International journal of environmental research and public health*, *18*(11), 6088.

Ministry of Health Republic Indonesia. (2022). *Profil Kesehatan Indonesia 2022*. Received from: https://kemkes.go.id/id/profil-kesehatan-indonesia-2022

Mohamed, A. H., Abbassi, M. M., & Sabry, N. A. (2024). Knowledge, attitude, and practice of insulin among diabetic patients and pharmacists in Egypt:"cross-sectional observational study". *BMC Medical Education*, *24*(1), 390.

Oluwatoyin, A. E., Arinola, E., Olufemi, O. E., & Jokotade, A. (2024). Self–reported oral health and oral health–related quality of life among patients with diabetes mellitus in a tertiary health facility. *BMC Oral Health*, *24*(1), 181.

Orok, E., Kabiawu, Y., Aderohunmu, Z., & Obiwulu, D. (2024). Knowledge, attitude, and perceived risks related to diabetes mellitus among university students in Southwestern Nigeria. *Heliyon*, *10*(4).

Pakpour, V., Molayi, F., & Nemati, H. (2024). Knowledge, attitude, and practice of pre-diabetic older people regarding pre-diabetes. *BMC geriatrics*, *24*(1), 264.

Pardhan, S., Raman, R., Biswas, A., Jaisankar, D., Ahluwalia, S., & Sapkota, R. (2024). Knowledge, attitude, and practice of diabetes in patients with and without sight-threatening diabetic retinopathy from two secondary eye care centres in India. *BMC Public Health*, *24*(1), 55.

Salavatian, F., Hashemi-Madani, N., Emami, Z., Hosseini, Z., Falavarjani, K. G., & Khamseh, M. E. (2024). Improving diabetic retinopathy screening at the point of care: integrating telemedicine to overcome current challenges. *BMC ophthalmology*, *24*(1), 256.

Siddique, M. K. B., Islam, S. M. S., Banik, P. C., & Rawal, L. B. (2017). Diabetes knowledge and utilization of healthcare services among patients with type 2 diabetes mellitus in Dhaka, Bangladesh. *BMC health services research*, *17*, 1-9.

Silva, T., R., Cuatecontzi, X., T., De la Torre, S., V., León, G., E., Serna, A., J., Orea, T., A., & Prada, D. (2020). Influence of social determinants, diabetes knowledge, health behaviors, and glycemic control in type 2 diabetes: an analysis from real-world evidence. *BMC endocrine disorders*, *20*, 1-11.

Zhao, M., Chandra, A., Liu, L., Zhang, L., Xu, J., & Li, J. (2024). Investigation of the reasons for delayed presentation in proliferative diabetic retinopathy patients. *Plos one*, *19*(2), e0291280.

Zhu, W., Nuntaboot, K., Liu, J., & Long, S. (2024). Perceptions of Delay in Seeking Medical Help among People with Diabetic Foot Ulcers in Rural Southwest China. *Pacific Rim International Journal of Nursing Research*, *28*(2).

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