

Theoretical Study: Changes in Behavior and Social Conditions on the Incidence of Diabetes Mellitus in Makassar City, Indonesia

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Abstract:

Background: The International Diabetes Federation (IDF) stated that the prevalence of diabetes in 2019 was 9% in women and 9.65% in men. Diabetes Mellitus cases in Makassar City in 2020-2021 were reported to be in third place with 30,976 million patients as non-communicable diseases. So it is necessary to research to examine theories and research related to controlling the dangers of DM disease, reducing morbidity, mortality, and disability for people with DM. By adapting Behavior Change theory.

Materials and Methods: This research is the type of theoretical study in the form of a review of the literature compiled using a framework (Systemic Literature Review). A review has been carried out on 9 international articles taken from the 2015-2021 period.

Results: Knowledge related to Diabetes Mellitus varies where knowledge is generally considered good but specific knowledge about their oral health is not sufficient. Knowledge is used as a predictor in attitude towards the diabetes problem faced. The attitude of the patient as a predictor in self-regulating a diabetes diet has a generally good value but specifically, attitudes related to oral health have a bad value.

Key Word: Behavior, Social Conditions, Diabetes Mellitus.

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I. Introduction

Quality Human Resources (HR) is one of the manifestations of health. Equitable health in all levels of society is expected to increase the cost of living for the community itself. Conducive environmental conditions, people who are proactive in maintaining and improving their health, and equitable and efficient health services are important indicators of success in health development. The reality being faced in Indonesia says otherwise, although health development continues to be promoted, dangerous diseases are increasingly appearing and spreading widely, including Diabetes Mellitus.

The main cause of blindness, heart disease, kidney failure, and premature death is diabetes. The latest data states that at least 463 million people aged 20-79 years in the world suffer from diabetes. The International Diabetes Federation (IDF) stated that the prevalence of diabetes in 2019 was 9% in women and 9.65% in men. This figure is indicated to continue to increase to reach 578 million in 2030 and 700 million in 2045. Data in 2019 put Indonesia in second place with the highest number of diabetics after China. (Pangriwo, 2020).

Diabetes has been recognized as a syndrome of multiple disorders characterized by hyperglycemia and glucose intolerance caused by either insulin deficiency or ineffective insulin action or a combination of both. Specifically, diabetes is caused by fragility, insulin resistance, pregnancy, pancreas, endocrine, and iatrogenic. In general, diabetes is divided into two categories, namely, type I diabetes and type II diabetes. (De Fronzo et al., 2015)

The American Diabetes Association (ADA) classifies diabetes into four types, namely, type I diabetes or also called insulin-dependent diabetes mellitus, type II, or called non-insulin-dependent diabetes mellitus, other types of diabetes, and diabetes in pregnancy called Gestational Diabetes Mellitus. Other types of diabetes are caused by certain conditions such as congenital abnormalities in pancreatic beta cells, insulin resistance, pancreatitis, hormonal disorders, or certain trauma. The results of the study state that 10% of all cases of diabetes are type I or about 1% of the population which is increasing to 3% of the total population. (Marewa, 2015)

Type II diabetes affects 90-95% of the human population on earth. The main cause of diabetes in Indonesia is caused by the body's cells being less sensitive to insulin, as a result, glucose in the blood will continue to be high and accumulate in the pancreas which triggers the production of insulin in large quantities.

High glucose levels but not matched by the body's response to absorb glucose, resulting in type II diabetes. (Blair, 2016)

The Perhimpunan Endokrinologi Indonesia (PERKENI) states that the criteria for diabetes mellitus are if the fasting blood glucose level is ≥ 126 mg/dl, or blood glucose 2 hours after loading is ≥ 200 mg/dl, or glucose is 200 mg/dl with symptoms of frequent hunger, frequent thirst, urinate frequently and in large quantities and lose weight (Indra et al., 2021). The results of Riskesdas 2018 show that only 25% of diabetics know that they have diabetes. The increasing prevalence of diabetes occurs in all provinces in Indonesia based on 2013-2018 data. South Sulawesi alone has a prevalence rate of 1.3%. (Pangriwo, 2020)

Type II diabetes often occurs due to people's lifestyle factors, dietary factors, heredity factors, and physical activity. The modern lifestyle makes it difficult for sufferers to realize the initial symptoms until complications occur. Higher education does not guarantee their lifestyle be healthy (Malviani & Togubu, 2019); (Darwis et al., 2020). Those who generally have jobs that do not require more physical activity such as office workers are scientifically proven to suffer from more degenerative diseases including diabetes. City residents who have jobs related to offices coupled with easy access to unhealthy favorite foods such as McDonald's, KFC, Burger King, Pizza further increase the risk of developing diabetes. (Marewa, 2015)

Diabetes mellitus cases in Makassar City in 2020-2021 were reported to be in third place with 30,976 million patients as non-communicable diseases. (Dinkes Makassar, 2021). Based on the main issues of diabetes specifically in Makassar, namely the lack of public awareness related to DM prevention, unbalanced health services, lack of resources in the public health system, low number of people receiving appropriate treatment and insulin.

Individuals with prediabetes are those who do not meet the criteria to be said to be diabetics but have a high risk of developing type II diabetes later. The ADA Expert Committee defines those with prediabetes as those with impaired fasting plasma glucose (IFG) between 100-125 mg/dl or impaired sugar tolerance test (IGT) with a 2-hour glucose level on the oral glucose tolerance test (TGO) 140-199. mg/dl. (Kharroubi & Darwish, 2015).

Those with diabetes or prediabetes can live long and healthy lives if their diabetes is detected and managed properly. Good management using standard protocols has the potential to prevent complications and premature death from diabetes. Other than that another thing that needs to be considered to prevent this disease as early as possible is to change a better lifestyle. Research (Hariawan et al., 2019) proves that people with type 2 diabetes have a history of unhealthy eating patterns and light physical activity. Likewise with a study (Amalia et al., 2016) showed 67.7% of respondents with diabetes had an unhealthy lifestyle.

Based on the description of the events above, it is necessary to research to examine theories and research related to controlling the dangers of Diabetes Mellitus to reduce morbidity, mortality, and disability for people with Diabetes Mellitus. Adjusting the theory of Behavior Change Ajzan (1991) and Triandis (1977), as references to the theory of behavior change. In this study, the variables selected were knowledge, attitudes, social factors, and where the relationships between these variables were expected to be able to answer problems related to Diabetes Mellitus in Makassar City.

II. Material And Methods

This research is a theoretical study in the form of a review of the literature compiled using a framework (Systemic Literature Review). A review has been carried out on 9 international articles taken from the 2015-2021 period. The journals collected include those from the National Library of Medica, PLOS Medicine of California, Springer, BMC Public Health.

III. Result & Discussion

Diabetes Mellitus is a disorder of carbohydrate, fat, and protein metabolism caused by insulin-producing cells that disappear from the pancreas or a decrease in tissue sensitivity to insulin which results in an increase in blood sugar levels in the blood. This disease is responsible for an increased risk of death from cardiovascular disease (especially heart disease and stroke), possibly amputation of limbs, kidney failure, and blindness. (Kassahun & Mekonen, 2017). A person with diabetes is characterized by hyperglycemia due to defects in insulin secretion, insulin action, or both. Pathogenic processes are involved in the development of diabetes such as autoimmune destruction of pancreatic cells resulting in insulin deficiency to disorders resulting in insulin resistance. The basic disorder of carbohydrate, fat, and protein metabolism in diabetics is a deficiency of insulin action on target tissues. Insufficient insulin concentration causes a lack of tissue response to insulin. The characteristics of hyperglycemic disorders can be seen from weight loss, polyphagia, polydipsia, blurred vision, and susceptibility to infection. (Mellitus, 2005).

The behavior of people around people with Diabetes Mellitus affects their perspective and behavior in treating illness and making decisions in treatment. Social networks including family members, friends, peers, health workers, social media, and the internet are important factors that shape their paradigm. Social media can

also be a way to fight Diabetes Mellitus by providing clear information that allows a person to prevent, overcome and avoid the causative factors. Based on the literature that has been reviewed, it can be seen from the matrix review table 1 as follows:

Table 1
Research Result Review Matrix

No	Article Title	Research Result		
		Knowledge	Attitude	Social
1	Knowledge, attitude, practices and their associated factors towards diabetes mellitus among non diabetes community members of Bale Zone administrative towns, South East Ethiopia. A cross-sectional study	Good with a percentage of 55,9%	Good with a percentage of 56,6%	
2	Modelling of diabetes knowledge, attitudes, self-management, and quality of life: a cross-sectional study with an Australian sample	Knowledge is a predictor in attitude towards the diabetes problem faced.	Attitude as a predictor in self-management when doing a diabetes diet.	Self-management affects the quality of life of people with diabetes mellitus.
3	Knowledge, attitudes and practices towards COVID-19 among young adults with Type 1 Diabetes Mellitus amid the nationwide lockdown in India: A cross-sectional survey	Knowledge level has an average score of 74%.	98% feel confident in their self-protection attitude.	
4	Oral health knowledge, attitudes and care practices of people with diabetes: a systematic review	Inadequate oral health knowledge.	Poor oral health attitude.	
5	Social factors and barriers to self-care adherence in Hispanic men and women with diabetes		Lower level of self-compliance.	Women tend to receive less support and more resistance and Men get more support.
6	Relationship between social network, social support and health behaviour in people with type 1 and type 2 diabetes: cross-sectional studies		The healthy behavior of type 2 diabetes mellitus sufferers is worse than type 1 diabetes mellitus patients.	Type 2 Diabetes Mellitus has less contact with social networks.
7	Health-related quality of life in diabetes mellitus and its social, demographic and clinical determinants: A nationwide cross-sectional survey			The quality of life of Spanish people who suffer from diabetes is at a sufficient level.
8	Social Influences of Help-Seeking Behaviour Among Patients With Type 2 Diabetes Mellitus in Malaysia			Social networks become information for people with Diabetes Mellitus in the treatment decision-making process. This social network is closely related to the closeness of the relationship, the level of trust, support, and care that is felt.
9	The social determinants of health for people with type 1 diabetes that progress to end-stage renal disease			Social class, gender, ethnicity shape life, healthy behavior and encourage them to be more responsible for themselves.

The review matrix in table no. 1 gets the results, namely (1) good knowledge with a percentage of 55.9% and good attitude with a percentage of 56.6% (Kassahun & Mekonen, 2017); (2) Knowledge is a predictor in attitudes towards diabetes problems faced, attitude as a predictor in self-management when doing a diabetes diet, and self-management affects the quality of life of people with Diabetes Mellitus (Kueh et al., 2015); (3) The level of knowledge has an average score of 74% and 98% feel confident with their self-protection attitude (Pal et al., 2020); (4) Adequate oral health knowledge and poor oral health attitudes (Poudel et al., 2018); (5) The attitude of self-compliance is lower in women and in the social aspect, women receive less support and get more barriers than men (Mansyur et al., 2015); (6) The healthy behavior of type 2 Diabetes Mellitus sufferers is worse than Type 1 Diabetes Mellitus sufferers and socially, Type 2 Diabetes Mellitus

sufferers have less contact with social networks. (Hempler et al., 2016); (7) From the social aspect, the quality of life of the people in Spain who suffer is at an adequate level (Rodríguez-Almagro et al., 2018); (8) Social networks become information for the sufferers and in the treatment decision-making process. This is closely related to the closeness of the relationship, the level of trust, support, and care that is felt (Low et al., 2016); (9) Social class, gender, ethnicity shape life, healthy behavior and encourage them to be more responsible for themselves (Hill et al., 2015).

IV. Conclusion

Knowledge related to Diabetes Mellitus varies where knowledge is generally considered good but specific knowledge about their oral health is not sufficient. Knowledge is used as a predictor in attitude towards the diabetes problem faced. The attitude of the patient as a predictor in self-regulating a diabetes diet has a generally good value but specifically attitudes related to oral health have a bad value. This is related to low self-adherence where type 2 Diabetes Mellitus sufferers have worse health behaviors than Type 1 Diabetes Mellitus. Social aspects of Diabetes Mellitus sufferers affect their quality of life, women generally get less support than men. In addition, people with Type 2 Diabetes Mellitus have fewer social contacts, even though social networks are able to know the behavior of sufferers in making treatment decisions and encourage them to be more responsible for themselves. So it is recommended for sufferers to stay in contact with their environment to increase their life expectancy.

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