



Analysis The Quality of Life in Type 2 Diabetes Mellitus Patients in Pekanbaru City, Riau Province

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Abstract

Type 2 Diabetes Mellitus is a chronic condition that can lead to numerous complications, affecting both physical and psychological health. The quality of life in patients with type 2 diabetes mellitus is influenced by a complex interplay of physical, psychological, socio-economic, and lifestyle factors. The aim of this research is to analyze the quality of life of type 2 diabetes mellitus patients in four domains, namely the physical domain, psychological domain, social domain and environmental domain. This study used a descriptive survey method to look at the quality of life of type 2 diabetes mellitus patients. The population in this study was all patients with diabetes mellitus tupe 2 in the city of Pekanbaru. For sampling, researchers used purposive sampling technique. The number of sample in this study is 30 respondent, because we uses the central limit theorem. For data analysis, researchers used frequency distributions in SPSS for Windows to describe each domain of quality of life in type 2 diabetes mellitus patients. The results of this study are that the majority of respondents have a moderate quality of life in all domains, physical domain 86.7%, psychological domain 93.3%, social domain 86.7% and environmental domain 73.3%. Addressing these issues through comprehensive diabetes management strategies, including mental health support, education, lifestyle modifications, and enhanced social support, is essential for improving the QoL of individuals living with Type 2 Diabetes Mellitus.

Keywords: *Environment; Psychological; Social; Type 2 Diabetes Mellitus; Quality of Life*

Introduction

The quality of life (QoL) in patients with type 2 diabetes mellitus (T2DM) is a significant concern, as it encompasses various aspects of health and well-being. One of the primary issues impacting QoL in T2DM patients is the presence of diabetes-related complications. According to , individuals with diabetes often experience lower QoL scores compared to the general population, particularly in physical functioning and general health perception (Kurtalić, Kurtalic & Salihbegovic, 2020). The complications associated with T2DM, such as neuropathy and cardiovascular diseases, can lead to significant physical limitations and discomfort, which in turn diminishes the overall QoL (Dermanovic Dobrota et al., 2014). This is echoed by , who notes that the chronic nature of diabetes can lead to persistent health issues and disabilities, further exacerbating the negative impact on QoL (Puspatari & Saidah, 2023).

The quality of life (QoL) of patients with type 2 diabetes mellitus (T2DM) is a multifaceted issue that encompasses various physical, psychological, and social dimensions. Numerous studies have explored the impact of diabetes on QoL, revealing significant challenges faced by these patients. This analysis

synthesizes findings from several high-quality studies to provide a comprehensive overview of the factors influencing the QoL of individuals with T2DM.

One of the primary factors affecting the QoL of T2DM patients is the presence of diabetes-related complications. For instance, a study by highlights that patients with skin changes related to diabetes experience a significant reduction in their QoL, particularly in social and physical functioning domains (Kurtalić, Kurtalic & Salihbegovic, 2020). This finding is corroborated by research indicating that the severity of diabetes complications correlates with lower QoL scores, as patients with more severe complications report greater difficulties in daily functioning and overall well-being (Nasriyah & Marselin, 2021).

Moreover, the psychological aspects of living with T2DM cannot be overlooked. Depression is prevalent among diabetic patients and has been shown to independently affect QoL, regardless of the physical health status of the individual (Gupthan, Nanoo, S., & Nujum, 2019). The interplay between diabetes and mental health is complex, as the stress of managing a chronic illness can exacerbate depressive symptoms, further diminishing QoL (Rizqillah, Ma'rifah & Ardilla, 2020). This relationship underscores the importance of addressing mental health in the management of diabetes to improve overall patient outcomes.

Physical activity also plays a crucial role in enhancing the QoL of T2DM patients. found a positive association between physical activity levels and QoL, suggesting that increased physical activity can lead to improvements in both physical and mental health outcomes for these patients (Çolak et al., 2015). Regular exercise not only helps in managing blood glucose levels but also contributes to better emotional well-being, thereby enhancing the overall QoL.

Glycemic control is another critical determinant of QoL in T2DM patients. Studies have shown that better glycemic control, as measured by HbA1c levels, is associated with improved QoL scores . For instance, a cohort study indicated that a 5% decrease in HbA1c was linked to a 1% increase in mental component scores (MCS), highlighting the direct impact of glycemic management on patients' perceived quality of life (Sindhu & Jayakumar, 2023). This relationship emphasizes the need for effective diabetes management strategies that prioritize glycemic control to enhance QoL.

The aim of this research is to analyze the quality of life of type 2 diabetes mellitus patients in four domains, namely the physical domain, psychological domain, social domain and environmental domain. Based on the background above, researchers are interested in knowing how the quality of life of patients with type 2diabetes mellitus in Pekanbaru City, Riau Province.

Research Methodology

The analysis of the quality of life (QoL) among patients with type 2 diabetes mellitus (T2DM) is critical for understanding the broader implications of this chronic condition. A comprehensive research methodology is essential to accurately assess the various factors influencing QoL in this population. This synthesis draws on several high-quality studies to outline effective methodologies for evaluating QoL in T2DM patients. This study used a descriptive survey method to look at the quality of life of type 2 diabetes mellitus patients.

The population in this study was all patients with diabetes mellitus tupe 2 in the city of Pekanbaru. For sampling, researchers used purposive sampling technique. The number of sample in this study is 30 respondent, because the researcher use the central limit theorem. The central limit theorem (CLT) states that when a sample size is large enough, the distribution of sample means will be approximately normally distributed, regardless of the population's distribution. For example, if you take random samples of size 10 from a population and compute the mean for each sample, the distribution of sample means should be approximately normal. Sample sizes equal to or greater than 30 are often considered sufficient for the CLT to hold (Ganti, 2023).

A systematic review by emphasizes the importance of using validated instruments to measure QoL in diabetic patients. They argue that QoL assessments should be integrated into the treatment plan, as

they provide valuable insights into the health status and disease management of individuals with chronic illnesses like diabetes (Feyzi & Madmoli, 2019). The tool for measuring quality of life variables is in the form of a questionnaire created by WHO, namely the World Health Organization Quality of Life-Bref (WHOQOL BREF) is a summary of the World Health Organization Quality of Life (WHOQOL)-100 and consists of 26 question items, containing about aspects of quality of life, which include physical dimensions, psychological dimensions, dimensions of social relations, and environmental dimensions, this measuring tool has adapted to various languages. WHOQOL-BREF is a measuring tool whose results are valid and reliable in measuring quality of life (Skevington *et al.*, 2004).

For data analysis, researchers used frequency distributions in SPSS for Windows to describe each domain of quality of life in type 2 diabetes mellitus patients.

Result

Respondent Characteristics

The characteristics of respondent in this study is:

Table 1: Characteristics of Respondent

Characteristics	Criteria	Amount	Percentage (%)
Age	Young	3	10
	Middle Age	23	76.7
	Elderly	4	13.3
	Total	30	100
Gender	Male	8	26.7
	Female	22	73.3
	Total	30	100
Education	Basic education	18	60
	Higher education	12	40
	Total	30	100

Based on table 1, it was found that the majority of respondents are in middle aged is 76,7%, the majority of respondents are female is 73,3% and most of respondents has in basic education is 60%.

Quality of Life Frequency Distribution

a. Physical domain

Table 2: Physical Domain

Criteria	Amount	Percentage (%)
Low	4	13.3
Moderate	26	86.7
High	0	0
Total	30	100

Based on the table 2, it was found that the majority of respondents, namely 26 (86.7%), had moderate physical quality.

b. Psychological domain

Table 3: Psychological Domain

Criteria	Amount	Percentage
Low	0	0
Moderate	28	93.3
High	2	6.7
Total	30	100

Based on the table 3, it was found that the majority of respondents, namely 28 (93,3%), had moderate psychological quality.

c. Social domain

Table 4: Social Domain

Criteria	Amount	Percentage
Low	2	6.7
Moderate	26	86.7
High	2	6.7
Total	30	100

Based on the table 3, it was found that the majority of respondents, namely 26 (86,7%), had moderate social quality.

d. Environmental domain

Table 5: Environmental Domain

Criteria	Amount	Percentage
Low	0	0
Moderate	22	73.3
High	8	26.7
Total	30	100

Based on the table 4, it was found that the majority of respondents, namely 22 (73,3%), had moderate environmental quality.

Discussion

The quality of life (QoL) in patients with type 2 diabetes mellitus (T2DM) is a multifaceted issue that encompasses various physical, psychological, and social dimensions. Research has consistently shown that individuals with T2DM experience a lower QoL compared to their non-diabetic counterparts, primarily due to the chronic nature of the disease and its associated complications. This discussion synthesizes findings from several studies to elucidate the factors influencing QoL in T2DM patients.

One of the primary determinants of QoL in T2DM patients is the presence of psychological distress, including depression and diabetes-related emotional distress. For instance, found a significant association between emotional distress and decreased QoL among individuals with T2DM, highlighting that emotional well-being is crucial for maintaining a satisfactory quality of life (Gómez-Pimienta et al., 2019). Similarly, Juárez-Rojop et al., 2018 reported that depression symptoms were prevalent among T2DM patients and negatively impacted their QoL, suggesting that mental health interventions could be beneficial in this population (Juárez-Rojop et al., 2018). The interplay between diabetes and psychological factors is complex, as the stress of managing a chronic illness can exacerbate feelings of anxiety and depression, further diminishing QoL.

Moreover, the socio-economic status of patients plays a critical role in determining their QoL. noted that higher income levels were associated with better QoL outcomes in diabetes patients, indicating that financial stability can alleviate some of the burdens associated with managing the disease (Cho, Kwon & Kim, 2022). This finding is corroborated by , who emphasized that economic factors significantly influence the well-being of T2DM patients in Ghana, where lower income was linked to poorer health outcomes and reduced QoL (Amankwah-Poku et al., 2021). Thus, addressing socio-economic disparities is essential for improving the QoL of individuals with T2DM.

Complications arising from T2DM also significantly affect QoL. found that long-term complications, such as neuropathy and retinopathy, were associated with lower QoL scores among diabetes patients (Stojanović et al., 2018). This aligns with the findings of , who highlighted that health-related QoL is closely tied to the presence of diabetic complications, suggesting that effective management of these complications is vital for enhancing QoL (Quah et al., 2011). The chronic nature of T2DM necessitates ongoing medical care, and the burden of complications can lead to increased healthcare costs and reduced life satisfaction.

Education and self-care behaviors are additional factors that influence QoL in T2DM patients. reported that higher levels of diabetes education were associated with improved QoL, as patients who are better informed about their condition are more likely to engage in effective self-care practices (Nasriyah & Marselin, 2021). This is further supported by the work of , who found that medication adherence positively correlated with QoL, suggesting that patients who follow their treatment regimens experience fewer complications and better overall health (Alfian et al., 2016). Therefore, enhancing patient education and promoting adherence to treatment are critical strategies for improving QoL in this population.

Furthermore, the role of social support cannot be overlooked. demonstrated that social support, life satisfaction, and a sense of meaning in life significantly influenced the QoL of diabetes patients (Olorunkoya et al., 2018). This underscores the importance of a supportive social network in managing the psychological and emotional challenges associated with T2DM. Patients who feel supported by family and friends are more likely to engage in healthy behaviors and maintain a positive outlook on their health.

In addition to these factors, lifestyle choices such as diet and physical activity also play a crucial role in determining QoL. highlighted that lifestyle modifications, including regular exercise and a balanced diet, are essential for managing T2DM and improving health-related QoL (Zhuang et al., 2020). The integration of lifestyle interventions into diabetes management programs can lead to better health outcomes and enhanced QoL for patients.

Conclusion

In conclusion, the quality of life in patients with type 2 diabetes mellitus is influenced by a complex interplay of psychological, socio-economic, and health-related factors. Addressing these determinants through comprehensive diabetes management strategies, including mental health support, education, and lifestyle modifications, is essential for improving the QoL of individuals living with this chronic condition. Future research should continue to explore these relationships to develop targeted interventions that can effectively enhance the QoL for Type 2 Diabetes Mellitus patients.

Conflict of Interest

We have no conflicts of interest to disclose. All authors declare that they have no conflicts of interest.

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