

Prevalence and Associated Factors of Psychological Distress Among Diabetic Patients at Thyolo District Hospital in Malawi: A Hospital-Based Cross-Sectional Study

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Background: Emotional distress experienced by individuals with diabetes represents a type of psychological strain specific to the challenges posed by diabetes. It mirrors the emotional reactions arising from coping with the demands of the illness and the essential care associated with diabetes. The study aimed to determine the prevalence and associated factors of psychological distress among diabetic patients at Thyolo District Hospital in Malawi.

Objective: To determine the prevalence and associated factors of psychological distress among diabetic patients at Thyolo District Hospital in Malawi.

Methods: The cross-sectional study involved 171 participants chosen using a simple random sampling technique at Thyolo District Hospital. The study was conducted from June 28 to July 27, 2023. The data were inputted into SPSS version 23.0, and descriptive statistics were employed for analysis. Cross-tabulation, utilizing Pearson chi-square, and correlation analysis were performed. The statistical significance level was established at $P < 0.05$.

Results: Out of the 171 participants included in the study, 44 (25.7%) reported experiencing diabetic distress. According to levels of psychological distress, the study reports that 27 (15.8%) had mild depression, while 5 (2.9%) presented with moderate depression and 1 (0.6%) had extremely severe depression. As regards to levels of anxiety, 14 (8.2%) had mild anxiety, while 5 (2.9%) had moderate anxiety. In terms of stress levels, only one participant (0.6%) reported mild stress, and an equal proportion reported moderate stress. Additionally, age was identified as a significant factor associated with psychological distress, with a p-value of 0.001.

Conclusion: Approximately 33% of the diabetic patients involved in this study revealed psychological distress, and this condition showed a statistically significant association with age. Conducting routine assessments and implementing early control measures for the associated factors are crucial in mitigating both the prevalence and the impact of psychological distress among diabetic patients.

Keywords: prevalence, psychological distress, hyperglycemia, high blood sugar, Thyolo District, Malawi

Introduction

Diabetes is a persistent metabolic disorder noticeable by heightened levels of blood glucose (or blood sugar), resulting in gradual and severe harm to the heart, blood vessels, eyes, kidneys, and nerves.¹ Diabetes is a global concern that needs attention from healthcare professionals and policymakers to develop strategies for prevention, early diagnosis, and effective management.² Diabetes affects patients physically, socially, and mentally. If not well managed, diabetes can lead to psychological distress. Diabetes mellitus (DM) poses a significant and urgent public health challenge, as indicated by statistics from the International Diabetes Federation (IDF). In 2021, nearly 537 million people were estimated to have diabetes, with estimates anticipated to increase to 643 million by 2030 and a further surge to 783 million by 2045.³ There is an anticipated

69% increase in the number of adults with diabetes mellitus (DM) in developing countries and a 20% increase in developed countries between 2010 and 2030. This projection is attributed to the high population and the prevalence of comorbid conditions in various developing and developed nations.⁴ This suggests that there may be really great psychological distress among patients with DM. Diabetes exerts a concrete impact on the physical health status of patients and elevates their overall psychological distress burden. The experiences of individuals living with DM are influenced by a myriad of complex environmental, social, behavioural, and emotional factors. Taking into account that managing diabetes is an ongoing and demanding task, adults dealing with this chronic disease often encounter common problems related to psychological distress.⁵

The existence of diabetes mellitus is connected to the development of both micro- and macro-vascular problems, such as a heightened risk of heart disease, diabetic nephropathy, retinopathy, neuropathy, lower extremity amputations and additionally, diabetes can influence physical abilities, social interactions, and mental health and wellness.⁶ Psychological distress may manifest following new diabetes diagnosis in the form of depression and anxiety.^{7–11} Some patients may experience a negative impact on their quality of life and overall functioning due to the burden of disease on an individual's psychological, emotional, and physical functioning.^{12,13}

Psychological distress in people with diabetes mellitus is a manifestation of emotional distress that is specific to the challenges posed by diabetes. It represents an emotional response to the demands imposed by the illness.⁷ It involves adverse emotional responses to various facets of diabetes and its management. This encompasses reactions to the diagnosis of diabetes, the potential threat of complications, the demands of self-management (such as regular blood glucose testing, adherence to dietary regimens, and participation in regular physical activity), the aspects of treatment, and the presence of unsupportive social structures associated with diabetes.¹⁴ Psychological distress in individuals with diabetes encompasses a broad range of emotions, such as negative feelings, anger, fear, guilt, frustration, and shame. These emotional responses often emanate from the burdens associated with diabetes, surrounding concerns about blood sugar control, existing comorbidities, the presence of difficulties, indications of complications, and access to treatments.²

Existing literature clearly shows that DM represents a widespread public health issue on a global scale. In Malawi, diabetes has a prevalence of almost 5.6%, yet there is a lack of comprehensive understanding regarding the psychological distress and its related factors among individuals with DM.¹⁵ The researchers have informally observed that the majority of newly diagnosed diabetic patients present with psychological distress and anxiety at Thyolo District Hospital in Malawi. The psychological distress among diabetic clients is due to lifestyle modification, diet modification, and long-term use of diabetic medication. However, there is little literature available in Malawi on the impact of diabetes on the mental well-being of patients. Many studies have looked at depression in patients with diabetes, yet little has been explored on psychological distress as a construct, yet it is a crucial aspect that is present in these populations.^{16,17} The fifth Integrated and household survey conducted between 2019 and 2020 by the National Statistical Office revealed that Thyolo District had a higher rate of diabetes of about 3.6 which is higher than the southern and northern regions under the proportion of reported chronic illness and its distribution by district.¹⁸ It was observed that Thyolo District Hospital (TDH) experienced an increase in the number of diabetic patients at the clinic, yet no study has been conducted on prevalence of psychological distress among DM patients at the facility. This study may help to identify the psychological distress among these patients and the latest data for the prevalence of DM at Thyolo District Hospital in Malawi. This may help to assess the quality of healthcare given to patients with DM who might be psychologically distressed. Hence, the main objective of this study was to ascertain the prevalence of psychological distress and identify the factors associated with it among individuals with diabetes receiving care at Thyolo District Hospital in Malawi.

Methods

Study Design

This study employed a cross-sectional design, where 171 patients diagnosed with DM were selected from the diabetes clinic at Thyolo District Hospital using a simple random sampling technique. The process of data collection took place over the period of June 10 to July 27, 2023.

Population and Inclusion Criteria

The study focused on individuals meeting the World Health Organisation criteria for diabetes mellitus and receiving consistent anti-diabetes medication as pharmaceutical agents usually used to manage diabetes, including but not limited to oral hypoglycemic agents (such as glibenclamide, metformin, sulfonylureas) and insulin. Exclusions comprised critically ill patients, individuals who did not complete the questionnaire, and those experiencing mental health problems or symptomatic conditions.

Sample Size and Sampling Technique

The study employed simple random sampling technique, due to its ease of sample assembly and fairness in selecting members from a population, and it also ensured that every member had an equal chance of being chosen.^{19,20} The desired sample size was determined using a single population proportion formula, taking into account a 95% confidence interval and a 5% margin of error. The sample size was calculated using Cochran's formula from the total population of 300.

$$z = 1.96, e = 0.05, p = 0.5, q = 1 - p = 1 - 0.5 = 0.5$$

$$n_0 = \frac{((1.96)^2(0.5)(0.5))/0.0025}{1 + (384.16 - 1/300)^2} = 171$$

Data Collection

Data were collected using adapted Depression, Anxiety and Stress Scale-21 (DASS-21) Structured Questionnaire. Psychological distress was assessed using an adapted DASS-21 questionnaire which consists of 21 questions that have been validated in most countries including Malawi by Malawi Liverpool Wellcome Trust.²¹ The Questionnaire contained questions about socio-demographics, and characteristics: age, gender, occupation, source of income, and duration of treatment for diabetes. It was translated from English into the local language (Chichewa) and subsequently translated back into English.

Ethical Approval

The study adhered to the principles outlined in the Declaration of Helsinki. Approvals were obtained from the Mzuzu University Faculty of Health Sciences Research and Ethics Committee and the Saint John of God College of Health Sciences Research and Ethics Committee. Participants provided written informed consent after receiving a clear and detailed explanation of the study's purpose, risks, procedures, and benefits. They were assured that their responses would be published anonymously in a scientific journal. Participants were informed about the voluntary nature of their involvement, emphasizing their right to decide whether to participate or not. Permission was granted by the Director of Health and Social Services (DHSS) at Thyolo District Hospital in Malawi. Confidentiality was strictly maintained throughout the study, with only anonymous data being collected.

Data Analysis

Data were analysed quantitatively using the Statistical Package for Social science (SPSS) version 23.0. The study utilized frequency distributions and percentages in the data analysis process in order to calibrate the information from the lowest percentage to the highest percentage and measures of central tendency such as calculation of means, mode and variances were used in the information analysis process to determine the prevalence of psychological distress among patients with DM, while Chi-square test was used to identify sociodemographic factors associated with psychological distress among patients with DM at TDH.

Results

Socio-Demographic Characteristics

All 171 respondents, who were DM patients, were included in the current study, resulting in a 100% response rate. Regarding their age, 55 (32.2%) were within the age group of 46 to 55 years old, followed by 48 (28.1%) who were in

the age group of 36 to 45 and the least were 2 (1.2%) who were within 66 to 75 years of age. On gender, 93 (54.4%) were females, while 78 (45.6%) were males. The study found out that majority of study participants were educated 98 (57.3%), while 73 (42.7%) were not educated. While on duration of diabetic treatment, a majority 110 (64.3%) were on DM treatment for 0 to 10 years, while 55 (32.2%) were on DM treatment for 11–20 years. Lastly, 6 (3.5%) were on DM treatment for 21 to 30 years. Pertaining the sources of income, 64 (37.4%) of study participants were farmers, seconded by 49 (28.7%) participants who were involved in business. While 13 (7.6) participants were retired personnel as pertaining to source of income (Table 1).

Prevalence and Levels of Psychological Distress Among DM Clients

The study found out that the prevalence of psychological distress among study participants was at 44 (25.7%) and 127 (74.3) had no psychological distress. According to levels of psychological distress, Table 2 indicates that 27 (15.8%) had mild depression, while 5 (2.9%) presented with moderate depression and 1 (0.6%) had extremely severe depression. As regards to levels of anxiety, 14 (8.2%) had mild anxiety, while 5 (2.9%) had moderate anxiety. On levels of stress, 1 (0.6%) had mild and moderate stress, respectively (Table 2).

Socio-Demographic Factors Associated with Psychological Distress

The chi-square test and Pearson correlation were used to test and establish the association between social demographic factors and psychological distress as variables were recorded and dichotomised appropriately. The Chi-square test (χ^2) was calculated at the significance level of $\alpha = 0.05$ or 1.96, and the correlation coefficient level was used for the establishment of the association and the direction of association of the specific variables. The entire social demographic variable was not statistically significant with psychological distress except for age ($p = 0.001$) (See Table 3).

Table 1 Characteristics of the Participants (n = 171)

Baseline Characteristics	n (%)
Source of income	
Farmers	64 (37.4)
Business	49 (27.7)
Employed	28 (16.4)
Students	17 (9.9)
Retired	13 (7.6)
Age	
18–25	12 (7)
26–35	28 (16.5)
36–45	48 (28.1)
46–55	55 (31.2)
56–65	26 (15.2)
66–75	1.2 (1.2)
Gender	
Female	93 (54.4)
Male	78 (45.6)
Education background	
Educated	98 (57.3)
Not educated	73 (42.7)
Duration on treatment	
0–19 Years	110 (64.3)
11–12 Years	55 (32.2)
21–30 Years	6 (3.5)

Table 2 Levels of Psychological Distress

Subscales	Level of Psychological Related distress	
	Yes	No
Level of depression		
Mild	27 (15.8)	138 (80.7)
Moderate	5 (2.9)	
Extremely severe	1 (0.6)	
Level of anxiety		
Mild	14 (8.2)	152 (88.9)
Moderate	5 (2.9)	
Level of stress		
Mild	1 (0.6)	169 (98.8)
Moderate	1 (0.6)	

Table 3 Socio-Demographic Factors Associated and Correlated with Psychological Distress

Variables	Psychological Distress		p-value
	No	Yes	
Source of income			0.208
Employment	21 (75.0)	7 (25.0)	
Farmer	49 (76.6)	15 (23.4)	
Business	38 (77.6)	11 (22.4)	
Student	13 (76.5)	4 (23.5)	
Retired	6 (46.2)	7 (53.8)	
Age			0.001**
18–25	9 (75)	3 (25)	
26–35	21 (75)	7 (25)	
36–45	34 (70.8)	14 (29.2)	
46–55	50 (90.9)	5 (9.1)	
56–65	13 (50)	13 (50)	
66–75	0 (0)	2 (100)	
Gender			0.861
Female	70 (75.3)	23 (24.7)	
Male	57 (73.2)	21 (26.9)	
Duration on treatment			0.016**
0–10 Years	76 (69.1)	34 (30.9)	
11–20 Years	48 (87.3)	7 (12.7)	
21–30 Years	3 (50)	3 (50)	
Education background			0.008
Not educated	62 (84.9)	11 (15.1)	
Educated	65 (66.3)	33 (33.7)	

Note: **Statistically significant used Chi-square test (**P < 0.05).

Discussion

This study could potentially be the first investigation to shed light on the prevalence and factors linked to psychological distress among individuals living with diabetes attending the diabetic clinic at Thyolo District Hospital in Malawi. It is anticipated that the study may assist in the quality of care for patient seeking services at Thyolo District Hospital Non-Communicable Diseases outpatient clinic in Malawi. Having knowledge on the extent of the problem the health workers will be alert on the significance of screening DM patients for psychological distress during routine visits in Malawi. Furthermore, the study findings may assist policymakers in formulating necessary guidelines for DM care provision in Malawi. Study findings may also assist to create local solutions towards the global campaign on reduction of the burden of the DM in Malawi and Africa at large.

This study is crucial in the face of the alarming rise in diabetes rates, aiming to assess the level of psychological distress experienced by diabetic patients and its correlation with the escalating diabetes epidemic. The study found that around 25.7% as the prevalence of psychological distress is characterized by constant worry about diabetes mellitus, diminished ability to face and overcome difficulties as well as lost confidence. These results are not in line with research conducted by Domingo et al⁹ on investigating the association between diabetes mellitus, depression and psychological distress in South Africa which showed that 109 (28.1%) participants were found to have psychological distress. This outcome suggests that the experience of diabetes distress shows significant variation across countries and healthcare contexts. It is not uniform in terms of biodata, clinical features, geographical regions, and cultural backgrounds.

In relation to the level of psychological distress, the findings of the study showed that (27) 15.8% had mild, where 5 (2.9%) had moderate and 1 (0.6%) had extremely severe depression. These findings underscore the presence of varying degrees of depression among individuals living with diabetes. Depression coexists with diabetes and requires specialized attention for successful treatment outcomes. Collaboration with mental health professionals, particularly psychologists, psychosocial counsellors and psychotherapists becomes essential, enabling integration of therapeutic strategies tailored to the cultural, social, and psychological nuances of the patients. Saint John of God College of Health Sciences in Malawi trains these cadres of mental health professionals.^{22–24} Patients living with diabetes commonly face varying levels of depression, highlighting the need for specialized attention to their mental health. Healthcare providers should collaborate with mental health professionals and tailor therapeutic approaches, considering cultural and social factors, to effectively address the psychological well-being of diabetic patients.

One unanticipated finding was that educated participants, reported higher levels of psychological distress. This finding contradicts the results of Aljuaid et al and Islam et al, who observed an association between lower education levels and higher distress. This discrepancy could imply that educated patients may require more in-depth discussions with their clinicians regarding various aspects of the treatment process, lifestyle modifications, and self-care. Additionally, a noteworthy discovery in this study is that individuals newly diagnosed with diabetes exhibited elevated psychological distress, aligning with the findings of a previous study in the United States of America by Whittemore et al,^{12,13} on psychological distress among DM patients which showed that at time of making diagnosis of DM there was high prevalence of psychological distress reported. This can be due to difficulties to cope up with changes in daily life care modification, diet modification and initiation of life-long treatment of diabetes.

An additional significant result was that participants in the middle adulthood age range reported higher levels of psychological distress. These results are contrary to research done by Wardian (2014)¹¹ who reported higher distress among young aged group participants. It is reasonable that individuals in the middle adulthood stage may experience heightened psychological distress due to the increasing responsibilities associated with family, work, and financial challenges. Managing the substantial and enduring demands of diabetes in terms of both time and cost could contribute to this increased distress in their lives. On the aspect of gender, the study revealed more percentage of psychological distress in females than in males; this aligns with findings from a study conducted by Deischinge et al¹⁰ in which results showed high percentage of psychological distress in females than males. In the context of gender disparities in diabetes management, the findings suggest a potential explanation that females tend to engage in proactive self-management and preventive care strategies, actively seeking information and adapting to chronic disease. In contrast, males often address urgent issues only when alerted by clinicians about elevated glucose levels, leading to fear and apprehension. Consequently, it becomes inevitable that males encounter difficulties primarily during the onset of complications and when the condition reaches a critical stage. These

findings imply a need for targeted interventions in diabetes care. Tailoring support for male patients, encouraging proactive self-management, and regular monitoring can mitigate complications and improve outcomes. Clinicians should provide personalized guidance based on gender-specific tendencies to enhance the effectiveness of diabetes management.

The study identified a significant association between age and psychological distress ($p < 0.005$), suggesting that higher patient age corresponds to increased psychological distress levels. Reasonable clarification for such associated may be attributed to the extra stressors posed by managing diabetes on older people having the life stressors of family tasks, economic and work problems. Moreover, they may cope less effectively with their restricting developmentally unexpected condition. It has been found by this study that giving special clinical attention to older patients may help in reducing distress and its adverse effects on diabetes outcomes. This finding is in line with the study conducted by Gojka (2016)²⁵ that indicated that as individuals grew older, the levels of distress related to diabetes significantly get escalated. Furthermore, the research demonstrated a notable connection between diabetes-related distress and the patient's age. This noteworthy correlation may be attributed to the challenges and pressures that older patients encounter while trying to harmonize their responsibilities and roles in managing diabetes alongside their family obligations. These findings align with previous research, indicating that as individuals age, distress related to diabetes intensifies.^{11,26,27} The correlation highlights the challenges older clients encounter in harmonising diabetes management with family tasks, emphasizing the need for targeted healthcare strategies and support to address their unique concerns. Chima et al argues that healthcare delivery system in Malawi should encompass specialized counselling, targeted education, and community outreach to support older patients living with diabetes. Establishing support networks, ensuring medication accessibility, and fostering a supportive healthcare environment are crucial for their effective care.

One limitation of this study is its focus on diabetic patients seeking treatment at the Diabetes Clinic at Thyolo District Hospital, which serves as a referral health facility in southern Malawi. This specificity makes it challenging to generalize the findings to the broader population. However, the study stresses on the importance of improving clinical awareness to identify diabetes distress among individuals with diabetes mellitus. This data holds significant promise for informing healthcare policymaking in Malawi, advocating for timely and tailored interventions tackling the psychological aspects of patients with DM. Implementing systematic screening for diabetes-related distress and promoting ongoing health education initiatives aimed at elucidating the intersection between diabetes and psychological well-being could serve as potent measures to enhance public health strategies and improve patient outcomes.

Conclusion

The study highlights the prevalence of psychological distress in individuals with diabetes, emphasizing the necessity of incorporating routine assessment and screening for psychological well-being as integral aspects of diabetes care protocols. The findings underscore the importance of a comprehensive, patient-centered approach in diabetes management. It is crucial to advocate for healthcare professionals, particularly physicians, to adopt a multidisciplinary strategy that includes mental health professionals. This holistic approach not only recognizes the psychological challenges faced by diabetic patients but also ensures a tailored and empathetic healthcare experience. By addressing both the physiological and psychological aspects of diabetes, healthcare providers can enhance patient outcomes and overall quality of life.

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Author Contributions

All authors made a significant contribution to the work reported, that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors declare no conflicts of interest in this work.

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