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Incidence And Association Of Generalized Anxiety Disorders In Elderly People With Type 2 Diabetes In Tabuk 2024

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ABSTRACT
Background: A public health concern, GAD is a mental health disorder that frequently affects those with chronic diseases including diabetes. Diabetes and anxiety could pose a double jeopardy of worsening physical health among elderly patients and reducing the quality of life. Especially, since KSA has the highest rate of diabetes worldwide, and it is most notable that the psychological aspect of this disease is not received warmly and is not as researched as it should be, much less is known about the prevalence and effects of GAD among elderly diabetic patients in Tabuk. The purpose of this study is to estimate the incidence of GAD in the elderly patients with T2DM and to analyze the relation between GAD status and glycemic control and diabetic complications.
Method: The present study is a descriptive cross-sectional study and took place in January, February, November, and December of 2024 in Tabuk, Saudi Arabia. The sample comprised only outpatients with type 2 DM aged 60 years and older with GAD evaluated through the GAD-7 scale. Participants' demographic and clinical characteristics were assessed to understand possible correlates of GAD prevalence; glycemic control (HbA1c) and diabetes complications were also compared. Descriptive statistics and chi-square tests were adopted to test the associations of the data collected.
Results: It was revealed that 34% of the elderly diabetic patients in Tabuk sampled had GAD with increasing prevalence observed amongst females, long-standing diabetics, and those patients with uncontrolled hyperglycemia. HbA 1c was yet other determinant of the presence and severity of GAD in the study . Also, patients having complications like neuropathy and retinopathy among the diabetic patients also had higher anxiety levels.
Conclusion: GAD is evident significantly numerous in elderly having type 2 diabetes in Tabuk and negative correlation existed between anxiety level and glycemic management. By the results of the present study, it can be concluded that the screen of mental health conditions especially anxiety in elderly diabetic patients should be enhanced in order to provide better comprehensive care and health outcomes. According to the study, there is evidence that the enhancement of the targeted interventions aiming at the physical and psychological perspectives for managing combat related diabetes may enhance the quality of life of the clients.

Keywords: Generalized Anxiety Disorder (GAD), Type 2 Diabetes, Elderly, Prevalence, Glycemic Control, Saudi Arabia, Tabuk, Mental Health, Diabetes Complications.

1. INTRODUCTION

GAD is a common psychiatric disorder which is defined by the presence of excessive and uncontrollable worry that is present across the patient's lifetime, cutting across young and old, young and the rest of the population in the community. Main features of GAD are that it causes considerable distress and often has an impact on general functioning of a person. They estimated its global lifetime average at 12% 12 month prevalence of 3.9% [1], [2]. More often, GAD is accompanied by other mental disorders that only add to the disorder's complexity: in this case, those are depression [3], [4].

Another contemporary global health threat lies in the pathophysiology of Type 2 Diabetes mellitus (T2DM), an alarming metabolic diseise. T2DM impacts worldwide 8.3% of adult people and is one of the most severe cardiovascular diseases, and Middle East countries are among the most affected regions. For example, up to 18.7% of the Saudi Arabian adult populace is inflicted with T2DM [9]. This chronic disease often calls for very careful manipulation of the patient's daily life, frequent checking of blood sugar levels and regular use of medications. However, comorbid mental health issues are also common among T2DM patients anxiety and depression which distracts, undermines diabetes care and prognosis [5,6].

There have already been previous studies relating diabetes with mental health disorders, and most especially anxiety. People diagnosed with diabetes have an increased risk of having anxiety because treating the disease is long-term and may result in anxiety, and the disease frequently brings about complications such as neuropathy and retinopathy [7]. A plethora of citation is available on the psychological toll that diabetes germany, nevertheless, people with T2DM and GAD remain understudied within the elderly population of Tabuk, Saudi Arabia. Since the elderly group of patients is sensitive to chronic diseases like diabetes and psychological disorder like anxiety, there is an essential need to identify the incidence of GAD on elderly diabetic individuals.

This study seeks to fill this gap by exploring the prevalence of GAD among elderly patients with T2DM in Tabuk, Saudi Arabia and to determine the relationship between GAD symptoms and glycemic control and diabetes related complications. Knowledge of these linkages is critical for enhancing diabetes management, as well as in mapping out more integrated and holistic themed treatment paradigms that address the biopsychosocial requirements of patients with diabetes.

2. LITERATURE REVIEW

2.1. Prevalence of GAD in Diabetic Populations:

Especially, patients with chronic disorders of diabetes have significantly increased likelihood of generalized anxiety disorder (GAD). Previous research has indicated that stress arising from T2DM and possible complications originate also lead to GAD [6], [14]. According to a cross-sectional study among diabetic patients conducted by Huang et at [15], they concluded that the rate of GAD among diabetic patients was significantly higher compared with the general population. Santos et al. [7], also observed a highly significant increase in level of anxiety symptoms in diabetic patients, especially those with insulin dependent diabetes. GAD is more common in diabetic patient with complications such as neuropathy, retinopathy and cardiovascular illness that exacerbates the psychological experience of being diabetic.

2.2. Impact of GAD on Diabetes Management:

The study also shows how GAD adverse impacts the mental health of diabetic patients; it also confounds diabetes management. Personalized interventions for patients with GAD may be challenging to follow diabetes self-management, especially since patients develop worry and stress which is constant [5], [6]. It may also lead to poor blood sugar management and raise the risks of danger associated with diabetes. The extended duration of GAD results in elevated levels of stress and anxiety, which if not managed properly leads to unhealthy lifestyles, such as poor diets, inadequate physical activity, and failure to adhere to medication regimens that worsen glycemic volatility [6], [7].

Also, the diabetic related physical disorders like neuropathy and cardiovascular disease are likely to cause feelings of anxiety hence continuity in this cycle of anxiety increasing psychological and physical problems of diabetic patients. Relatively numerous researches, on the basis of which it can be stated that anxiety disorders such as GAD are closely associated with reduced quality of life in diabetes mellitus patients, especially those who experience difficulties when managing the psychological and somatic aspects of the disease [7], [16].

2.3. Demographic Factors and GAD in Diabetic Populations

Cross sectional study of demographic factors to GAD in diabetics has been established in the previous literature. The disease presents more severe symptoms in female patients and in patients with long-time diabetes [18], [19]. Thour et al. [18] while examining the dementia risk in diabetic patient indicated that female diabetes patient had higher level of anxiety then male patient, which may be due to hormonal control, societal pressure or psychological susceptibility among females. Furthermore, the physical complications arising from the long-standing T2DM or aging give elderly patients a higher propensity to develop anxiety . There is evidence that shows that diabetic patients with low social support, unemployed, low education level increases the risk of GAD [19].

2.4. Mental Health Burden of Diabetes in Saudi Arabia:

Hence, the mental health cost on people with diabetes in Saudi Arabia is on the rise. T2DM is extremely common in Saudi Arabia and the latest research works also show that anxiety disorders such as GAD affect diabetic subjects there [9]. A study conducted on patients in the Eastern Province of Tanzania revealed that 75% of the diabetic patients had symptoms of GAD, was eminent in women and severity of the disease [25].

Nevertheless, little empirical evidence focuses on evaluating the prevalence and折 Ceminet consequences of GAD among the elderly diabetic patients of developing countries like Tabuk, Saudi Arabia. This gap calls for specific mental health intervention to elderly people who have diabetes in this region.

2.5. Improving Care Through Mental Health Screening:

Recognizing and treating the mental disorders in diabetics and more so among seniors is crucial in determining better physical and psychological results. It is possible to introduce systematic routine assessments of mental health states, including the Generalized Anxiety Disorder-7 (GAD-7) scale, which would allow for using medications for anxiety disorders and ensuring further therapeutic intervention [19]. CBT, use of relaxation therapies and mindfulness were effective in decreasing the level of anxiety and enhancing diabetic control [3], [6]. The treatment plan for type 2 diabetes should therefore factor the two healthcare fields as embedded models integrate care for both physical and mental health of the patient, especially those with complications like GAD.

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3. METHOD

3.1. Research Design

This research work will employ descriptive cross-sectional design in estimating the proportion of GAD among elderly patients with T2DM in Tabuk, Saudi Arabia. This kind of study design is relevant in this research because it is used to make an inference on the occurrence of event at a specific period by establishing the relationship of anxiety symptoms and several factors related to diabetes, at one given period of time. The assessment of the participants will entail the utilization of standard screening questionnaires for GAD, plus clinical and demographic information to examine the correlation between the levels of anxiety and demographic, clinical, genetic, epigenetic, and psychosocial aspects of diabetes.

The study will be quantitative in design and will seek to establish an estimate of the prevalence of GAD, and to investigate additional risk factors that may be associated with its occurrence in elderly people with diabetes.

3.2. Subjects and Setting

The participants for this study will be patients aged 65 years and older with T2DM living in Tabuk, Saudi Arabia. The sites will be primary care clinics and hospitals for which these patients normally seek care for diabetes and its complications.

3.2.1. Inclusion Criteria

To ensure the reliability and relevance of the findings, the following inclusion criteria will be applied:

- Age: Targeted subjects need to be over 60 years to work with the elderly population only.
- Diagnosis of T2DM: Participants will have had their Type 2 Diabetes Mellitus diagnosis for not less than one year hence will have fully noted the chronic nature of the condition.
- Informed Consent: The participants need to possess decision making potentiality so that they are willing to take informed decisions about participating in the study.
- Presence of Anxiety Symptoms: Participants with probable GAD based on the GAD-7 scale will be included. However those who do not exhibit GAD will also participate in the study to act as the control group.

3.2.2. Exclusion Criteria

Participants will be excluded from the study if they meet any of the following criteria:

- Severe Cognitive Impairment: Any person with memory loss due to disorders such as diagnosed dementia or Alzheimer's disease that may make it impossible to fill the GAD-7 questionnaire or consider the information presented in this study will be excluded.
- Current Severe Physical or Mental Health Issues: Participants who have major surgery, acute severe medical illness or other severe psychiatric disorders (like schizophrenia, bipolar disorder) will be excluded because these could interfere with outcomes regarding GAD and T2DM.
- Inability to Participate: Patients with physical limitations will not be allowed to be included in the study; they will be washed out for some reason including language or cultural factors.

3.3. Surgical Techniques

This study is a cross-sectional observational study and therefore no surgical operations or invasive interventions will be used. Sample data will be gathered without causing intrusion through questionnaires, clinical interviews, and researchers' medical record review. No participants will be subjected to any surgical procedure regarding the study, and all the treatments that the patients are receiving for diabetes will also remain the same according to normal procedures.

3.4. Data Collection

Data will be collected using multiple methods to ensure comprehensive and accurate assessment:

1. Demographic and Clinical Data: Data on age, sex, duration of diabetes and diagnosed diabetes related complications such as neuropathy, retinopathy will be obtained from patient's records and from interviews.
2. Mental Health Assessment: Thus, GAD symptoms will be evaluated by the Generalized Anxiety Disorder 7-item (GAD-7) scale which is valid and reliable screening test for anxiety disorders. Finally, the participants will fill the GAD-7 questionnaire to help the trained professional who will analyze them in order to see who qualifies to be a person with GAD.
3. Blood Glucose Control: To evaluate the glycemic control of the participants, HbA1c level will be determined because anxiety as one of the psychiatric disorders related to poor glucose control [5].
4. Diabetes Complications: Whether patients have T2DM complications: neuropathy, retinopathy, nephropathy or other complications will be self-reported based on medical records and physical examination.
5. Quality of Life (QoL): Self-reported health-related quality of life using a standardised disease-specific questionnaire, which will focus on the consequences of diabetes and anxiety, will be measured.

3.5. Outcome and Co-Morbidity Treatment

The first research question of this study will be as follows: What is the frequency of GAD among elderly T2DM patients served in Tabuk? Secondary outcomes will include the relationship between GAD and:

- Glycemic Control: Measured by HbA1c levels, on the ground that there could be an inverse relationship between glycemic control and levels of anxiety.
- Diabetes-Related Complications: The other research questions include; Will complications (neuropathy, retinopathy, cardiovascular disease) affect the severity of anxiety symptoms in diabetics?
- Quality of Life: The main hypothesis for the present study is that there will be an inverse relationship between quality of life and anxiety because people who suffer from anxiety commonly report having more symptoms of distress and poorer functioning across multiple domains of existence.
  The results will extend knowledge on the prevalence of the most common comorbid mental disorders in diabetics, with reference to longevity of the disease and its manifestations.

3.6. Statistical Analysis

Both, descriptive and inferential analyses will be used to analyze the collected data. The following statistical procedures will be used:

1. Descriptive Statistics: For type of data that will be in form of proportion, percentage, frequency distribution and ratios like age, duration of diabetes and HbA1c they will be presented as mean, median and standard deviation. These include sex, presence of complications, and GAD symptom severity which are categorical variables and their data shown through frequency distributions.
2. Bivariate Analysis: To establish the relation between symptoms indicating GAD and several demographic, clinical, and diabetes characteristics (current HbA1c, years with diabetes, complication) Chi-square test for nominal variables and Student test for interval variables will be applied.
3. Multivariable Analysis: The non-parametric logistic regression will also be applied to find out the independent association of variables including diabetes duration, glycemic control (fasting plasma glucose and HbA1c levels), and complications with GAD. This will enable determine the potential and actual predictors of GAD in the elderly diabetic patients.
4. Correlation Analysis: Pearson correlation will be used to determine the correlation between GAD-7 and QoL score as well as between GAD-7 score and Glycemic control.

There power level of significance will be $p < 0.05$ and all the analysis will be done using the Statistical Package for the Social Sciences (SPSS) or another statistical package if necessary.

4. Results and Analysis

4.1. Demographics and baseline characteristics

The study samples comprised 380 elderly patients with T2DM. The demographic and baseline clinical characteristics of the participants are summarized as follows:

Age: The male participants had a mean age of 68.4 years (SD: 6.2); the age of the participants ranged from 60 to 85 years. Gender: Out of them 86 were postoperative and 124 were non-operated; there were 210 females (55.3%) and 170 males (44.7%). Duration of Diabetes: Mean time since diagnosis was 12.1 years (SD = 5.3) for diabetes. Glycemic Control: HbA1c was 8.4% (± 1.6) with 65% participants having poor glycemic control rated HbA1c > 7%. Complications: As it could be seen there are lots of complications related to diabetes: (Neuropathy: 52%, Retinopathy: 37%, Nephropathy; 28%, Cardiovascular disease: 45%). Socioeconomic Status: Almost four out of ten participants (38 %) earned below the national average monthly income.

4.2. Prevalence of GAD

Specific to GAD using the GAD-7 cutoff of ≥ 7/10, GAD was diagnosed in a total of 34% (n = 129) participants. Anxiety severity levels were distributed as follows: Mild anxiety: 19% (n = 72), moderate anxiety 9% (n = 34), severe anxiety 6% (n = 23).

Our results shown that females are more likely to manifest GAD symptoms in contrast to the males (42% vs 24 %, p < 0 .01). Also, those patients, who had HbA1c more than 7%, the rate of moderate to severe anxious symptoms was significantly higher as compared to the patient groups with better HbA1c control (38% vs. 21%, p = 0.02).

4.3. Correlation between GAD and Factors related to Diabetes

4.3.1. Glycemic Control (HbA1c Levels)

Patients with GAD had significantly elevated average blood glucose levels compared with patients without GAD (as measured by HbA1c: 9.1% vs 7.9%, p < 0.01). The relationship between the severity of anxiety (GAD-7) and HbA1c in the sample was moderate and positive (r = 0.46, p < 0.001).

4.3.2. Duration of Diabetes

Hypersomnia was observed elevated in the group of patients with a duration of diabetes more than 10 years (40% vs 22% respectively, p < 0,01).

4.3.3. Diabetes-Related Complications

The prevalence of GAD was higher among participants with diabetes-related complications: Among the subgroups, 49% with neuropathy had GAD, 42% with retinopathy had GAD and 45% with cardiovascular disease had GAD, p = <0.001, p = 0.01, p = 0.03 respectively.

4.4. Quality of Life (QoL) and GAD

Participants with GAD reported significantly lower quality of life scores compared to those without GAD (mean score: 58 vs. 71, p < 0.001). Patients' anxiety level reversed the actual level of physical and emotional heath of their QoL (r = -0.52, p < 0.001).

4.5. Multiple Logistic Regression Analysis

Of all 606 patients enrolled, aged between 20 and 69 years, the significant independent predictors of GAD according to a multivariable logistic regression model included. The results are summarized below:

Table 1: multivariable logistic regression model

Variable	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Female gender	2.1	1.4–3.2	< 0.01
Poor glycemic control (HbA1c)	1.8	1.2–2.7	< 0.01
Neuropathy	2.5	1.6–4.0	< 0.001
Retinopathy	1.9	1.1–3.2	0.02
Duration of diabetes (>10 yrs)	1.6	1.1–2.5	0.03

4.6. Summary of Findings

1. High Prevalence of GAD: GAD was positive in 34% of eligible elderly diabetic patients in Tabuk; diagnosed more frequently in females and those with poor glycemic control.
2. Association with Glycemic Control: Again, fundown glycaemia emerged as significantly related to the presence and extent of GAD.
3. Impact of Diabetes Complications: However, neuropathy, retinopathy, and cardiovascular disease were significantly related to GAD.
4. Quality of Life: Descriptive results also indicated that participants with GAD had significantly lower QoL compared to those without GAD, GAD has significantly negative effect on individuals' emotional and physical functionality.

5. DISCUSSION

Therefore, the results of current researcher add new light about high incidence and immense effect of Generalized Anxiety Disorder (GAD) in elderly patients of Type 2 Diabetes Mellitus (T2DM) in Tabuk. The overall prevalence of GAD was 34 percent and the results revealed that female participants and those with poor glycemic control are more likely to develop GAD. This is in consonant with other research which demonstrated that mental health is highly associated with chronic diseases especially diabetes [1], [2].

5.1. Incidence of GAD in Elderly Diabetic Patients

The observed 34% prevalence of GAD is in consonant with other prevalence studies in other populations of diabetic patients and literature where anxiety disorders have been reported to have a prevalence ranging between 30 and 40% [6], [7]. In an effort to explain the high rates of anxiety in diabetic patient populations, we have to look at the fact that the disease itself, as well as its potential complications is chronic and comes with a host of effects on the mental health of the patient [8]. This is especially the case especially where the patient is also in their old age, they will have other complications associated with aging and other ailments that could include cardiovascular disease among others like neuropathy among others.

5.2. Sex Differences in GAD Occurrence

The findings of this study also showed that the prevalence of GAD was higher in females than males at a statistically significant level (42% female; 24% male; $p < 0.01$) consistent with most studies on contemporaneous health among diabetic patients [9], [10]. There is evidence that this is due to hormonal differences, caregiving obligations, and cultural expectations of men and women. These feelings could be linked to the levels of stress that women may undergo as a result of caregiving responsibilities or financial constraints as the main reason that could lead to development of anxiety [11]. Also, the hormonal changes that characterize postmenopausal women may worsen anxiety symptoms [12].

5.3. Correlation of GAD with Glycemic Control

Poor glycemic control defined by HbA1c > 7% was also highly associated with the presence of the GAD in the described study. Compared to the participants that were well controlled on glycemia, the level of GAD-7 scores was higher in the participants with poor glycemic control, what supported other studies pointing at bi-directional interaction between anxiety and worse diabetes outcomes [13], [14]. Lack of compliance in utilization of antidiabetic medication as well as insulin therapy may be associated with poor glycemic outcomes; likewise poor glycemic control can worsen anxiety [15]. This emphasizes the effectiveness of the model, that provide the integrated care for patients with diabetes for the mental and soma disorders.

5.4. Effects of Complications of Diabetes on the Psychological State

Patients with diabetes who had neuropathy, retinopathy, or cardiovascular disease were all highly likely to be positive for GAD in the present study. Participants with these complications were more likely to be anxious; this is consistent with other studies that reported that worsening physical health was associated with mental health distress in diabetic populations [16], [17]. This is because elderly persons with diabetes complication's manifest their condition through the expres- sion of physical signs like pain, immobility, poor vision etc., which may evoke feelings of hopelessness and anxiety. These complications can also escalate health care use, hospitalization and the need for help, all of which cause anxiety to go up.

5.5. Quality of Life and GAD

Another interesting result emerged from this research is the detrimental effect of GAD on the QoL in elderly T2DM patients. The subjects with the GAD were established to have significantly lower QoL, in both the physical and the emotional aspects. This is in support of other findings showing that anxiety or depression has a negative impact on QOL in patients with chronic illness such as diabetes [18] [19]. Anxiety can result in emotional stress that hinders people's ability to properly manage their diabetes; additional, aspect diminishes the patient's well-being.

5.6. Change Management Relevance to Clinical Practice

Hence, our findings indicate that further investigation and care of GAD among elderly T2DM patients in Tabuk would require a combination of medical and psychiatric treatment due to the epidemic proportion of the condition. Diabetes personnel requirement should include the need to assess the prevalence of anxiety and other mental disorders in order to recommend it as a routine toxicity assessment particularly for elderly patients with diabetes that have span a long duration or those with diabetes related complications. Good control of diabetes and anxiety also equally have positive benefits on the patient since it facilitates the achievement of target blood glucose levels and enhances quality of life of the patients. Science-based psychological treatments such as, cognitive behavioral therapy (CBT); mindfulness based stress reduction (MBSR) and other forms of PSY-Interventions may help in remitting the symptoms of anxiety in this group of patients, and enhance their compliance to the recommended treatment and self management regimens for the disease.

6. CONCLUSION

The present work has provided important results regarding GAD and T2DM in elderly people in Tabuk while pointing out insights for both the comorbidity between these two diseases and their management in healthcare systems. The current study fall within the range with 34% prevalence of GAD which is comparable to research

studies showing that elderly people with T2DM have high rates of anxiety. These figures bring to attention the necessity to increase knowledge of the mental state of diabetic patients.

6.1. Psychological Health and Persistent Illness Care

The results presented here support the increasing literature going further to establishing a causal association between mental illnesses and such illnesses as diabetes. On one hand anxiety symptoms may worsen diabetes related difficulties including; worse glycemia control, less treatment compliance and lower self care behaviors. At the same time, many patients find that the need to self-monitor blood sugar levels on a daily basis, or the effects of related diseases such as neuropathy, retinopathy, and cardiovascular disease, which result from diabetes, can lead to anxiety, depression, or general emotional disturbance. Such a vicious cycle can obviously establish a considerable hindrance to a proper implementation of disease control and other health-supporting measures.

It is equally noteworthy that the elderly population form the target of the study since they have both mental and physical health issues which may complicate each other. Other related conditions inclusive of mobility, social interaction loss, and other related factors will exacerbate the psychological pressure that comes with anxiety in the aged. In addition, the presence of diabetes mellitus in older adults contributes high risk complications that also influence anxiety symptoms by decreasing quality of life. Thus, mental health seems not only an additional issue in elderly diabetic patient population, but the aspect that has to be included and considered in major care.

6.2. Gender Differences

The another strong component of the study was the identification of the differences of the gender with regards to GAD. Female subjects in this study had a higher prevalence of anxiety, which is in line with studies in other diabetic samples. Disparities in gender factors in the development and treatment of GAD exhibit that gender-sensitive approaches must be incorporated in this disease. It is not a surprise that women may be at a higher risk due to any of the following reasons; hormonal changes, responsibilities like taking care of kids or the elderly, and other social stress factors. This is a pointer that there is the need to develop gender sensitive methodologies when treating those with mental disorders so that the treatment plan developed meets the patients needs.

6.3. Recommendation for Healthcare Agencies

The implications of these research findings highlight the imperative for developing multidimensional care delivery systems for elderly diabetic patient with comorbidities diagnosed with depression. Diabetes care and management should not just limit to glycemia targets assessment but also look at anxiety, depression, and other psychiatric morbidity particularly in late diagnosed diabetes or those with complications. Screening tools like the GAD-7 should become a large part of clinic practice since they help diagnose anxiety disorders in their initial stages and set the frame for treatment.

Management of GAD in diabetic patients enhances the QoL and the emotional issues underpinning diabetes and facilitates treatment compliance. Interventions addressing the psychological aspects of diabetes might improve outcomes of physical health intervention. For example mental health approaches like cognitive behavioural therapy, mindfulness based stress reduction and other psychosocial treatments have potential to decrease the symptoms of anxiety and enhance patients' health related quality of life. These therapies also assist manage anxiety, whereas they enhance the self-care and glycemic control by increasing the positive attitudes towards management of the disease.

6.4. The Role of Multiple Branches of Medicine

One of the main implications of this study is the importance of interdisciplinary model that involved psychologists or psychiatrists along with PCPs and diabetologists. Integrated care approaches may improve treatment by addressing not only the physical state of a patient, but also the other aspects of a patient's life. Working this way could be most helpful in areas such as Tabuk since healthcare is on the rise and mental health, in particular, could be a problem.

6.5. Political and Epidemiological Conclusion

The findings of a high frequency of GAD in elderly diabetic patients in Tabuk have clear public health implications. The Saudi Arabia's need for mental health attention could be a part of a larger focus on diseases of the regions including diabetes. Propaganda for potential mental health issues of people with diabetes and calls for screening of elder patients for mental issues will go a long way towards combating mental health stigmatization.

Furthermore, with the increasing population and aging, the level of diabetes in the Kingdom of Saudi Arabia [9] is on the rise and more importantly in the light of change of life styles and an ever increasing sedentary population, it becomes even more important to develop a policy that seeks to integrate mental health into

chronic disease management. Education of the healthcare workers about the psychosocial aspects of diabetes will help reduce the health-related quality of life of elderly diabetic patients.

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