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Unravelling Psychological Burden and Sexual Dysfunction among Males with Type-2 Diabetes Mellitus

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Abstract

Sexual dysfunction most notably erectile dysfunction is a common complication in men with type 2 diabetes mellitus (T2DM), with prevalence estimates ranging from 35% to 90%. Psychological distress such as depressive symptoms, alongside marital dissatisfaction, may contribute to or result from sexual dysfunction in this population. Sexual dysfunction, depressive symptoms, and marital distress are highly prevalent among men with T2DM. These factors are significantly interrelated, and poor glycemic control exacerbates sexual difficulties. Findings of the study reveal that depression, anxiety and stress are the significant negative predictors of orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction among males with type-2 diabetes mellitus. Concerning the high prevalence rate of ED in men suffering from type II diabetes, doctors are required to directly ask them about sexual disorders in follow-up visits. Furthermore, using screening questionnaires can be helpful in identifying this problem.

Keywords: Diabetes, Psychological Burden, Sexual Dysfunction

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Introduction

Diabetes is a chronic endocrine disorder of raised blood glucose levels. Globally, type 2 diabetes affects around 10.5% of adults (Sun et al., 2022). It results from reduced pancreatic islet beta-cell function, leading to diminished insulin secretion and acquired insulin resistance (Alsahli & Gerich, 2010). Prevalence rates rise steadily with age. Sexual dysfunction in diabetes can affect all phases of the sexual cycle, with erectile dysfunction being the most widely studied. However, research on sexual dysfunction covering all phases of the sexual cycle is limited (Asefa et al., 2019). The prevalence of erectile dysfunction in diabetic males ranges widely from 35% to 90% as per various studies. The likelihood of sexual dysfunction increases with age and diabetes duration (Anwar et al., 2017). Unfortunately, stigma surrounding openness about sex life leads to underreporting, resulting in a significant burden of undiagnosed and undertreated issues, impacting marital satisfaction and overall quality of life. The prevalence of major depression in diabetes is estimated at around 19.1%. (Roy & Lloyd, 2012). The association between depression and diabetes is bidirectional (Golden et al., 2008).The need for constant diabetes management leads to distress and depressive symptoms (Mezuk et al., 2008). Studies also show decreased diabetes-related distress and improved quality of life in patients with good marital adjustment (Trief et al., 2001). Widely prevalent but underreported sexual dysfunction may hamper sexual intimacy and the quality of marriage (Owiredu et al., 2017).

Sexual Dysfunction in Men with Type II Diabetes

Diabetes mellitus (DM) is considered as one of the most common chronic diseases as well as endocrine and metabolic disorders threatening global health (Doostan & Lashkari, 2016). Today, diabetes is the fifth cause of mortality in Western societies and also the fourth common cause of visiting a doctor. This condition also brings about several complications due to hyperglycemia in a way that approximately 4 million annual deaths occur because of diabetes complications, which makes up about 9% of mortality rates all around the world. Such complications include cardiovascular diseases (CVDs), heart attacks, strokes, kidney failure, non-traumatic lower extremity amputations, retinopathy, nephropathy, neuropathy, blindness, reduction of life expectancy, and sexual impotence (Al-Saeed et al., 2016).

Accordingly, men with diabetes are also vulnerable to a wide variety of sexual problems. Erectile dysfunction (ED), reduced sexual desire, orgasmic disorder, and retrograde ejaculation are among the complications of variable incidence of such problems in men suffering from diabetes (Lue et al., 2000). In this respect, ED is described as a persistent inability (more than 6 months) to attain and maintain an erection sufficient to have satisfactory sexual function (Sadock, 2015). Erectile disorder may be also a sign of diabetes and may further predict subsequent neural consequences (Lue et al., 2000). Pathophysiology of ED in diabetes is multifactorial and contains vascular, hormonal, and neural complications. Diabetic neuropathy can similarly cause autonomic and somatic neural disorders which are of importance for erection. Besides diabetes can bring about disorders in relaxation of cavernous smooth muscles as a result of the nitric acid produced from endothelium, which may be a side effect of glycated products (Malavige & Levy, 2009).

Recent evidence indicates that men with diabetes may be in growing danger of reduction of testosterone levels (hypogonadism) in addition to problems related to arteries and nerves

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supporting the penis (Francis et al., 2008). Although an exact mechanism of this effect has not been completely identified, hypogonadism in such men may indirectly mitigate levels of pituitary hormones, responsible for stimulating testosterone production in testicles (Dandona et al., 2008). Low levels of testosterone may also lead to loss of sex drive or cause ED either directly or indirectly (Morelli et al., 2007). However, the prevalence rates of sex drive, orgasmic disorders, and ejaculation problems have not been exactly determined. ED occurs in a considerable number of diabetic men, and its incidence estimation is very high in different studies, ranging from 20 to 71%. ED significantly affects quality of life (QoL) in men with diabetes (Brown et al., 2005). The incidence of ED in men suffering from diabetes is almost three times as much as the general population (Kamenov, 2015). For example, with the aim of determining levels of sexual dysfunction (SD) in male patients affected with type II diabetes, in 2014, Fallahi et al. carried out a descriptive study on 69 male patients in the city of Yazd, Iran, using questionnaires containing patients' demographic characteristics information and the International Index of Erectile Function (IIEF). According to their study, most of the participants had trouble with erection as well as the number of times they had experienced sexual intercourse (Fallahi et al., 2014). In Mazandaran Province, Iran, Elyasi et al. (2015) also investigated SD in women suffering from type II diabetes and reported that 78.7% of the women had SD (Elyasi et al., 2015). Concerning the high prevalence rate of SD in diabetic patients, given that ED is one of the reasons for which a man will be under pressure wherein repeating unsuccessful attempts lead to psychological stress and a defective cycle (Seshiah & Balaji, 2012), and with regard to limited literature on frequency of such a problem in men having type II diabetes in Pakistan and particularly in Multan city. The present study conducted was to investigate relationship between psychological burden and sexual dysfunction.

Rationale of the Study

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder that not only impacts physical health but also has profound psychological and sexual health implications. Among males, the interplay between glycemic control, mental well-being, and sexual function is particularly significant yet often under-researched or overlooked in clinical settings. Depression, anxiety, and stress are common comorbidities in diabetic patients, which can further exacerbate the progression of complications, including sexual dysfunction such as erectile dysfunction (ED) and decreased libido. Psychological distress and sexual dysfunction are prevalent but often underreported by male patients with T2DM due to stigma, lack of awareness, and limited routine screening in diabetes care. There is a complex, bidirectional relationship between psychological burden and sexual dysfunction. Psychological issues can lead to sexual problems, and sexual dysfunction can, in turn, worsen psychological distress, creating a vicious cycle. Understanding predictors of psychological and sexual issues in diabetic males can guide clinicians to provide holistic management strategies that go beyond glycemic control. Improving mental and sexual health among diabetic males can enhance quality of life, treatment adherence, and long-term disease outcomes, reducing the burden on healthcare systems. To identify and predict the psychological burden (including depression, anxiety, and stress) and sexual dysfunction among males with T2DM, and to determine the key demographic, clinical, and psychosocial factors associated with these outcomes.

Statement of the Problem

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Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder that not only imposes significant physical health challenges but also affects psychological well-being and sexual function, particularly in males. Despite advances in the management of T2DM, a substantial proportion of male patients continue to experience psychological distress, including depression, anxiety, and decreased quality of life. Additionally, sexual dysfunction—especially erectile dysfunction—is highly prevalent among this population, often underreported and inadequately addressed in clinical practice. The complex interplay between glycemic control, psychological stress, and sexual health remains poorly understood. There is a critical need to identify the psychological and physiological predictors of sexual dysfunction and mental health burden in men with T2DM to enable early intervention and improve holistic disease management. However, existing research in this area is limited, especially in diverse sociocultural contexts, leading to gaps in prevention and treatment strategies. Therefore, this study seeks to investigate the extent of psychological burden and sexual dysfunction among males with T2DM, and to identify key predictive factors contributing to these outcomes. Understanding these relationships can inform the development of targeted interventions that address both the physical and psychosocial dimensions of diabetes care.

Significance of the Study

This study holds significant clinical and public health relevance as it aims to explore the psychological burden and sexual dysfunction experienced by males with Type 2 Diabetes Mellitus (T2DM), a population often overlooked in holistic diabetes management. While T2DM is primarily treated as a metabolic disorder, the psychosocial dimensions—especially psychological distress and sexual health—are frequently underdiagnosed and undertreated. These complications not only impact the quality of life but may also hinder disease management and increase the risk of complications. Understanding the psychological and sexual health challenges faced by this group is crucial for the development of comprehensive, patient-centered care strategies. The findings can help healthcare providers recognize the interrelated nature of mental health, sexual function, and chronic disease management. Early identification and intervention in psychological and sexual dysfunction can enhance treatment adherence, improve glycemic control, and ultimately lead to better health outcomes. Moreover, the study can contribute to policy and practice by encouraging the integration of psychological assessment and sexual health screening into routine diabetes care. It can also serve as a foundation for future research and guide the creation of culturally sensitive educational and counseling programs tailored to diabetic men. By highlighting these often neglected aspects, the study aims to promote a more holistic approach to diabetes management and enhance the overall well-being of affected individuals.

Method

Participants

This study was a descriptive cross-sectional research on a population of married men aged between 20 and 70 years, suffering from type II diabetes diagnosed by an endocrinologist, and referring to the endocrinology clinics in the city of Multan, Pakistan.

Instruments

Depression, Anxiety and Stress Scales (DASS-21): The Depression, the Anxiety and Stress Scales (Lovibond, 1995) is used in the study to measure and assess the psychological burden among diabetic patients. It is a quantitative measure of distress with 3 axes stress,

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anxiety and depression and not used for clinical diagnoses as a categorical measure. DASS is useful for assessing the disturbance and lot of other complication. It has 21 items that indicates and describes the level of depression, the anxiety and stress and the responses on this scale are listed as; 0 score means, it is statement of response which is not applied for that person. 1- Responses which are given on 1 number denote the situation that is matched with person sometimes and at some extend. The responses on the situation 2 express the statement about the individual for a good time. Responses on this category have 3 numbers, which finds the condition that is related to close to the person. The normal score of the depression is ranged from (0-4), and as well as anxiety is separated from (0-3) and stress is moving the value from (0-7). The mild score of the depression of the people is start from the figure (5-6), while the anxiety is situated between these numbers (4-5) and the stress as well as is comes between this group (8-9). The moderate score of depression is ranging from (7-10), and the anxiety that is categorized between such type of values (6-7) and the stress values are ranged into this condition that is lies between these values (10-12). Severe and chronic level of the depression is categorized into these numbers (11-13), and the severe condition of anxiety lies between this group (8-9) and the stress is divided for it severity is ranged between such condition (13-16) while the extreme scores of the depression is indicated to this particularly is (14+), anxiety is related to this figure (10+) and the stress severe level is always indicates this category of score (17+). Scores of the individuals do not mean appropriate interventions.

Erectile Function (EF)

Erectile function (EF) is a sub-scale consisting of 6 items containing questions 1, 2, 3, 4, 5, and 15 of the main questionnaire. The score obtained from this sub-scale is described as 0-10 (severe), 11-16 (moderate), 17-21 (moderate to mild), 22-25 (mild), and 26-30 (without disorder). In addition, scores equal to or below 21 are perceived as presence of ED in the final analysis. Orgasmic function (OF) is a sub-scale with questions 9 and 10 of the questionnaire whose score is between 0 and 10 in which score 10 shows the best function. Sexual desire (SD) is a sub-scale containing questions 11 and 12 of the questionnaire whose score is between 2 and 10 in which higher scores are indicative of better function. Intercourse satisfaction (IS) is a sub-scale comprising questions 6, 7, and 8 of the main questionnaire whose score is between 0 and 15 in which higher scores denote better function. Overall satisfaction (OS) is a sub-scale referring to questions 13 and 14 of the main questionnaire whose score is between 2 and 10 in which higher scores represent better function (Pakpour et al., 2014).

Procedure

Hospital authority was approached and informed to get permission for conducting the research on their diabetic patients and the purpose of the study was explained to them. After getting permission, they were requested to give separate room for the administration of the scale in order to maintain confidentiality. Authority of the hospital was very cooperative in this regard. A booklet of scales was given to those diabetic patients who were educated give the responses honestly. A complete instruction was provided to them for complete the scales by the researcher. Responses were taken from uneducated diabetic patients through reading the questions by researcher. It was ensured that their information will be kept confidential and used for only research purpose.

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Results

Table 1: ***Correlation Matrix among Depression, Anxiety, Stress, Orgasmic Function, Sexual Desire, Intercourse Satisfaction, and Overall Satisfaction***

		D	A	S	OF	SD	IS	OS
1	Depression	1	.502**	.482**	-.391**	-.639**	-.370**	-.581**
2	Anxiety		1	.296**	-.406**	-.385**	-.417**	-.714**
3	Stress			1	-.395**	-.703**	-.380**	-.629**
4	Orgasmic Function				1	.295**	.259**	.206**
5	Sexual Desire					1	.270**	.397**
6	Intercourse Satisfaction						1	.260**
	Overall satisfaction							1

Table 1 represents the relationship between psychological burden and sexual dysfunction. Results of the study reveal that there is negative relationship among the predictors and criterion variables. Depression, anxiety and stress are the significant negative predictors of orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction among males with type-2 diabetes mellitus.

Discussion

The current study highlights that depression, anxiety and stress are the significant negative predictors of orgasmic function, sexual desire, intercourse satisfaction, and overall satisfaction among males with type-2 diabetes mellitus. Sexual dysfunction, depressive symptoms, and marital distress are highly prevalent among men with T2DM. These factors are significantly interrelated, and poor glycemic control exacerbates sexual difficulties. Type 2 diabetes affects 10.5% of adults globally, with sexual dysfunction being one of the complications, of which erectile dysfunction is the most commonly reported one with the prevalence ranging from 35% to 90%. Diabetes mellitus (DM) is a chronic disease inducing short-term and long-term complications including sexual dysfunction (SD) which can consequently reduce patients' quality of life (Bahar et al., 2020). The results of the study are in accordance with previous research that demonstrated significant correlations between ED severity, depressive, and poor marital satisfaction. Sexual dysfunctions, depressive symptoms, and marital distress are highly prevalent in patients with type 2 diabetes, warranting timely detection and management. The three parameters are significantly correlated with each other, and poor glycemic control is significantly associated with sexual dysfunction (Rathod et al., 2024). Moreover, another study reveal that the prevalence of erectile dysfunction in diabetic males ranges widely from 35% to 90% as per various studies. The likelihood of sexual dysfunction increases with age and diabetes duration (Anwar et al., 2017). According to previous study, most of the participants had trouble with erection as well as the number of times they had experienced sexual intercourse (Fallahi et al., 2014). In Mazandaran Province, Iran, Elyasi et al. (2015) also

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investigated SD in women suffering from type II diabetes and reported that 78.7% of the women had SD (Elyasi et al., 2015).

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Conclusion

This study highlights a significant association between psychological burden—including symptoms of depression, anxiety, and stress—and sexual dysfunction among males with Type 2 Diabetes Mellitus. The findings suggest that psychological factors play a crucial role in the development and severity of sexual dysfunction in this population. As such, comprehensive diabetes care should not only focus on glycemic control and physical health but also prioritize mental health evaluation and support. Integrating psychological screening and interventions into routine diabetes management may improve both psychological well-being and sexual health outcomes, ultimately enhancing the overall quality of life for male patients with T2DM.

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