



Sexual dysfunction and anxiety levels of type 2 male diabetics



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ABSTRACT

Aim: This descriptive study aims to identify sexual dysfunction and anxiety levels of male patients with type 2 diabetes.

Method: The sample is composed of 150 patients who were seen at the Endocrinology and Diabetes Clinic of one university hospital in Istanbul, Turkey. The data were collected using an "Information Form", the "International Index of Erectile Function", and the "State-Trait Anxiety Inventory (STAI)".

Results: The mean age of the sample was 56.2 ± 8.71 , the sexual dysfunction total score was on average 46.44 ± 15.66 , and 82% of the sample experienced erectile dysfunction. According to the STAI, the patients had "mild" anxiety on average, whereas according to the TAI, they had "moderate" anxiety levels. There were no statistically significant differences between the sexual dysfunction total scores and the State Anxiety Scores ($p > 0.05$), whereas there was a negative weak correlation between the trait anxiety levels ($p < 0.05$).

Conclusion: These results show that the sexual function and anxiety of diabetic patients should be evaluated at regular intervals.

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1. Introduction

Diabetes is a metabolic disease that increases the risk of morbidity and mortality with acute complications as well as long-term macrovascular and microvascular complications. In diabetes, carbohydrates, fat and proteins are not utilized efficiently because of insulin deficiency or an inadequate response to the action of insulin (ADA, 2014a, 2014b; TEMD, 2014). With an ever-increasing incidence and prevalence, the significance of diabetes as a chronic disease is more pronounced worldwide. According to the International Diabetes Federation (IDF), 8.3% of the global adult population 20–79 years old (382 million people) had diabetes in 2013, and the prevalence of diabetes has reached epidemic rates. Without a timely intervention, this rate is estimated to increase to 10.1% (592 million) by 2035. According to the "Turkey Diabetes Epidemiology Study" (TURDEP) (1998) data, the prevalence of diabetes and impaired glucose tolerance in the adult population is 7.2% and 6.7%, respectively (Satman et al., 2002). Twelve years after the TURDEP-I study, it was observed in the TURDEP-II study (2012) that the prevalence of diabetes has reached 13.7% (Satman et al., 2010). In recent years, the prevalence of diabetes, particularly type 2 diabetes, has increased dramatically in developed and developing countries as a result of rapid life style changes including the development of sedentary habits, nutritional changes and increased obesity.

Type 2 diabetics constitute 90–95% of all those diagnosed with diabetes worldwide (ADA, 2014a; IDF, 2013; Satman, 2006; TEMD, 2014).

2. Literature review

Diabetics have a risk of developing psychological, neurological and vascular complications, as well as a risk of physiological and psychogenic sexual dysfunction (Küçük, Kaya, Küçük, Yoğun, & Buzlu, 2013). Studies have shown that sexual dysfunction has an earlier onset and higher prevalence in diabetics, increasing with age, progressing more severely, and adversely affecting the quality of life (De Berardis et al., 2005; Esposito et al., 2010; Giugliano et al., 2010; Kalter-Leibovici et al., 2005; Okur et al., 2008; Yamasaki et al., 2004; Yıldız, 2008). Diabetes is the leading systemic disease in the etiology of sexual dysfunction. Sexual dysfunction affects the quality of life and should be treated (Chasens, Umlauf, & Weaver, 2009; Rice, Roszler, & Farrell, 2009). In diabetic men, sexual problems are typically in the form of erectile dysfunction (Kefi & Esen, 2002) because of damage to the autonomous nervous system resulting from diabetic neuropathy and alternations in blood vessels. Erectile dysfunction is three times more prevalent in diabetics than in the general population (Levy, 2002).

Sexual problems lead to anxiety in diabetics, and anxiety leads to the development of sexual problems. Several studies have shown the relationship between anxiety and sexual dysfunction (Corretti & Baldi, 2007; Taştan, Saatçioğlu, Özmen, & Erkmén, 2005; Yıldız, 2008). The co-existence of sexual dysfunction and anxiety symptoms might influence the course and treatment of the disorder. In addition, from the sociocultural perspective, the association of sexual dysfunction and masculinity is a serious cause of trauma and is a stressor in Turkish population

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(Taştan et al., 2005). Anxiety arising from sexual dysfunction causes thoughts of sexual failure, and these thoughts escalate anxiety in return (Yıldız, 2008).

Healthcare professionals with diabetic patients question the patients regarding their daily life activities, including sexual activities, which are frequently overlooked; then, they determine the problems related to these activities, decide on appropriate interventions for these problems, and apply and evaluate those interventions. In this regard, this study was planned to investigate sexual dysfunction in type 2 diabetic males to determine the relationship between sexual dysfunction and anxiety and to provide guidance to healthcare professionals on this subject.

3. Method

3.1. Sample

This study was planned as a descriptive type of study, to investigate sexual dysfunction and anxiety levels in type 2 diabetic males. The study population consisted of type 2 diabetic males who visited the Endocrinology and Diabetes Polyclinic or were treated as an inpatient in an Endocrinology and Diabetes clinic from March 2013 to August 2013 at the Department of Endocrinology, Metabolism and Diabetes in a university hospital in Turkey. The study sample consisted of 150 males meeting the following inclusion criteria: volunteering to participate in the study, being diagnosed with type 2 diabetes at least 6 months earlier, being married or having a regular sexual partner, and being sexually active.

3.2. Data collection tools

The data were collected using an "Information Form", which contained information regarding socio-demographic and disease-related properties of diabetics, the "International Index of Erectile Function", and the "State-Trait Anxiety Inventory (STAI)".

The International Index of Erectile Function (IIEF) is used for the evaluation of sexual function in males. Erectile function, orgasmic function, sexual desire, satisfaction in sexual intercourse and general satisfaction are the subcategories evaluated in this index. It consists of 15 questions. Questions 1–4 and 6–10 are on a Likert scale of 6 points (0–5 points), and the remaining questions are on a Likert scale of 5 points (1–5 points). The scale is applicable to individuals who have had sexual intercourse in the last month. It is scored negatively, with higher scores indicating no or little sexual dysfunction. The lowest possible score is 5, and the highest is 75. Unlike other subcategories, the erectile function subcategory is used as well for assessment of the degree of dysfunction. This section has a maximum score of 30, and the degree of erectile dysfunction is evaluated as severe (6–10 points), moderate (11–16 points), mild (17–25), and no dysfunction (26–30) (Rosen et al., 1997).

A high degree of internal consistency was observed for each of the five domains and for the total scale (Cronbach's alpha values of 0.73 and higher and 0.91 and higher, respectively) in the populations studied. The test–retest repeatability correlation coefficients ranged from 0.64 to 0.84, and all were highly significant (Rosen et al., 1997).

The State Anxiety Inventory (SAI) is a 4-point Likert scale to determine how an individual feels at a certain time and under certain conditions, and it consists of 20 questions. The person is asked to evaluate how he/she feels "at the moment" and to choose one of the statements (1) "not at all", (2) "somewhat", (3) "moderately so", and (4) "very much so" according to the degree of feelings, thoughts and behaviors that the items express (Öner, 2006).

The Trait Anxiety Inventory (TAI) is a 4-point Likert scale to determine how an individual feels, independent from the present state and conditions, and it consists of 20 items. The person is asked to evaluate how he/she feels "in general" and to choose one of the statements (1) "almost never", (2) "sometimes", (3) "often", and (4) "almost always",

according to the degree of frequency of the feelings, thoughts and behaviors that the items express. The minimum total score for the State Anxiety and Trait Anxiety Inventory is 20, and the maximum total score is 80. Higher scores indicate higher levels of anxiety, and vice versa. Total scores of 0–19 show no anxiety, total scores of 20–39 show a mild level of anxiety, total scores of 40–59 show a moderate level of anxiety, total scores of 60–79 show severe anxiety, and scores above 80 indicate the necessity for professional support (Öner, 2006).

The State-Trait Anxiety Inventory was developed by Spielberger. The instrument was adapted to the Turkish language by Öner and Le Compte and was validated for reliability and validity. The levels of test–retest reliability of the trait scales are high, ranging from the Trait Anxiety Inventory reliability of 0.26–0.68; the State Anxiety reliability of 0.71–0.86, the Cronbach's Alpha values for the Trait Anxiety Inventory reliability of 0.94–0.96, and the reliability for the State Anxiety scale of 0.83–0.87 (Öner, 2006).

3.3. Procedure

Written approval for the study was obtained from the university hospital in which the study was implemented, and ethical committee approval was obtained from the Istanbul University Cerrahpaşa Faculty of Medicine (05.03.2013/A-08). After the voluntary participants were informed of the study, a written informed consent was obtained from each of them. The data were collected by the researcher in face-to-face interviews that lasted for approximately 20–30 minutes.

3.4. Data analysis

The data were entered into a computer using SPSS 15.0 software. For the evaluation of the data, descriptive statistical methods, as well as Student's t-test, the Mann–Whitney U test, one-way ANOVA, Tukey's HSD, Kruskal–Wallis test and Pearson's Correlation Analysis were used. Significance was evaluated by levels with $p < 0.01$ and $p < 0.05$.

4. Results

Of the individuals in the sample group, 44.6% were in the 55–64-year-old age group, and the mean age was 56.28 ± 8.71 (min–max: 31–75); 94.7% were married; 56% were primary/secondary school graduates; 51.4% were retired; 43.3% had a full-time job; 54.6% had middle economic status; 94.7% had children; and 66.7% were living with a wife and children. In total, 62% of the individuals had quit smoking, and 22% were still smoking. Those who had quit smoking and who were still smoking had smoked for an average of 23.28 ± 12.70 years (min–max: 1–61) and had smoked an average of 22.27 ± 12.04 cigarettes per day (min–max: 3–70). Additionally, 43% of the individuals consumed alcohol, and a majority of those (78.5%) drank alcohol once or twice per month, whereas 30.7% had stopped drinking. In total, 78% of the subjects did not exercise regularly (Table 1). The mean duration after the onset of diabetes was 8.61 ± 6.33 years (min–max: 1–25). Additionally, 68.7% of the subjects took anti-hypertensive medication, and 8.7% received anti-depressant treatment. In total, 38% had diabetic neuropathy, 68.7% had hypertension, and 25.3% had chronic diseases such as cardiac disease (Table 2).

When the subcategories of IIEF were evaluated, the mean erectile function score was 17.55 ± 7.43 (6–30); 19.3% of the individuals had severe, 25.3% had moderate, and 37.3% had mild erectile dysfunction, whereas 18.0% did not have erectile dysfunction. The mean orgasmic function score was 7.01 ± 2.64 (2–10), and 60.7% had disorders of orgasmic function. The mean sexual desire score was 7.29 ± 1.84 (2–10), and 50.7% had disorders of sexual desire. The mean sexual satisfaction score was 8.68 ± 3.15 (3–15), and 54% had disorders of satisfaction in sexual intercourse. The mean general satisfaction score was 5.90 ± 2.57 (2–10), and 61.3% had disorders in general satisfaction. The IIEF

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