

Original Paper

Sexual Dysfunction Prevalence in Women with Type 2 Diabetes Mellitus

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ABSTRACT

Background: Sexual dysfunction is a common complication of diabetes and its psychiatric and physical affects may obligate a huge burden compromising patients' matrimonial, inter-personal and marital relationships. Current study is aimed to evaluate the frequency of sexual dysfunctions in type 2 diabetic women during 2015-2016 in Tabriz, Iran. **Materials and Methods:** Current cross-sectional study evaluated data gathered from 18-45 years of age type 2 diabetic women attending diabetes care centres of Tabriz. Sample size was estimated to be 300 and the sampling process fulfilled using cluster sampling methods according to the inclusion criteria. Female Sexual Function Index (FSFI) is used as the research tool. Descriptive data analysis were applied to achieve results using SPSS 20. **Results:** Non-parametric binominal tests reflects statistically significant decrease in sexual activity of the diabetic patients ($p= 0.001$). The probability of the category below the cut point was 1 which means that 100% of type 2 diabetic women suffer from sexual dysfunction. All items of sexual function are found to be below the average normal measurements. **Conclusion:** Type 2 diabetic women are vastly under the burden of sexual dysfunction, which affects their physical and psychological health. Current study showed the need to provide sufficient and available care services and organized education courses for diabetic women.

INTRODUCTION

Diabetes, a metabolic disease characterized by chronic hyperglycemia, leading to damage to various organs and decreased longevity, is mainly categorized into three types: Type One; or Insulin Dependant Diabetes Mellitus (IDDM), Type Two; or Non- Insulin Dependant Diabetes Mellitus (NIDDM) and Gestational Diabetes (1). Type 2 diabetes mellitus is the most common form of diabetes, accounting for almost 90 percent of all cases of diabetes (2). It is a diverse group of disorders that usually provide varying degrees of insulin resistance and increased glucose production. The gradual course of increasing blood sugar level is believed to be a convincing reason (3). The incidence and prevalence of diabetes in the last century has rapidly increased and morbidity and mortality resulted in a massive burden (4, 5). Previous studies in Iran reflected that the overall prevalence of the disease was 7.7% (CI; 7.5- 7.9), which means, more than two million people of the country in the age group of 25-64 years of age were suffering from diabetes (6).

Diabetes causes various psychologic and physical complications, leading in difficulties for dealing with the diseases and treatment courses, and decreased life quality (7). One of the long-term complications of the disease is sexual dysfunction, which is also believed to be common. It is obvious that the following consequences of sexual dysfunction may lead to psychological problems, inter-personal, inter-familial and social communicational problems, negatively causing (alone or combined – directly or indirectly), matrimonial problems of the patients (8).

Women's sexual dysfunction is a public health issue, having the global prevalence of 30-78% (9-12). A research conducted in Tehran, reported that the awareness of the couples about the proper sexual matters is fewer than half the appropriate level (13).

Also, another study in Iran, reported that 60.4 % of the women had medium or low sexual satisfaction status (14). Concerning diabetic women, sexual dysfunction prevalence is reported to be approximately 80% (15). Sexual dysfunction is defined as decreased desire, excitation, orgasm and

dysparonia, which is due to multi-factorial anatomic, physiologic, and psychologic imbalances, causing disturbance, decreased quality of life and dissatisfactory inter-personal relations. Since the conduction of systematic studies of the human sexual behaviors, it has been well understood that the disorder has been underdiagnosed (16-18).

Factors affecting sexual function, include; age, reproductive status, hormone levels, socio-economic factors, sexual behaviors and knowledge, contraception methods, and mental and physical health (19). Furthermore, psychologic factors and endocrinal disorders such as diabetes, commonly affect the sexual function (20-22).

Sexual dysfunction is more prevalent in the diabetic population, which is affecting both sexes (23-26). Concerning sexual disorders, decreases sexual desire, arousal (erectile dysfunction in men and vaginal lubrication in women), orgasmic disorders, sexual dysfunction in the stimulation stage, is reported in one quarter of the diabetic patients (27). A study by Lauren in 2010, evaluating sexual dysfunction in diabetic and non-diabetic women of 30-79 years of age, reported the association of age, marital status, and depression symptoms with sexual dysfunction. According to this study, though the sexual activity of diabetic and non-diabetic women was equal, but women with type 1 diabetes were suffering dysparonia. Common factors as depression were associated with sexual dysfunction in diabetic women (28). A study by Olarinoye and Olarinoye in 2008 evaluated the factors associated with sexual dysfunction in women with type 2 diabetes in Nigeria. Authors reported that diabetes is significantly associated with sexual dysfunction in Nigerian diabetic women, highlighting that age, menopausal state, and duration of the disease represented higher impacts (29). Furthermore, Meeking conducted a study on 161 type 1 and 2 diabetic women. Decreased vaginal lubrication, sexual interest, pleasure, and sensation, was reported in 70%, 64%, 47% and 36% of patients, respectively (30). Also, a study by Najafi et al. reported sexual dysfunction in stimulation level and decreased sexual desire in 76% and 32% of diabetic patients, respectively (31). Protective factors against macrovascular diseases are compromised in diabetic patients due to hemodynamic and metabolic impairments. On the other hand, dyslipidemia, hypertension, and vascular endothelial layer dysfunction exacerbates the condition (32-33). Diminished production of nitric oxide due to diabetes induced vascular disorders, lead to decreased vaginal vascular congestion (32).

Unfortunately, in many societies women are not concerned in the behavioural and psychologic sexual educations and as a result, sexual dysfunction of the female populations has caused casualties in various aspects of their daily life (34).

According to the results of the previous studies, patients with sexual dysfunction leading to more complications in their physical and mental health (35, 36).

Numerous studies have been conducted, concerning sexual dysfunction of diabetic men (37-39), while the lack of proper research highlighting the women is completely vivid (40-41). So, this study aimed at evaluating prevalence of sexual dysfunction in women with diabetes type 2 during 2015- 2016 in Tabriz, Iran.

MATERIALS AND METHODS

Design And Participants

Current cross-sectional study, is targeted to evaluate type 2 diabetic women, attending diabetes care clinics of Tabriz, Iran during 2015-2016.

According to the reports of diabetes care center of the Eastern Azerbaijan, there are 30838 officially recorded diabetic women in the province. The sample size estimated 263 using G-Power ($\alpha=0.05$, power= 90%, probability= 50%). After ethical, legal and medical approval of official authorities, among 120 diabetes care centers, 12 centers were selected, applying cluster sampling methods. Medical records and lists of patients were gathered and case selection was done using the random digits table. Inclusion Criteria were as follows: diabetes mellitus patients approved by an endocrinologist, being married, patients' consent of cooperation, absence of any psychologic disorders, educational level of guidance school and higher. Patients with other conditions affecting sexual function (clinical and syndromic conditions) were excluded from the study. A written informed consent was obtained from participants. Finally, patients were completed the Female Sexual Function Index (FSFI).

Research Tool

Female Sexual Function Index (FSFI), vastly used in previous literature, includes 19 questions, which evaluates women's sexual function in six fields consisting; mental stimulation, humidity, orgasm, satisfaction and dysparunia. Scoring is done by summing the score of each question of each field and multiplying the final score by the Factor Digit. Each question is scored 0-5. Zero is an indicator of absence of any sexual activities in the previous four weeks. The summed score of the six fields represents the final score scale. Obviously the higher scores are representing better sexual function. The maximum and minimum total score scales are 36 and 2, respectively, as each field is balanced. The minimum score of the sexual desire equals 1.2, while being zero for sexual stimulation, vaginal humidity, orgasm, dysparunia fields.

Cutpoints of the FSFI are as follows: (scores higher than cutpoints indicate much sufficient sexual function); total scale score: 28, sexual desire: 3.3, mental stimulation: 3.4, humidity: 3.4, orgasm: 3.4, satisfaction: 3.8 and dysparunia: 3.8. Reliability and validity of the method has been approved by previous literature (42-45).

Table 1. Mean FSFI score of the study population

Variable	Mean
Sexual function	16.13
Sexual desire	2.79
Mental stimulation	1.92
Humidity	2.62
Orgasm	2.87
Satisfaction	3.44
Dysparunia	2.42

Table 2. Sexual function of study population

Dependant variable	Category		No.	Observed probability
Sexual function	Lower level	<=28>	263	1.00
	Higher level	28	0	0
Desire	Lower level	<=3.3>	155	0.59
	Higher level	3.3	108	0.41
Mental stimulation	Lower level	<=3.4>	242	0.92
	Higher level	3.4	21	0.08
Humidity	Lower level	<=3.4>	207	0.79
	Higher level	3.4	56	0.21
Orgasm	Lower level	<=3.4>	168	0.64
	Higher level	3.4	95	0.36
Satisfaction	Lower level	<=3.8>	157	0.60
	Higher level	3.8	106	0.40
Dysparunia	Lower level	<=3.8>	214	0.81
	Higher level	3.8	49	0.19

Statistical Analysis

SPSS 20 was applied for Data analysis and descriptive statistics were reported.

Ethics

Ethics Committee of Tabriz University of Medical Sciences approved this project (code: TBZMED.REC.1394.1220).

RESULTS

Current study consists of 263 women with type 2 diabetes in Tabriz, Iran. The mean overall health was 27.78, and the categorized means of scales are reported in Table 1.

The normal distribution of the variables were examined by kolmogorov-Smirnov (K-S) test, which indicated that the variable ditribution was not normal ($p < 0.05$).

Results of non-parametric binominal tests reflected statistically significant decrease in sexual activity of the diabetic patients ($p = 0.001$). The probability of the catogry below the cut point was 1 which means that 100% of type 2 diabetic women suffer from sexual dysfunction. According to data presented in table 2, all items of sexual function were found to be below the normal measurments.

DISCUSSION

According to the results of current study, all diabetic women were suffered degrees of sexual dysfunction. Our findings are compatible with the previous studies by Johannes et al. (27), Meeking et al. (30), and Najafi et al (31).

Based on the reports, sexual arousal impairment, orgasm failure, and stimulation stage problems are affecting one quarter of women suffering diabetes (46). Prevalence of sexual dysfunction of arousal stage is believed to be three times more than normal population (47). A study conducted by Lauren (2010) was evaluated sexual dysfunction in diabetic and non-diabetic women of 30-79 years of age. The results of this study showed the association of age, marital status, and depression symptoms with sexual dysfunction.

According to this study, although the sexual activity of diabetic and non-diabetic women was equal, women with type 1 diabetes were suffering dysparunia. Common factors as depression were associated with sexual dysfunction in diabetic women (28). A study by Olarinoye and Olarinoye in 2008 evaluated the factors associated with sexual dysfunction in women with type 2 diabetes in Nigeria. Authors reported that diabetes is significantly associated with sexual dysfunction in Nigerian diabetic women, highlighting that age, menopausal state, and duration of the disease represented higher impacts (29). Another study by Schriener-Engel mentioned the decrease in sexual desire, vaginal lubrication, and orgasm impairment, to be more prevalent in type 2 diabetic women (48). Women experience a process of debilitation of sexual function in their life period and diseases such as diabetes accelerate this loss or affect the quality of sexual function inversely (49).

The results of this study should be interpreted considering the limitations. The main limitation of current study is self-reporting method of data gathering. In addition, cross sectional design of the study is another important limitation.

In conclusion, it seems type 2 diabetic women are vastly under the burden of sexual dysfunction which affects their physical and psychological health and also matrimonial problems. Current study may be a reminder of the need to provide sufficient and available care services and organized education courses, for diabetic women.

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