

# Evaluation of Sexual Frequency in Married Egyptians with Type 2 Diabetes Mellitus

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Received date: February 18, 2015; Accepted date: September 2, 2016; Published date: September 9, 2016

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## Abstract

**Background and objective:** Sexual health is an important, however a neglected factor in patients with diabetes. Effects of diabetes mellitus (e.g. erectile dysfunction) and implication on sexual frequency and function among men with diabetes have not been well investigated. The current study aims to evaluate the sexual frequency, sexual function and their association with type 2 diabetes compared to that in an age-matched control group.

**Methods:** In all, 50 married men with type 2 diabetes mellitus attending the outpatient endocrine clinic of Al-Zahraa University Hospital between March 2011 and March 2012 were selected. Glycosylated hemoglobin (HbA<sub>1c</sub>) and fasting plasma glucose (FPG) were measured. Sexual frequency and function were assessed by questionnaire. The scores in each item of sexual frequency and function were compared with those of 50 healthy non-diabetic controls.

**Results:** Sexual frequency and function scores for sexual drive, orgasm, overall satisfaction and arousal domains were decreased in the diabetic men ( $p < 0.05$ ). Age of the patients and duration of diabetes were negatively correlated with all items of sexual frequency and function. Body mass index (BMI), fasting plasma glucose, Glycated hemoglobin, education and employment status did not have a significant correlation with sexual frequency and function items.

**Conclusions:** Diabetes significantly affects the sexual frequency and function of diabetic men. Age and duration of diabetes were the most powerful determining factors of sexual frequency and function.

**Keywords:** Sexual frequency; Diabetes mellitus

## Introduction

The prevalence of sexual dysfunction in diabetic men is almost 50%. Vascular impairment, neuropathy and psychological factors have been established as etiological factors in the pathology of low arousability, orgasmic dysfunction, and decreased libido among diabetic men [1]. Erectile dysfunction (ED) or impotence, which is considered the main factor affecting frequency, is a sexual dysfunction characterized by the inability to develop or maintain an erection of the penis during sexual performance. Although ED may occur at a younger age, it is a disorder most frequently seen in middle-aged and -elderly men. ED in diabetic men is more prevalent and starts to occur approximately 10 years earlier than in the non-diabetic population. Several studies have reported the incidence of erectile dysfunction in 30-75% of diabetic men. ED in diabetic men generally starts in an insidious manner and it takes months to become evident. Libido is sub-normal in a majority of the cases. ED has many organic as well as non-organic causes. In diabetes, vascular, neurological, and rarely even psychological causes lead to ED. Organic causes are shown to be predominant and irreversible [2,3].

A happy marriage often is associated with satisfying sexual activity [4]. Prior studies on marital sexuality consistently have found that frequency with which a married couple engages in sex with each other

is related to marital sexual satisfaction [5]. Attempting to disentangle the causal relationship between frequency of sex and marital sexual satisfaction however, could prove to be problematic. The couples could be more sexually satisfied simply because they had sex more frequently or they also could tell us that the couples who had sex less frequently did so because it tended to be somehow less pleasurable and satisfying for them [6].

Hence, although frequency of sex and sexual satisfaction are closely related, one cannot automatically assume that the two are the same. Frequency of engagement in sexual activity is a physical or factual measure of behavior, while marital sexual satisfaction is a psychological or subjective measure of perception. For these reasons, in the present study we considered sexual satisfaction and frequency of sex to be two correlated, but distinct, variables [7].

There have been quite a number of studies in Western societies about the causes and consequences of sexual satisfaction in marriage. Little is known about the predictors of marital sexual relationships in married Egyptians with diabetes mellitus, thus, this is considered a first-of-a-kind study in such a field.

## Methods

The current study included one-hundred male subjects (fifty patients and fifty controls), recruited from the endocrine outpatient clinic Al-Zahraa University Hospital, and divided into two groups

(group 1; 50 patients with type 2 diabetes as patients and 50 patients non-diabetics as controls).

Fifty married men with type 2 diabetes, who attended the outpatient endocrine clinic at Al-Zahraa University Hospital, Cairo, Egypt between March 2011 and March 2012, were included in the study as patients. Patients were eligible for inclusion if they are married, had type 2 diabetes, were <45 years of age, with no liver or kidney failure, hyperlipidemia or dyscrasias. An age-matched group of men visiting the same clinic for routine check-up were invited to form the control group.

The following was done for each of the study subjects:

1. Full history taking (personal history, diabetic history [onset, duration, management], past history, family history)
2. Full examination (both general and genital examination).
3. Laboratory investigations; fasting blood glucose and HbA<sub>1C</sub>.

### Sexual function assessment

Patients were informed to fulfil the questions (one to five) of the IIEF [8]. As previously reported by some authors [9-12] these questions were used to assess the erectile function, as they reported them to be reliable in measuring erectile function. The erectile function score was the sum of the questions, with a maximum of twenty-five. Results were: good response, (>20); fair response (15-20); and poor response (<15) (Rosen et al.).

All the study participants answered a questionnaire (which was structured from the DSM-IV) to measure sexual satisfaction and the ASEX form. Five questions were in the questionnaire, regarding, sexual frequency, drive, arousal, orgasm and satisfaction, the responses were extremely easy, very easy, somewhat easy, somewhat difficult, very difficult and never. The minimum score was five and the maximum was thirty. Sexual dysfunction was indicated if higher scores were recorded, with less frequency.

### Assessment of the glycemic control

Was done by measuring the Hemoglobin A<sub>1c</sub> (HbA<sub>1C</sub>), which assessed the glycemic control over the past three months. Glycated hemoglobin values were measured by the quantitative colorimetric determination method (Stanbio Laboratory). A 5 ml venous blood sample drawn under complete aseptic conditions was used; samples were collected from all diabetic men after 12 hours fasting.

Values were calculated as follows:

4.2-6.2 %: normal

5.5-6.8 %: diabetic in good control

6.9-7.6%: diabetic in fair control

≥ 7.7 %: diabetic in bad control

Data were presented and analyzed using SPSS, Version 12 Software and a p value<0.05 was considered to be significant.

### Results

The mean age of the diabetes and control groups was 41.2 ± 4.1 (32-51) and 40.9 ± 4.9 (29-53) years, respectively, most of both group patients were between 38 and 52 years (40 [80%] patients in group 1 and 38 [76%] subjects in group 2). The mean body mass index (BMI)

in diabetes patients was (30.8 ± 6.3) kg/M<sup>2</sup> and in the control group was (24.3 ± 3.9) kg/M<sup>2</sup> (p <0.0001) (Table 1, Figure 1).

As regards the glycemic control (HbA<sub>1C</sub>), the mean level of diabetes and control was 8.3 ± 1.8 (5.5-11.2) and 5.2 ± 0.5 (4.2-6.2) % respectively (Figure 2), group 1 was categorized as follows; 18 patients (36%) with good glycemic control, 4 patients (8%) with fair glycemic control and 28 patients (56%) with poor glycemic control (Table 1). Patients with good glycemic control had the most percentage of good potency (53%), only 20% had fair potency and 26% had poor potency. However, patients with fair glycemic control were categorized as follows, poor potency in 50%, good potency in 25%, and fair potency in 25%.

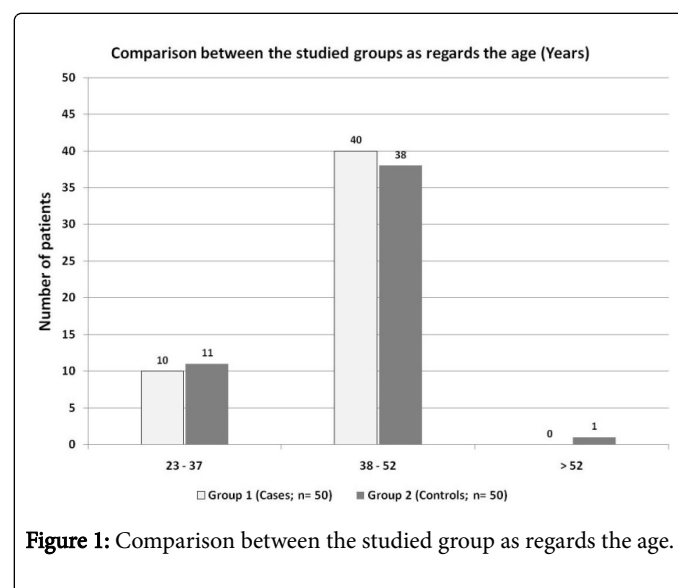


Figure 1: Comparison between the studied group as regards the age.

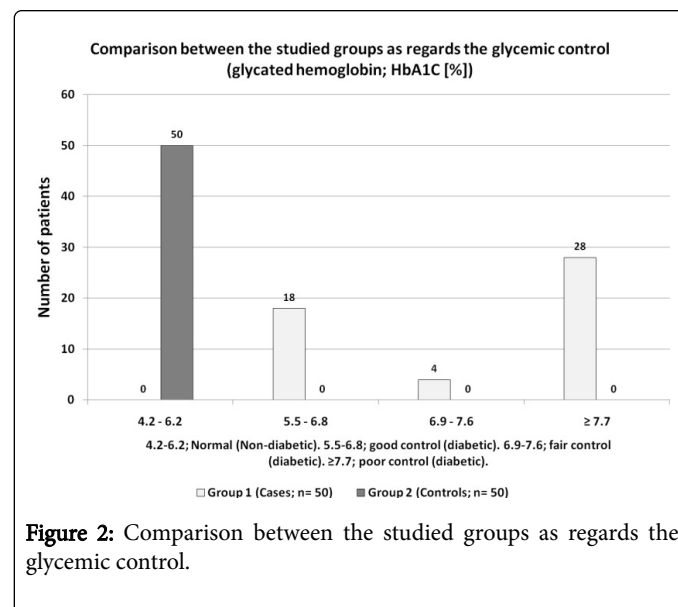
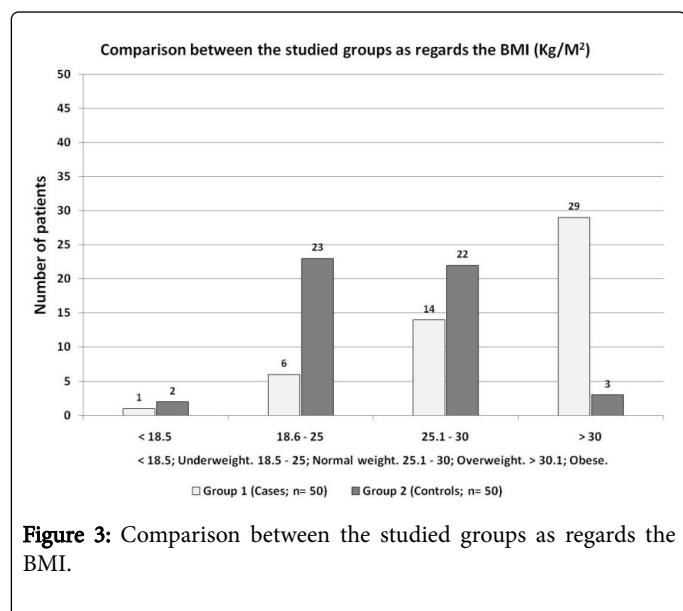


Figure 2: Comparison between the studied groups as regards the glycemic control.

In addition, in patients with bad glycemic control, 75% had poor potency and 20% had good potency 5%. In light of the previous, significant association was found between the glycemic control and the potency level (P=0.001). Group 1 had 30% illiterate patients (versus 26% in group 2), 30% patients who can only read and write (versus 18% in group 2), 20% patients who had pre-university education

(versus 32% in group 2) and 20% patients who had university education (versus 24% in group 2) (p 0.8). Sixty-two percent of group 1 patients were employed (versus 54% in group 2) and 38% were unemployed (versus 46% in group 2) (Table 1). Only 17% were receiving insulin treatment and the rest were on oral anti-diabetic agents. Table 2 shows the scores of sexual function, drive, arousability, orgasm, and overall satisfaction (which were all lower in diabetic men).

Thirty percent of diabetics had a strong sexual drive; however, the rest (70%) had a weak sexual drive. Compared to the control group, which had 74% with strong drive and 26% with weak drive. Sexual arousal in diabetic patients was categorized as easy in 32% and difficult in 68% of patients (78% and 22%, in control group). Orgasm in diabetic patients was easily achieved (extremely, very or fairly) in about 16% and difficult (somewhat, very or absent) in 84% of patients, compared to 74% and 26%, respectively, in the control group. In diabetic patients sexual satisfaction was described as satisfying (extremely, very or fairly) in about 36% and weak (somewhat, very or absent) in 64% of patients. Comparable figures in the control group were 84% and 16%, respectively.



**Figure 3:** Comparison between the studied groups as regards the BMI.

## Discussion

To our knowledge, this is the first report to discuss sexual frequency and function in relation to diabetic control among diabetic men. We report a significantly impaired sexual frequency, sexual drive, sexual arousal, erectile function, orgasm and satisfaction among diabetic patients in comparison to controls, which is in agreement with several previously published reports.

Mykletun et al. conducted a study to present normative data from Norway using the Brief Male Sexual Function Inventory (BSFI, the first patient self-administered questionnaire to assess male sexuality, and used in the USA) in men aged 20-79 years, examine the, explore the impact of sexual function and other variables on overall sexual satisfaction, and compare American and Norwegian normative data [13].

Total sexual function score for sexual drive, sexual arousal, orgasm and sexual satisfaction was 968 in patients and 605 in the control group (Table 2); and the mean total ASEX score in each group was

(23.3 ± 5.6) and (14 ± 7.3), respectively (p<0.0001). The mean value of frequency of sexual intercourse was (3.3 ± 1.1) in patients and (7 ± 2.3) times/month in the control group (p<0.0001).

Parameter	Group 1 (Cases; n=50)			Group 2 (Controls; n=50)			P value
	No.	%	Mean ± SD	No.	%	Mean ± SD	
<b>Age (Years)</b>							
23-37	10	20	41.2 ± 4.1	11	22	40.9 ± 4.9	0.7
38-52	40	80		38	76		
>52	0	0		1	2		
<b>BMI<sup>[1]</sup> (Kg/M<sup>2</sup>)</b>							
<18.5	1	2	30.8 ± 6.3	2	4	24.3 ± 3.9	<0.0001
18.6-25	6	12		23	46		
25.1-30	14	28		22	44		
>30	29	58		3	6		
<b>HbA<sub>1c</sub><sup>[2]</sup> (%)</b>							
4.2-6.2	0	0	8.3 ± 1.8	50	100	5.2 ± 0.5	<0.0001
5.5-6.8	18	36		0	0		
6.9-7.6	4	8		0	0		
≥ 7.7	28	56		0	0		
<b>Education</b>							
Illiterate	15	30		13	26		0.8
Read & Write	15	30		9	18		
Pre-university	10	20		16	32		
University	10	20		12	24		
<b>Employment</b>							
Employed	31	62		27	54		0.5
Un-employed	19	38		23	46		
<b>ASEX<sup>[3]</sup> Score</b>			23.3 ± 5.6			14 ± 7.3	<0.0001
<b>Frequency of intercourse</b>			3.3 ± 1.1			7 ± 2.3	<0.0001

[1] : BMI; Body Mass Index. <18.5; Underweight. 18.5-25; Normal weight. 25.1-30; Overweight. >30.1; Obese.

[2]: HbA<sub>1c</sub>; Glycated Hemoglobin. 4.2-6.2; Normal (Non-diabetic). 5.5-6.8; good control (diabetic). 6.9-7.6; fair control (diabetic). ≥ 7.7; poor control (diabetic).

[3]: ASEX; Arizona Sexual Experience Scale.

**Table 1:** Comparison between the studied groups as regards the different study parameters.

Duration of diabetes correlated negatively with all domains of sexual function. There was no significant relationship between the sexual function score and BMI or glycemic control (Figure 3).

Parameter	Group 1 (Cases; n=50)	Group 2 (Controls; n=50)	P value
Sexual drive	233	156	0.001
Arousal	231	155	0.001
Orgasm	259	154	0.0001
Satisfaction	245	140	0.0001

**Table 2:** Comparison of scores in five sexual domains (items) in diabetic and control.

He found that there was increasingly reduced sexual function concerning drive, erection, ejaculation, and problem assessment with age and health problems such as diabetes and cardiac health problems, and most of the age-effect started at >50 years old, while effects of diabetes did not correlate with age. Overall sexual satisfaction followed the same trend, but with a weaker association with diabetes [13].

Gorgel et al. conducted a study to investigate the relationship between metabolic syndrome and sexual function and effective parameters on erectile dysfunction (ED), and concluded that metabolic syndrome (including type 2 diabetes), smoking and obesity are potential risk factors for lack of sexual drive and satisfaction and ED [14].

Diabetes is directly related to erectile dysfunction, which may be the cause affecting sexual frequency [15,16].

Several factors affect erectile dysfunction severity in diabetics, such as duration of diabetes, increasing age, bad glycemic control, systemic diseases (cardiovascular complications), hence, continuous screening and early treatment in such patients may be helpful in avoiding such problems [17].

As type 2 diabetes may be present for several years before diagnosis, many patients have already developed diabetic complications. Earlier detection and treatment may reduce this burden [18]. Diagnostic criteria based on fasting blood sugar criteria are relatively insensitive in the detection of early type 2 diabetes in at-risk subjects. HbA1C measurement improves the sensitivity of screening in high-risk individuals [19].

Sexual dysfunction (SD) as a diabetes-related difficulty is common among both male and female patients. In men with diabetes erectile dysfunction is more frequent than other men of the same age. Diabetes causes damage to nerves throughout the body including penis and erectile dysfunction generates as common diabetes' complication. A number of men with autonomic neuropathy can experience normal erectile function and orgasm but do not ejaculate normally that could be verified through urine analysis. Research indicates although erectile dysfunction is widespread among men with diabetes; the condition is often remains undiagnosed and demands appropriate assessment and initiation of proper treatment. A study by Zdravko supported the hypothesis that in the complex pathogenesis of diabetic erectile dysfunction (ED), diabetic neuropathy is the major pathogenic factor. Other research findings are indicative that the etiology of ED is a multifactor disorder and in the management of diabetic ED, a holistic approach should be applied [20].

The results of our study showed that the level of HbA<sub>1C</sub> is significantly higher with declining degrees of potency. On comparing the mean levels of HbA<sub>1C</sub> in different potency degrees, there was a statistically significant difference (P=0.003).

Our results were in agreement with those from the study of Romeo et al. They too had performed a similar study on 78 male patients with diabetes type 2. The mean HbA<sub>1C</sub> and the mean of erectile function score (of the questions 1-5 of the International Index of Erectile Function) were calculated for each patient. The results they obtained showed that as the degree of glycemic control declines, the degree of potency also declines. They concluded that the mean erectile function score decreased as HbA<sub>1C</sub> increased (P=0.002). Both our study and the study of Romeo et al. suggest that glycemic control is independently and inversely associated with the level of ED in men with diabetes type 2.

Our results are also in agreement with those of Jamieson et al. who conducted a survey of 142 type 1 diabetic males, of whom 76 (54%) had ED. By using a multivariate analysis, a significant association between ED and glycemic control, as assessed by HbA<sub>1C</sub> (P=0.003), was documented. These data suggest a possible benefit of tight glycemic control in the prevention of erectile dysfunction [21,22].

## Conclusion

Diabetes significantly impairs the sexual performance of diabetic men. Determinants of sexual function include age and duration of diabetes. In addition, our findings suggest that glycemic control is independently and inversely associated with ED in men with diabetes type 2. More studies with a larger number and longer duration of follow up are required to confirm and document these results.

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