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SEXUAL DYSFUNCTION IN FEMALE PATIENTS WITH TYPE 2 DIABETES MELLITUS PRESENTING TO A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To determine the sexual dysfunction in female patients suffering from Type 2 diabetes mellitus presenting to the Endocrinology Department, Hayatabad Medical Complex Peshawar.

Methodology: A descriptive cross-sectional study was conducted on women suffering from Type 2 diabetes mellitus presenting to the Endocrinology Department, Hayatabad Medical Complex Peshawar. A validated questionnaire: the Female Sexual Function Index (FSFI) was administered to the study participants. Data analysis was performed by SPSS Version 25. A P-value of ≤ 0.05 was considered to be significant.

Results: One hundred and fifty female patients were enrolled. Mean \pm SD of age was 42.46 ± 4.2 years. The mean FSFI score was 25. The frequency of Sexual Dysfunction was found to be 66.9%. Among these, 76.7% had issues with lubrication, 68.6% reported decreased libido, 78 arousal-related related complaints, 47.3% complains about dyspareunia, and 60.6% complained of abnormal orgasm and 61.6% reported decreased satisfaction.

Conclusion: The study revealed that sexual dysfunction is quite prevalent in our local population of diabetic women. Therefore, Physicians treating women having type 2 diabetes should have knowledge of possible sexual dysfunction in these patients and the problem should be addressed.

Keywords: Diabetes Mellitus; Sexual Dysfunction; Female Sexual Function Index

INTRODUCTION

Diabetes Mellitus (DM) is a chronic condition that affects millions of people around the world. The global diabetes prevalence in 2019 has been estimated to be 9.3% (463 million people) and this number is expected to increase by 25% in 2030 and by 51% in 2045.¹ Prevalence of T2DM in Pakistan is 11.77% with a female prevalence of 9.19%.² DM results in various psychological, medical, and sexual complications.³

Sexual Dysfunction (SD) in females is complicated and associated with various biopsychosocial risk factors.^{4,5} WHO defines it as "The various ways in which a woman is unable to participate in a sexual relationship as she would wish."⁶ The female sexual process consists of three stages namely desire, arousal, and orgasm.⁷ Female SD includes lack or loss of libido, lack of sexual pleasure, vaginal dryness, issues with orgasm, and dyspareunia. Clinically female SD may be defined as "the persistent/recurring decrease in sexual desire or arousal, the difficulty/inability to achieve an orgasm, and/or the feeling of pain during sexual intercourse."^{4,7}

DM leads to SD in males and females suffering from the disease.⁸ The diagnosis and treatment of SD are relatively difficult in females as compared to males because of the intricacy of the female sexual process.^{9,10} Although SD has been widely explored in diabetic male patients, there is limited data regarding female SD and diabetes mellitus and it is often an ignored health problem in diabetic women.⁸ However, it affects physical and psychological health, thus affecting the overall well-being of these women and should be given more attention in medical practice and research.¹¹

The global prevalence of SD in diabetic women ranges from 20- to 80%.^{12,13} McCool and colleagues reported the prevalence of SD in women having T2DM to be 40.9%.¹⁴ SD has been reported to increase with age.¹⁵ High the frequency of SD in women having T2DM is reported in a systematic review and meta-analysis.⁵

However, there is limited data from the developing world including the Middle East and South Asia. A recent study from Iran (2017) reported that 78.7% of females with type 2 DM had sexual dysfunction.¹⁷ A

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study from Ethiopia reported that 53.3% of diabetic women suffer from SD.¹⁸ A South Indian study reported that SD is more common in women having less education and age of 40 or more.¹⁹

There is a lack of literature regarding the prevalence and characteristics of SD in our local population of female patients having T2DM. This study aimed to determine the prevalence of sexual dysfunction in females with T2DM and investigate the association between diabetes-related factors and SD.

METHODOLOGY

This cross-sectional study was conducted at the Endocrinology Department, Hayatabad Medical Complex Peshawar. After getting approval from the hospital research and ethical committee (IREB). One hundred and fifty women having T2DM were recruited for the study after getting written informed consent. The minimum sample size calculated was 132 women with T2DM, based on an Iranian study¹⁸ however, 150 females were included. The sample was selected based on a consecutive non-probability from January 2021 to June 2021. Inclusion criteria included married females (18-55 years), in a stable relationship, and having type 2 diabetes for at least 5 years, while those with bilateral hystero-oophorectomy; current pregnancy; having sexual dysfunction in the husband; and having SD before developing DM, were excluded from the study.

Study participants were asked to complete a validated questionnaire, the Female Sexual Function Index (FSFI), while they were waiting for consultation. Privacy and confidentiality were assured.

Data regarding the DM duration, types of medicines (oral hypoglycemic agents, insulin), HbA1c, BMI, and hypertension were obtained from medical records.

Data were analyzed using SPSS version 25.0. Continuous variables like age, body mass index, and HbA1c were presented in terms of mean and standard deviation. Categorical variables like type of antidiabetic medications, hypertension, and sexual dysfunction were presented in the form of frequencies and percentages. Sexual dysfunction was stratified according to age, type of hypoglycemic agent, smoking, BMI, and HbA1c to see effect modification. Post-stratification, a chi-square test was applied. A p-value ≤ 0.05 was considered as significant.

RESULTS

The Mean standard deviation of age of the study participants was 42.46 ± 4.2 years. The mean BMI was 29.46 ± 3.52 . The mean duration of DM was 8.42 ± 4.6 years. Mean HbA1c was 7.64 ± 1.64 . The demographic characteristics of the study are given in Table 1.

The mean of the total FSFI score was 25.86. The frequency of Sexual Dysfunction was found to be 66.9%. Among these, 76.7% had issues with lubrication, 68.6% reported decreased libido, 78.7% had arousal-related complaints, 47.3% complained of dyspareunia, and 60.6% complained of abnormal orgasm and 61.6% reported decreased sexual satisfaction.

The study revealed that the association of sexual dysfunction with the age of the patients was not significant ($p=0.16$). The study also failed to show a significant association between DM duration and SD ($p=0.12$). Similarly, there was no statistically significant association between hypertension and SD ($p=0.55$) and type of treatment and SD ($p=0.85$). SD was reported in 89% of women having HbA1c less than 8.5 and 81% of the females having HbA1c greater than 8.5. However, this association was insignificant ($p=0.089$). SD frequency was higher (95%)

in women who had primary or below primary education in comparison to ladies who had secondary or higher education (81%), however, this association was also insignificant ($p=0.093$). We also couldn't find a statistically significant association between SD and BMI ($p=0.815$). All these observations are summarized in the table. 1

DISCUSSION

SD is a crucial element of well-being in diabetic patients and various studies conclude that SD is common in diabetic females.^{5,12,13,16,17} Our study also indicates that SD is very prevalent in these patients (66,9%). Afshari et al, concluded that 78.7% of Iranian women had sexual dysfunction.¹⁶ Bak et al concluded that 68% of diabetic women had sexual dysfunction, and AlMogbel et al reported SD in 88.7% of women in Saudi Arabia.^{18, 19} Esposito et al., found the frequency to be 53.4%.²⁰ A study in Jordan reported the prevalence to be 59.6%.²¹ The differences in frequency of SD in various studies might be the result of the following factors: population studied, methods of SD assessment, age of the study subjects, and magnitude of the sample. Two other factors could also influence the prevalence rates: First, the FSFI cut-off score used (e.g., Esposito et al used 23 and we used 26.5 out of 36 in our study).²⁰ Second, the methods used for privacy and confidentiality of patients were different.

The study didn't show a significant association between glycemic control and the frequency of female SD ($P=0.089$). Afshari et al, Esposito et al, and Abu-Ali et al reported similar results.^{5, 20, 21} However, this finding is contrary to the findings of Ziaei-Rad et al and Mazzilli et al.^{22, 23}

This study didn't show any significant association between the age of the patients and sexual dysfunction. No statistically significant association was also found by

Table: 1. Patient characteristics and their association with SD.

Variable		Total Number n(%)	Sexual Dysfunction		p-Value
			No n (%)	Yes n (%)	
Age (years)	<40	39 (26%)	14 (35.9%)	25 (64.1%)	0.16
	40-49	111(74%)	38 (34.3%)	73 (65.7%)	
Diabetes Duration (years)	<5	45 (30%)	14 (31.2%)	31 (68.8%)	0.12
	5-10	66 (44%)	24 (36.4%)	42 (63.6%)	
	>10	39 (26%)	12 (30.8%)	27 (69.2%)	
Hypertension (years)	Yes	102 (68%)	33 (32.4%)	69 (67.6%)	0.55
	No	48 (32%)	16 (33.3%)	32 (66.7%)	
Type of Treatment	Oral hypoglycemics	91 (60.6%)	31 (34.1%)	60 (65.9%)	0.85
	Insulin	33 (22%)	12 (36.4%)	21 (63.6%)	
	Both	15 (10%)	5 (33.3%)	10 (66.7%)	
	Diet + Exercise	11 (7.3%)	4 (36.4%)	7 (63.6%)	
HbA1c	<7	32 (21%)	10 (31.3)	22 (68.7%)	0.089
	7- 8.5	79 (53%)	29 (36.8%)	50 (63.2%)	
	>8.5	39 (26%)	12 (30.8%)	27 (69.2%)	
Education	Primary or less	29 (19.3%)	9 (31%)	20 (69%)	0.093
	Elementary	81 (54%)	30 (37.1%)	51 (62.9%)	
	Higher	40 (26.6%)	12 (30%)	28 (70%)	
BMI	18-24	74 (49%)	25 (33.8)	49 (66.2%)	0.815
	25-29	57 (38%)	14 (35.8%)	43 (64.2%)	
	30-34	11(7%)	4 (36.4)	7 (63.6%)	
	≥35	08 (5%)	2 (25%)	6 (75%)	
Occupation	Employed	42 (28%)	13 (31%)	29 (69%)	0.823
	Housewife	108 (72%)	35 (32.5%)	73 (67.5%)	

Mazzilli R et al and Afshari et al.^{23, 16}

Our study showed no significant association between sexual dysfunction and duration of DM similar to Ziaei-Rad et al and Esposito et al.^{22, 20} On the contrary some studies revealed a significant association between SD and DM duration.

There was a gradual increase in sexual dysfunction with increasing weight, but the association was not significant. Elyasi et al. also reported similar finding.²⁴ On the contrary Esposito et al and El-Sakka et al reported a significant association between BMI and SD.^{20, 25}

Our sample size was small due to which the results cannot be generalized to all diabetic women. Sexual behavior and functioning may be influenced by religious, cultural,

and social norms. Other causes of sexual dysfunction may have been missed.

CONCLUSION

This study revealed that the frequency of SD among women having T2DM is quite high; however, glycemic control is not associated with sexual dysfunction in these patients. Therefore, physicians taking care of women with diabetes should take into account the high prevalence of SD in these women and they should be counseled and treated accordingly.

REFERENCES

1. Saeedi P, Petersohn I, Salpea P, Malanda B, Karuranga S, Unwin N, et al. Global and regional diabetes prevalence estimates for 2019 and projections

for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas. *Diabetes Res Clin Pract.* 2019;157:107843. DOI: 10.1016/j.diabres.2019.107843.

2. Meo SA, Zia I, Bukhari IA, Arain SA. Type 2 diabetes mellitus in Pakistan: Current prevalence and future forecast. *J Pak Med Assoc.* 2016;66(12):1637-42.
3. Rochester-Eyeguokan C, Meade L. A Practical Approach to managing hypoactive sexual desire disorder in women with diabetes. *Diabetes Ther.* 2017;8(5):991-8. DOI: 10.1007/s13300-017-0313-0.
4. Muniyappa R, Norton M, Dunn ME, Bannerji MA. Diabetes and female sexual dysfunction: moving beyond "benign neglect". *Curr Diab Rep.* 2005;5(3):230-6. DOI: 10.1007/s11892-005-0014-3.
5. Rahmanian E, Salari N, Mohammadi M,

- Jalali R. Evaluation of sexual dysfunction and female sexual dysfunction indicators in women with type 2 diabetes: a systematic review and meta-analysis. *Diabetol Metab Syndr*. 2019; 11(1):1-7. DOI: 10.1186/s13098-019-0469-z.
6. Paningbatan J, Aragon J, Landicho-Kanapi MP, Rodriguez-Asuncion K. Prevalence of sexual dysfunction and its associated factors among women with diabetes mellitus type 2 at Makati Medical center outpatient department. *J ASEAN Fed Endocr Soc*. 2018;33(2):165-73. DOI: 10.15605/jafes.033.02.09.
 7. Sharma JB, Kalra B. Female sexual dysfunction: assessment. *J Pak Med Assoc*. 2016;66(5):623-6.
 8. Corona G, Isidori AM, Aversa A, Bonomi M, Ferlin A, Foresta C, et al. Male and female sexual dysfunction in diabetic subjects: Focus on new antihyperglycemic drugs. *Rev Endocr Metab Disord*. 2020;21(1):57-65. DOI: 10.1007/s11154-019-09535-7.
 9. Shindel AW, Lue TF. Sexual Dysfunction in diabetes. *Endotext*. 2021 Jun 8.
 10. Faubion SS, Parish SJ. Sexual Dysfunction in women: Can we talk about it? *Cleve Clin J Med*. 2017;84(5):367-76. DOI: 10.3949/ccjm.84a.16021.
 11. Masood SN, Saeed S, Lakho N, Masood Y, Rehman M, Memon S. Frequency of sexual dysfunction in women with diabetes mellitus: A cross-sectional multicenter study. *J Diabetol*. 2021;12(3):357-62. DOI: 10.4103/JOD.JOD_31_21
 12. Bahar A, Elyasi F, Moosazadeh M, Afradi G, Kashi Z. Sexual dysfunction in women with type 2 diabetes mellitus. *Iran J Med Sci*. 2015;40(3):206-13.
 13. Doruk H, Akbay E, Cayan S, Akbay E, Bozlu M, Acar D. Effect of diabetes mellitus on female sexual function and risk factors. *Arch Androl*. 2005;51(1):1-6. DOI: 10.1080/014850190512798.
 14. McCool ME, Zuelke A, Theurich MA, Knuettel H, Ricci C, Apfelbacher C. Prevalence of female sexual dysfunction among premenopausal women: a systematic review and meta-analysis of observational studies. *Sex Med Rev*. 2016;4(3):197-212. DOI: 10.1016/j.sxmr.2016.03.002.
 15. D'cruz M, Andrade C. Nosology of the Sexual Dysfunctions: Are They Appropriate to Older Adults?. *J Psychosex Health*. 2020;2(2):139-45. DOI:10.1177/2631831820937861
 16. Afshari P, Yazdizadeh S, Abedi P, Rashidi H. The relation of diabetes type 2 with sexual function among reproductive-age women in Iran, a case-control study. *Adv Med*. 2017;2017 :4838923. DOI: 10.1155/2017/4838923.
 17. Asefa A, Nigussie T, Henok A, Mamo Y. Prevalence of sexual dysfunction and related factors among diabetes mellitus patients in Southwest Ethiopia. *Endocr Disord*. 2019;19(1):141. DOI: 10.1186/s12902-019-0473-1.
 18. Bąk E, Marcisz C, Krzemińska S, Dobrzyn-Matusiak D, Foltyn A, Droszol-Cop A. Relationships of sexual dysfunction with depression and acceptance of illness in women and men with type 2 diabetes mellitus. *Int J Environ Res Public Health*. 2017;14(9):1073. DOI: 10.1080/00926230590475206.
 19. AIMogbel TA, Amin HS, AlSaad SM, AIMigbal TH. Prevalence of sexual dysfunction in Saudi women with Type 2 diabetes: Is it affected by age, glycemic control, or obesity?. *Pak J Med Sci*. 2017;33(3):732. DOI: 10.12669/pjms.333.12166.
 20. Esposito K, Maiorino MI, Bellastella G. Determinants of female sexual dysfunction in type 2 diabetes. *Int J Impot Res*. 2010;22:179-184. DOI: 10.1038/ijir.2010.6.
 21. Abu-Ali R, AlHajeri R, Khader Y, Shegem N, Ajlouni K. Sexual dysfunction in Jordanian diabetic women. *Diabetes Care*. 2008;31(8):1580-1. DOI: 10.2337/dc08-0081.
 22. Ziaei-Rad M, Vahdaninia M, Montazeri A: Sexual dysfunctions in patients with diabetes. A study from Iran. *Reprod Biol Endocrinol*. 2010;8:50 (2010). DOI: 10.1186/1477-7827-8-50.
 23. Mazzilli R, Imbrogno N, Elia J, Delfino M, Bitterman O, Napoli A, et al. Sexual dysfunction in diabetic women: prevalence and differences in type 1 and type 2 diabetes mellitus. *Diabetes Metab Syndr Obes Targets Ther*. 2015;8:97-101. DOI: 10.2147/DMSO.S71376.
 24. Elyasi F, Kashi Z, Tasfieh B, Bahar A, Khademloo M. Sexual Dysfunction in Women with Type 2 Diabetes Mellitus. *Iran J Med Sci*. 2015; 40(3): 206-13.
 25. El-Sakka AI, Sayed HM, Tayeb KA. Diabetes-associated androgen alteration in patients with erectile dysfunction. *Int J Androl*. 2008;31:602-8.

Conflict of Interest

Author declared no conflict of interest

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None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.