



Published by DiscoverSys

The relationship between self-efficacy and sexual function in patients with type II diabetes



CrossMark

Samira Haddadi,¹ Mahdi Ghodrati Mirkohi,² Mahnaz Akbari-Kamrani^{3*}

ABSTRACT

Background: Diabetes is a common chronic disease that is increasingly observed in almost all countries of the world. The treatment and prevention of diabetes largely depend on patients' self-efficacy in performing self-care behaviors. Accordingly, the present study was conducted to examine the relationship between self-efficacy and sexual performance in patients with type II diabetes.

Methods: In the present correlational study, 200 patients with type II diabetes (based on physicians' diagnosis) participated. Using convenience sampling method, the samples were selected out of the whole population of diabetic patients who referred to Shahid Bahonar and Rajaei Hospitals in the city of Karaj (Iran). The data were collected through a multi-faceted questionnaire covering demographic characteristics of the participants, the Diabetes Management Self-

Efficacy Scale (DMSES), the Female Sexual Function Index (FSFI) and the Male Sexual Function Index (MSFI). Then, the collected data were analyzed through Pearson correlation test, multiple linear regression analysis, independent t-test and ANOVA.

Results: The results showed a positive significant relationship between self-efficacy and sexual function ($p < 0.001$); regression coefficient of the predictor variable 'self-efficacy' was 0.217 ($p < 0.017$).

Conclusion: Self-efficacy plays an important role in the lives of diabetic patients; it is also important in sexual performance of diabetic patients. Therefore, based on the results of this study, the significant relationship between self-efficacy and sexual function must be considered in the treatment of patients with type II diabetes.

Keywords: Type II Diabetes, Self-Efficacy, Sexual Function, Iranian Males and Iranian Females

Cite this Article: Haddadi, S., Ghodrati Mirkohi, M., Akbari Kamrani, M. 2016. The relationship between self-efficacy and sexual function in patients with type II diabetes. *Bali Medical Journal* 5(3): 371-375. DOI:10.15562/bmj.v5i3.271

¹Master of Psychology, Department of Management, Qazvin Branch, Islamic Azad University, Qazvin, Iran

²Department of Psychology, Payame Noor University, Tehran, Iran

³Department of Midwifery, Faculty of Nursing & Midwifery, Alborz University of Medical Sciences, Karaj, Iran

INTRODUCTION

Diabetes is one of the century's most common non-communicable diseases. Diabetes is among the most important causes of cardiovascular diseases, kidney failure, blindness, amputations and sexual disorders.¹ Diabetes is also a common chronic disease that is increasingly observed worldwide. In 2015, the International Diabetes Federation (IDF) reported that 387 million people (%8.3 of the world population) suffer from diabetes. It has been predicted that 592 million people will suffer from diabetes by 2025.² In Iran, more than 3 million people suffer from diabetes and the population of diabetic patients is expected to reach to more than 6 million people by 2030.³

More than %95 of type II diabetes treatment process should be done by the patients; thus, type II diabetes cannot be treated only by serum glucose control. The treatment and prevention of diabetes largely depend on patients' self-efficacy in performing self-care behaviors. Self-care behaviors in type II diabetes include following recommended diets, being active, checking blood sugar level and taking care of the feet. Increasing patients' confidence in their ability to take care of their disease is a major factor in diabetes self-efficacy.⁴

Self-efficacy enables patients to adapt health-promoting behaviors and avoid risky ones. People with high levels of self-efficacy eliminate barriers by improving their self-management skills; these people can overcome difficulties and have control over their affairs. Therefore, people's perceptions of their self-efficacy can significantly affect their health-promoting behaviors.⁵

Self-efficacy is actually a person's belief in his/her ability to positively affect an outcome. Thus, self-efficacy is a concept that can be discussed in diabetes management. Being self-efficient, patients can monitor their diets, activities and blood sugar levels and accordingly prevent complications of their disease (e.g. sleep and sexual disorders).^{6,7} Hormonal disorders resulting from diabetes can affect libido in both genders.⁸

Sexual dysfunction is the most common gender-based complication of diabetes that adversely affects the patients' quality of life, especially in men. Various studies have reported that the incidence of sexual dysfunction is in the range of %20-85 in men. Fewer studies have examined sexual function in diabetic women; however the incidence of sexual dysfunction has been reported in the range

*Correspondence to: Dr. Mahnaz Akbari Kamrani, Faculty of Nursing & Midwifery, Alborz University of Medical Sciences, Karaj, Iran.
Tel: (+98)2634336007.
Dr.akbarikamrani@abzums.ac.ir

of %20-80 in diabetic women. In Iran, 3 million couples are suffering from sexual disorders and only %1 of them are treated.⁹

Sexual disorders in men are manifested through loss of libido and erectile dysfunction. Sexual disorders in women include sexual dissatisfaction, orgasmic disorder and inadequate lubrication. These disorders are caused by psychological, hormonal, neurological and cardiac problems.¹⁰

Proper sexual relationships lead to pleasure, satisfaction and emotional proximity, while sexual dysfunction negatively affects life quality and interpersonal relationships. Sexual function is an important aspect of the quality of life. Unfortunately, few studies have been conducted to examine sexual function in diabetic patients with varying levels of self-efficacy; thus, the present study was designed to examine the relationship between self-efficacy and sexual function among patients with type II diabetes.

METHODS

The present study was conducted on 200 outpatients with type II diabetes who regularly referred to Shahid Bahonar and Rajaei Hospitals for treatment. The samples were selected based on convenience sampling method in a time period starting

on February 2016 and ending on April 2016. Due to ethical considerations, patients were completely free to either participate in the study or not. Before the initiation of study, the study objectives were explained to those willing to participate. The inclusion criteria included having type II diabetes based on physicians' diagnosis, having diabetes for at least 5 years, having no history of psychological illnesses and being over 35 years old.

The data were collected through a multi-faceted questionnaire covering demographic characteristics of the participants, the Diabetes Management Self-Efficacy Scale (DMSES), the Female Sexual Function Index (FSFI) and the Male Sexual Function Index (MSFI).

The DMSES is a 20-item scale measuring patients' confidence in doing certain activities such as controlling their diet, exercising and checking their blood sugar. It has been reported that the Persian version of DMSES and each of its four subscales have acceptable internal consistency coefficient. The reliability of DMSES has also been confirmed in studies done by Vivienne (2006), McDowell (2005) and Sturtand Hearnshaw(2002).¹¹

The FSFI is a 19-item questionnaire assessing six dimensions of sexual function in women: desire (2 items), arousal (4 items), lubrication (4 items), orgasm (3 items), satisfaction (3 items) and pain (3 items). Reliability and validity of the Persian version of FSFI have been confirmed ($p < 0.001$; $\alpha = 0.86$).¹²

The MSFI is a 5-item questionnaire. Based on the MSFI scores, men can be divided into four classes of severe / moderate / mild erectile dysfunction and normal. Reliability coefficient of 0.96 has been reported for the MSFI by banner and colleagues.¹³

DATA ANALYSIS

After collecting the information, the data were analyzed through Pearson correlation test, multiple linear regression analysis, independent t-test and ANOVA.

RESULT

The results showed that 101 participants were female and 99 were male; the average age of female participants was 52.35 ± 8 years and the average age of male participants was 54.92 ± 7.51 years.

From table 1, 23.5% of the participants had university degrees and 76.5% had lower levels of education; the average disease duration was 9.57 ± 4.70 years and 56.5% of the participants had the disease for less than 10 years; the average number of children was 3.09 ± 2.8 (table 1). As shown in table 2, 38% of the participants had

Table 1 Frequency Distributions of the Patients in Terms of Diseases Duration and Gender

Disease duration	Female		Male		Total	
	Frequency	%	Frequency	%	Frequency	%
<10 years	66	65.3	47	47.5	113	56.5
10-14 years	21	20.8	29	29.3	50	25
15-19 years	11	10.9	13	13/1	24	12
>20 years	3	3	10	10.1	13	6.5
Total	101	100	99	100	200	100
Min-Max	5-20		5-30		5-30	
mean \pm SD	8.63 \pm 3.87		10.53 \pm 5.28		9.57 \pm 4.70	

Table 2 Frequency Distributions of the Participants in Terms of Chronic Diseases and Gender

Type of chronic disease	Female		Male		Total	
	Frequency	%	Frequency	%	Frequency	%
None	32	31.7	33	33.3	65	32.5
High Blood pressure	22	21.8	13	13.1	35	17.5
Hyperlipidemia	40	39.6	36	36.4	76	38
Kidney disease	3	3	2	2	5	2.5
Heart disease	4	4	10	10.1	14	7
Other	0	0	5	5.1	5	2.5
Total	101	100	99	100	200	100

hyperlipidemia in addition to type II diabetes; though, 32.5% of the participants had no chronic disease other than type II diabetes. As shown in table (3), sexual function of patients with type II diabetes was significantly related to their age,

education level, number of children and disease duration ($p < 0.022$). As shown in tables (4,5), there was a significant positive correlation between self-efficacy and sexual function ($p < 0.001$); thus, an increase in self-efficacy led to an increase in sexual function.

Table 3 Statistical Results Regarding the Relationships between Sexual Function and Demographic Characteristics of the Patients

Sexual function Demographics	Number	Mean	SD	Result
Gender				$T=2.307^*$
Female	101	1.98	1.25	$Df=198$
Male	99	2.37	1.13	$P=0.022$
Age (year)				
<40	11	2.54	1.02	
40-50	55	2.90	0.97	$F=39.993^{**}$
50-60	67	2.55	0.93	$P < 0.001$
>60	67	1.15	0.96	
Illiterate	35	1.59	1.28	
Education level				
Elementary school	43	1.63	1.08	
Guidance school	29	2.11	1.09	$F=9.762^{**}$
High school	46	2.56	1.01	$P < 0.001$
University	47	2.78	1.11	
Employment status				
Employed	23	2.66	1.06	$F=1.881^{**}$
Housewife	85	1.99	1.29	$P=0.115$
Self-employed	20	2.49	1.01	
Other	72	2.15	1.16	
Number of children				
No child	19	1.88	0.91	$F=8.830^{**}$
1 or 2 children	74	2.46	1.17	$P < 0.001$
3 or 4 children	60	2.46	1.04	
5 or >5 children	47	1.49	1.28	
Disease duration (year)				
<10	113	2.49	1.08	$F=6.925^{**}$
10-14	50	1.90	1.31	$P < 0.001$
15-19	24	1.52	1.04	
>20	13	1.71	1.34	
BMI				
Normal	34	2.48	1.15	$F=2.149^{**}$
Overweight	104	2.21	1.15	$P=0.119$
Obese	58	1.95	1.31	

*independent t-test

**ANOVA

DISCUSSION

Proper diabetes management is the most important thing patients need to do in order to maintain their health and prevent undesirable side effects of diabetes. The results of this study indicated a positive significant correlation between self-efficacy and sexual function of patients with type II diabetes. It has been shown that self-efficacy is significantly related to blood sugar control.^{14,15} Michaela and colleagues (2010) stated that self-efficacy plays an important role in treatment compliance. This finding indicate that self-efficacy training (e.g. following recommended diet, exercising, controlling blood sugar, etc.) is an important factor in controlling blood sugar.¹⁶ Blood sugar level is an important factor in people's sexual function. Unfortunately, no previous study was found to compare its results with the results of the present study. However, it has been suggested that self-efficacy is an important factor in self-care behaviors and type II diabetes management.¹⁷ Improving self-efficacy through proper education is an effective strategy that helps patients with type II diabetes better manage their disease. The interesting finding in this study was that self-efficacy can predict sexual function in patients with type II diabetes. It has been found that positive experiences (positive thoughts, good feelings, etc.) are important factors that can improve self-efficacy in patients with type II diabetes.^{18, 19, 20}

The results of this study also indicated that sexual function in patients with type II diabetes is related to their age, gender, education level and disease duration. This finding was in line with results of other studies conducted by Thales,²¹ Linda²² and Gerisson.²³ They found that age can decrease blood

Table 4 Correlation Results between Self-Efficacy and Sexual Function

	Self-efficacy	Sexual function
Self-efficacy	-	$R=0.278$ $P < 0.001$
Sexual function	$R=0.278$ $P < 0.001$	-

Table 5 Linear Regression Model to Estimate Sexual Function in Terms of Self-Efficacy Scores

Independent variable	Regression coefficient	t-value	P-value	Number	R	R2
Self-efficacy	0.217	2.402	0.017	200	0.287	0.082

supply to the penis and also decrease the secretion of androgens (important causes of erectile dysfunction). Hameldon showed that education level is related to sexual function.²⁴ According to the results of this study, female patients with type II diabetes had low levels of sexual function that was consistent with results of other studies done by Basok²⁵ and Nowosieslski.²⁶ Diabetes adversely affects women's sexual activities by causing neurological, hormonal and psycho-social disorders. Diabetes changes levels of androgen, estrogen and sex hormone-binding globulin and adversely affects women's sexual functioning.²⁷

CONCLUSION

The results of this study showed that sexual function of patients with type II diabetes can be improved by increasing their self-efficacy. In other words, higher levels of self-efficacy can prevent sexual disorders in patients with type II diabetes. However, further research is needed to confirm this result.

ACKNOWLEDGEMNT

The present study was derived from a master thesis. Hereby, we express our gratitude to all patients and personnel of Shahid Bahonar and Rajaei Hospitals for their assistance and cooperativeness.

REFERENCES

- Lou P, Qin Y, Zhang P, Chen P, Zhang L, Chang G, Li T, Qiao C, Zhang N. Association of sleep quality and quality of life in type 2 diabetes mellitus: A cross-sectional study in China. *Diabetes research and clinical practice*. 2015 Jan 31;107(1):69-76.<http://dx.doi.org/10.1016/j.diabres.2014.09.060>
- Phillips A, Phillips S. Recognising female sexual dysfunction as an essential aspect of effective diabetes care. *Applied Nursing Research*. 2015 Aug 31;28(3):235-8. <http://dx.doi.org/10.1016/j.apnr.2015.04.007>
- Davari L, Eslami AA, Hassan zadeh A. Evaluation of Self-care and its Relationship with Perceived Self- efficacy in Patients Type 2 Diabetes in Khorramabad City. *Iranian Journal of Endocrinology and Metabolism* .2015 March 15; 16(6): 402-10.[Persian]
- Arian V. Approach on treatment and nutrition in diabetes. Tehran: Marzedanesh Publications. 2007. [Persian]
- White NJ, Breman JG, Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL. *Harrison's principles of internal medicine*. 2005.
- Saito I, Inami F, Ikebe T, Moriwaki C, Tsubakimoto A, Yonemasu K, Ozawa H. Impact of diabetes on health-related quality of life in a population study in Japan. *Diabetes research and clinical practice*. 2006 Jul 31;73(1):51-7. <http://dx.doi.org/10.1016/j.diabres.2005.11.015>
- Dishman RK, Motl RW, Sallis JF, Dunn AL, Birnbaum AS, Welk GJ, Bedimo-Rung AL, Voorhees CC, Jobe JB. Self-management strategies mediate self-efficacy and physical activity. *American journal of preventive medicine*. 2005 Jul 31;29(1):10-8. <http://dx.doi.org/10.1016/j.amepre.2005.03.012>
- Corona G, Giorda CB, Cucinotta D, Guida P, Nada E, SUBITO-DE study group. The SUBITO-DE study: sexual dysfunction in newly diagnosed type 2 diabetes male patients. *Journal of endocrinological investigation*. 2013 Nov 1;36(10):864-8. <http://dx.doi.org/10.1016/j.juro.2013.09.086>
- Fallahi M, Mozaffari-Khosravi H, Afkhami-Ardekani M, Dehghani A. Evaluation of Sexual Function in Men with Diabetes Mellitus Type 2-Yazd Diabetes Research Center. *Iranian Journal of Diabetes & Obesity (IJDO)*. 2014 Sep 1;6(3).
- Vafaieimanesh J, Raei M, Hosseinzadeh F, Parham M. Evaluation of sexual dysfunction in women with type 2 diabetes. *Indian journal of endocrinology and metabolism*. 2014 Mar;18(2):175. <http://dx.doi.org/10.4103/2230-8210.129107>
- Haghighyeh A.S, Ghasemi N, Neshatdoost HT, Kajbaf M, Khanbani M. Psychometric Properties of Diabetes Management Self-Efficacy Scale (DMSES). *Iranian Journal of Endocrinology and Metabolism* . 2010 Jul 2; 12(2): 111-115.[Persian]
- Fakhri A, MohammadiZeidi I, Pakpour Haji Agha A, Morshedi H, Mohammad Jafari R, GhalamborDezfooli F. Psychometric Properties of Iranian Version of Female Sexual Function Index. *Sci Med J* 2011; 10(4):345-354. [Persian]
- ZeighamiMohammadi S, Shahparian M, Fahidy F, Fallah E. Sexual dysfunction in males with systolic heart failure and associated factors. *Arya Atheroscler*. 2012 Jun 28;8(2):63-9. [Persian]
- Naik AD, Palmer N, Petersen NJ, Street RL, Rao R, Suarez-Almazor M, Haidet P. Comparative effectiveness of goal setting in diabetes mellitus group clinics: randomized clinical trial. *Archives of internal medicine*. 2011 Mar 14;171(5):453-9.<http://dx.doi.org/10.1001/archinternmed.2011.70>
- Glasgow RE, Kurz D, King D, Dickman JM, Faber AJ, Halterman E, Woolley T, Toobert DJ, Strycker LA, Estabrooks PA, Osuna D. Twelve-month outcomes of an Internet-based diabetes self-management support program. *Patient education and counseling*. 2012 Apr 30;87(1):81-92. <http://dx.doi.org/10.1016/j.pec.2011.07.024>
- Mishali M, Omer H, Heymann AD. The importance of measuring self-efficacy in patients with diabetes. *Family practice*. 2011; 28(1):82-7.<http://dx.doi.org/10.1093/fampra/cmq086>
- Wu SF, Courtney M, Edwards H, McDowell J, Shortridge-Baggett LM, Chang PJ. Development and validation of the Chinese version of the Diabetes Management Self-efficacy Scale. *International journal of nursing studies*. 2008 Apr 30;45(4):534-42.<http://dx.doi.org/10.1016/j.ijnurstu.2006.08.020>
- Van Bussel A, Nieuwesteeg A, Janssen E, van Bakel H, Van den Bergh B, Maas-van Schaaijk N, Odink R, Rijk K, Hartman E. Goal disturbance and coping in children with Type I Diabetes Mellitus: Relationships with health-related quality of life and A1C. *Canadian journal of diabetes*. 2013 Jun 30;37(3):169-74.<http://dx.doi.org/10.1016/j.cjcd.2013.02.058>
- Smalls BL, Walker RJ, Hernandez-Tejada MA, Campbell JA, Davis KS, Egede LE. Associations between coping, diabetes knowledge, medication adherence and self-care behaviors in adults with type 2 diabetes. *General hospital psychiatry*. 2012 Aug 31;34(4):385-9. <http://dx.doi.org/10.1016/j.genhosppsych.2012.03.018>
- Damiao E. Coping Strategies Used by Adolescents With Diabetes Mellitus Type 1. *Journal of Pediatric Nursing*. 2010 Apr 30;25(2):e16.<http://dx.doi.org/10.1016/j.pedn.2009.12.050>
- Teles AG, Carreira M, Alarcão V, Aragüés JM, Lopes L, Mascarenhas M. Prevalence, severity, and risk factors for erectile dysfunction in a representative sample of 3,548 portuguese men aged 40 to 69 years attending primary healthcare centers: results of the Portuguese erectile dysfunction study. *The journal of sexual medicine*. 2008 Jun 1;5(6):1317-24.<http://dx.doi.org/10.1111/j.1743-6109.2007.00745.x>

22. Lindau ST, Schumm LP, Laumann EO, Levinson W, O'Muirheartaigh CA, Waite LJ. A study of sexuality and health among older adults in the United States. *New England Journal of Medicine*. 2007 Aug 23;357(8):762-74. <http://dx.doi.org/10.1056/nejmoa067423>
23. Geirsson G, Thornorgeirsson G, Guethmundsson O, Einarsson G. [Risk factors and prevalence of erectile dysfunction amongst Icelandic men aged 45-75]. *Laeknabladid*. 2005 Dec;92(7-8):533-7.
24. Holden CA, McLachlan RI, Pitts M, Cumming R, Wittert G, Ehsani JP, de Kretser DM, Handelsman DJ. Determinants of male reproductive health disorders: the Men in Australia Telephone Survey (MATeS). *BMC Public Health*. 2010 Feb 24;10(1):1. <http://dx.doi.org/10.1186/1471-2458-10-96>
25. Basok EK, Atsu N, Rifaioglu MM, Kantarci G, Yildirim A, Tokuc R. Assessment of female sexual function and quality of life in predialysis, peritoneal dialysis, hemodialysis, and renal transplant patients. *International urology and nephrology*. 2009 Sep 1;41(3):473-81. <http://dx.doi.org/10.1007/s11255-008-9475-z>
26. Nowosielski K, Drosdzol A, Sipiński A, Kowalczyk R, Skrzypulec V. Diabetes mellitus and sexuality—Does it really matter?. *The journal of sexual medicine*. 2010 Feb 1;7(2pt1):723-35. <http://dx.doi.org/10.1111/j.1743-6109.2009.01561.x>
27. Bargiota A, Dimitropoulos K, Tzortzis V, Koukoulis GN. Sexual dysfunction in diabetic women. *Hormones (Athens)*. 2011 Jul 1;10(3):196-206. <http://dx.doi.org/10.14310/horm.2002.1309>



This work is licensed under a Creative Commons Attribution