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The Relationship Between Self-Efficacy and Sexual Function in Patients with Type II Diabetes

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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

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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 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 ($p<0.001$; $a=0.86$).[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.

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±SD	8.63±3.87		10.53±5.28		9.57±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

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

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 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.

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], Linda [22] and Gerisson. [23] They found that age can decrease blood 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 Basok[25] 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]

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-Eefficacy 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

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.

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