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Sexual dysfunction among married multiple sclerosis patients in Kingdom of Saudi Arabia 2020

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ABSTRACT

Background: Multiple sclerosis (MS) is a chronic inflammatory demyelinating disorder of the central nervous system characterized by episodic and progressive neurologic dysfunction resulting from inflammatory and autoimmune reactions. Sexual dysfunction (SD) is a common disorder in both male and female patients complaining of multiple sclerosis (MS).

Methods: A descriptive cross-sectional study was conducted including patients with MS attending Arfa MS Society in Saudi Arabia. Data were collected from participants using electronic pre-structured questionnaire. The questionnaire was uploaded online using social media platforms. Multiple sclerosis intimacy and sexuality questionnaire (MSISQ-19) was used to assess sexual dysfunction. Patient health questionnaire (PHQ-9) was used to assess patient's psychological health and depression.

Results: The study included 303 patients with multiple sclerosis whose ages ranged from 20 to 62 years old with mean age of 34.7±8.2 years old. About 75.6% took a long time to reach orgasm. Feeling sexual pleasure was reported by 73.3% of the patients and 70% reported that they had less interest or less desire for sexual activity. In general, the patients score regarding primary sexual dysfunction was 13.7 out of 25 (54.8%), 24.4 out of 45 for secondary sexual dysfunction (45.2%), and 12.6% out of 25 for tertiary sexual dysfunction (50.3%).

Conclusions: In conclusion, the study revealed that sexual dysfunction in multiple sclerosis patients is not a simple process. MS was associated with high sexual dysfunction with other psychological disorders affecting male and female patients equally regardless age and educational level.

Keywords: Depression, Determinants, Multiple sclerosis, Sexual activity, Sexual dysfunction

INTRODUCTION

Multiple sclerosis (MS) is a demyelinating disorder featured by that the protecting covers of the neural cells in the brain and spinal cord are damaged.¹ This damage interrupts the competence of portions of the nervous system to transmit signals, causing a range of signs and

symptoms, including physical, mental, and psychiatric problems.²⁻⁴ Double vision, one eye blindness, muscle weakness and sensation disturbance or coordination are of the specific symptoms for MS.^{5,6} MS clinically presented in different forms, with new symptoms either occurring in sporadic attacks (relapsing forms) or exaggerates over time (progressive forms).⁷ In between attacks, the disease may be asymptomatic; though, permanent neurological

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deficits often remain, especially as the advanced stages of the disease.^{6,7}

Multiple sclerosis is the most common immune-mediated disorder attacking the central nervous system.⁸ In 2015, nearly 2.3 million people were affected worldwide, with rates differing broadly in different regions and among different populations.^{9,10} In year 2019, about 18,900 people died from MS, up from 12,000 in 1990.^{11,12} The onset of disease reported mostly between the ages of twenty and fifty and is twice as common in women as in men.¹³

Sexual functioning in this population mostly associated with decreases in genital sensation, decreases in libido and vaginal lubrication, erectile dysfunction, and difficulties with orgasm.14 The causes of sexual dysfunction may be divided into three categories: primary, secondary, and tertiary. Primary sexual dysfunction is the result of damage to the central nervous system caused by MS. Motor and sensory pathways may be disconnected by damage to the neurons. This can result in a slowing of the impulses sent from the brain to the body and back. Symptoms that result can manifest as decreased sexual sensation, decreased vaginal lubrication, or erectile dysfunction. 15,16 In spite of the communality of sexual dysfunction in patients with MS, it is an often ignored and not assessed by healthcare staff. Patients also tend to underreport this problem. In addition, research in this area is limited. Sexual dysfunction affects young and older adults and it can have a significant impact on an individual's relationships and quality of life.

The current study aimed to assess the pattern and magnitude of sexual dysfunction among patients with MS in Saudi Arabia.

METHODS

A descriptive cross-sectional study was conducted including patients with MS attending Arfa MS Society in Saudi Arabia. Patients with MS who aged 18 to 60 years, married, or previously married and agreed to participate in the study were included. Data were collected using electronic questionnaire. The After obtaining permission from Institutional ethics committee, data collection started.

Data were collected from participants using electronic pre-structured questionnaire. The questionnaire was uploaded online using social media platforms by the researchers and their relatives during the period from 1^{st} June till 30^{th} of July 2020. All accessible and eligible patients fulfilling the inclusion criteria were invited to fill the attached tool. The researchers constructed the survey tool after intensive literature review and expert's consultation. Tool was reviewed using a panel of 5 experts for content validity. Tool reliability was assessed using pilot study of 30 participants with reliability coefficient (α -Cronbach's) of 0.76. The tool covered the

following data: participants' socio-demographic data like age, gender, education, marital status, children number, medical history, and drug history. Multiple sclerosis intimacy and sexuality questionnaire (MSISQ-19) was used to assess sexual dysfunction.¹⁷ This 19-item questionnaire asks you to rate how various MS symptoms have interfered with your sexual activity or satisfaction over the last 6 months. It used to assess primary, secondary, and tertiary sexual dysfunction. Also, patient health questionnaire (PHQ-9) was used to assess patient's psychological health and depression.¹⁸ Tools were translated into Arabic by 2 independent bilingual experts and then back translated to English. Correlation between scores of Arabic and original versions was done to assess content validity and it was found to be 0.93 for MSISO-19 scale and 0.86 for PHQ- scale which is high. Tool reliability was assessed based on pilot sample of 20 patients and Cronbach was found to be 0.81 for MSISQ-19 scale and 0.76 for PHQ scale. Total score for different domains of sexual dysfunction of MSISQ-19 was calculated and used for data analysis. Regarding PHQ-9, total score for the different items was summed and categorized into no depression (zero score), minimal depression (1-4), mild depression (5-9), moderate depression (10-14), moderately severe depression (15-19), and severe depression (20-27). All participants who fulfilled the inclusion criteria and filled the questionnaire were included consecutively during the study period till having more than 300 participants.

Data analysis

After data were extracted, it was revised, coded and fed to statistical software IBM SPSS version 22 (SPSS, Inc. Chicago, IL). All statistical analysis was done using two tailed tests. P value less than 0.05 was statistically significant. Descriptive analysis based on frequency and percent distribution was done for patient's characteristics, sexual dysfunction, and depression items. Mean with standard deviation were used for sexual dysfunction subscales while frequency percent were used for depression severity. Relation between sexual dysfunction scores and personal data was assessed using independent t-test and ANOVA test. Cross tabulation was used to assess compare the distribution of depression according to patient's personal data. Pearson chi-square test was used to test for distribution difference significance.

RESULTS

The study included 303 patients with multiple sclerosis whose ages ranged from 20 to 62 years old with mean age of 34.7±8.2 years old. Exact of 146 (48.2%) of the patients were males and 191 (63%) had children of which 38.7% had 1-2 children, 23% had 5 children or more. As for educational level, 66 (21.8%) had secondary level of education and 225 (74.3%) were university graduated. Considering drugs, 68 (22.4%) receive interferon beta and 47 (15.5%) receive Gelenia. Exact of 48 (15.8%) patients were on anti-depressant therapy.

Table 1: Biodemographic data for patients with multiple sclerosis, Saudi Arabia.

Bio-demograph	No.	%	
Age (in years)	<30 years	87	28.7
	30-39	143	47.2
	40+	73	24.1
Gender	Male	146	48.2
Genuer	Female	157	51.8
Have children	Yes	191	63.0
Have Cilluren	No	112	37.0
Number of children	1-2	74	38.7
	3-4	73	38.2
Ciliui en	5+	44	23.0
Educational level	Basic	12	4.0
	Secondary	66	21.8
ievei	University/more	225	74.3
	Interferon beta	68	22.4
	Obajio	23	7.6
	Gelenia	47	15.5
Drugs	Demethyl furamet	10	3.3
	Natalizomap	28	9.2
	Repef	42	13.9
	Others	85	28.1
Use anti-	Yes	48	15.8
depressants	No	255	84.2

Table 2 demonstrates multiple sclerosis intimacy and sexuality among patients with multiple sclerosis. Exact of 91.1% of the patients recorded that they have bowel symptoms by different degrees and 89.4% had concentration and memory problems. Also, 81.5% had muscle spasms or stiffness in the arms, legs, or the entire body, 81.5% felt of pain, burning or discomfort, 81.5% of male patients had erection problems while 75.6% took a long time to reach orgasm. Feeling sexual pleasure was reported by 73.3% of the patients and 70% reported that they had less interest or less desire for sexual activity. Exact of 68.6% worried about sexually satisfying my partner and 68.6% felt less confident in my sexual activity due to MS. Also, 64.7% of the patients had problem moving their body the way they want during sexual activity. In general, the patients score regarding primary sexual dysfunction was 13.7 out of 25 (54.8%), 24.4 out of 45 for secondary sexual dysfunction (45.2%), and 12.6% out of 25 for tertiary sexual dysfunction (50.3%) (Table 4).

Table 3 illustrates patients health among cases with multiple sclerosis. Exact of 93.4% of the patients reported that they feel tired and have no energy to do anything, 85.8% reported having poor appetite or overeating, 83.5% had sleeping troubles, and 80.5% had little interest or pleasure in doing things.

Table 2: Multiple sclerosis intimacy and sexuality among patients with multiple sclerosis, Saudi Arabia.

MSISQ-19 items		Never		Rarely		Occasionally		Almost always		Always	
		%	No.	%	No.	%	No.	%	No.	%	
I feel muscle spasms or stiffness in the arms, legs, or the entire body	56	18.5	57	18.8	101	33.3	42	13.9	47	15.5	
I have bladder symptoms	121	39.9	56	18.5	84	27.7	28	9.2	14	4.6	
I have Bowel symptoms	27	8.9	32	10.6	90	29.7	84	27.7	70	23.1	
Feeling dependency because of multiple sclerosis	104	34.3	61	20.1	89	29.4	33	10.9	16	5.3	
Tremors or shaking on my hands or body	92	30.4	70	23.1	77	25.4	34	11.2	30	9.9	
Feeling of pain, burning or discomfort	56	18.5	63	20.8	96	31.7	51	16.8	37	12.2	
Feeling that my body is less attractive	82	27.1	45	14.9	89	29.4	53	17.5	34	11.2	
Problem moving my body the way I want during my sexual activity	107	35.3	42	13.9	58	19.1	54	17.8	42	13.9	
I feel less feminine or masculine because of MS	119	39.3	42	13.9	80	26.4	31	10.2	31	10.2	
I have problems concentrating, thinking or memory	32	10.6	27	8.9	107	35.3	78	25.7	59	19.5	
Exacerbation or significant worsening of the disease	99	32.7	82	27.1	83	27.4	24	7.9	15	5.0	
Feeling numbness and paraesthesia of my genitals	110	36.3	57	18.8	71	23.4	37	12.2	28	9.2	
Feeling of being rejected sexually because of MS	143	47.2	35	11.6	73	24.1	23	7.6	29	9.6	
Worries about sexually satisfying my partner	95	31.4	39	12.9	87	28.7	37	12.2	45	14.9	
I feel less confident in my sexual activity due to MS	95	31.4	54	17.8	72	23.8	40	13.2	42	13.9	
Lack of interest or less desire for sexual activity	91	30.0	51	16.8	72	23.8	45	14.9	44	14.5	
I feel less sexual pleasure	81	26.7	55	18.2	70	23.1	47	15.5	50	16.5	
It took a long time to reach orgasm	74	24.4	45	14.9	62	20.5	59	19.5	63	20.8	
For women/ the vaginal secretions or moisture insufficient	39	25.8	20	13.2	51	33.8	21	13.9	20	13.2	
For men/ had difficulty getting or keeping an erection	27	18.5	21	14.4	41	28.1	25	17.1	32	21.9	

Health related items		Not at all		Several days		More than half the days		Nearly daily	
	No.	%	No.	%	No.	%	No.	%	
Little interest or pleasure in doing things	59	19.5	146	48.2	57	18.8	41	13.5	
Feeling down, depressed, or hopeless	81	26.7	133	43.9	40	13.2	49	16.2	
Trouble falling or stay asleep or sleep too much	50	16.5	111	36.6	61	20.1	81	26.7	
Feel tired and have no energy to do anything	20	6.6	131	43.2	75	24.8	77	25.4	
Poor appetite or overeating	43	14.2	139	45.9	59	19.5	62	20.5	
Feel bad about myself and disappointment for my family	133	43.9	93	30.7	39	12.9	38	12.5	
Trouble concentrating on things such as reading a book or watching TV	59	19.5	140	46.2	43	14.2	61	20.1	
I speak in a dim voice that others cannot perceive, or vice versa. I feel nervous, tense, and move more than usual	96	31.7	106	35.0	46	15.2	55	18.2	
Thoughts that you would be better off dead or hurt your self	239	78.9	38	12.5	11	3.6	15	5.0	

Table 3: Patients health among cases with multiple sclerosis, Saudi Arabia.

Also, feeling down, depressed, or hopeless was reported by 73.3% of the patients and 21.1% reported that they had thoughts that you would be better off dead or hurt themselves. Totally, only 2% of the patients had no depression while 10.9% had minimal depression, 32% had mil depression, 29.4% had moderate depression while severe depression was detected among 9.9% of the cases (Figure 2).

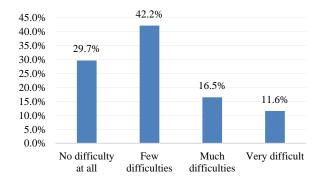


Figure 1: The extent to which problem causes difficulty in working, difficulty in caring for the home or difficulty in dealing with people and getting new friends.

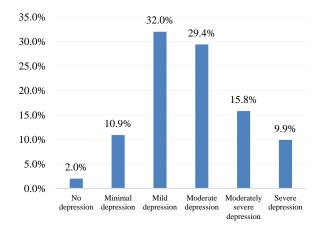


Figure 2: Depression among patients with multiple sclerosis, Saudi Arabia.

Figure 1 shows the extent to which problem causes difficulty in working, difficulty in caring for the home or difficulty in dealing with people and getting new friends. Exact of 29.7% of the cases had no difficulty at all. 42.2% had few difficulties, 16.5% reported many difficulties and 11.6% found it very difficult.

Table 4: Sexual dysfunction among patients with multiple sclerosis, Saudi Arabia.

MSISQ-19 subscales	Minimum	Mean	SD	Score %
Primary sexual dysfunction (5-25)	5-25	13.7	5.4	54.8
Secondary sexual dysfunction (9-45)	9-45	24.4	7.3	45.2
Tertiary sexual dysfunction (5-25)	5-25	12.6	5.4	50.3

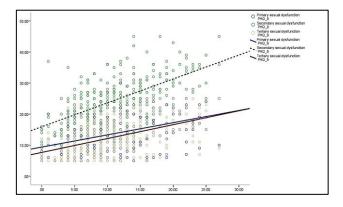


Figure 3: Scatter plot of correlation between PHQ and MSISQ-19 scores among MS patients.

Distribution of sexual dysfunction according to MS patient's personal data was reported in Table 5. As for age, it was significantly related with primary and tertiary sexual dysfunctions as patients above the age of 40 years had higher score for sexual dysfunction than those who aged less than 30 years (15.6 versus 11.8 and 13.8 versus 11.6, respectively; p=0.001 and 0.041). As for gender, male patients had significantly higher tertiary sexual dysfunction score than females (13.3 versus 11.8; p=0.016). Considering having children, those who had children reported higher primary sexual dysfunction than others (14.2 versus 12.9; p=0.037). As for educational level, patients with basic level of education had higher scores for secondary sexual dysfunction than highly educated patients (32.3 versus 23.9; p=0.001). Antidepressant intake was significantly associated with higher scores for all level of sexual dysfunction (16.4 versus 13.1, 28.1 versus 23.6, 14.8 versus 12.1).

Table 5: Distribution of sexual dysfunction according to MS patient's personal data.

Personal data	Prima sexual dysfur		Secondary sexual on dysfunction		Tertiary sexual dysfunction		
	Mean	SD	Mean	SD	Mean	SD	
Age in years	S						
<30	11.82	5.35	23.37	7.21	11.64	5.12	
30-39	13.85	5.08	24.35	7.31	12.50	5.22	
40+	15.63	5.51	25.70	7.14	13.79	5.84	
P value#	0.001*	:	0.129		0.041*		
Gender							
Male	13.53	5.50	24.45	7.77	13.34	5.47	
Female	13.85	5.38	24.34	6.79	11.85	5.23	
P value ^{\$}	0.602		0.904		0.016*		
Have childr	en						
Yes	14.19	5.17	24.62	7.23	12.56	5.36	
No	12.85	5.76	24.01	7.33	12.58	5.47	
P value ^{\$}	0.037*	:	0.482		0.975		
Number of	children	1					
1-2	13.53	4.79	24.85	7.34	12.34	4.87	
3-4	14.73	5.26	24.38	7.29	12.68	5.37	
5+	14.43	5.63	24.61	7.13	12.73	6.18	
P value#	0.353		0.927		0.901		
Educational	level						
Basic	17.00	6.25	32.25	7.31	14.58	7.03	
Secondary	14.24	5.47	24.65	8.37	12.50	5.62	
University/ more	13.36	5.33	23.90	6.68	12.48	5.23	
P value#	0.051		0.001*	:	0.419		
Use anti-dep	pressant	S					
Yes	16.46	5.96	28.13	6.89	14.81	5.96	
No	13.18	5.17	23.69	7.13	12.15	5.18	
P value ^{\$}	0.001*	:	0.001*	:	0.002*		

#: One Way ANOVA; \$: Independent t-test; * p<0.05 (significant).

Table 6 demonstrates distribution of depression according to MS patient's personal data. Only antidepressants were significantly associated with depression status of the patients as 97.9% of those who had anti-depressant were depressed compared to 85.1% of those who don't have the drugs (p=0.015).

Figure 3 shows scatter plot of correlation between PHQ and MSISQ-19 scores among MS patients. The graph

showed that there is significant positive correlation between patients' depression and sexual dysfunction (r is 0.43 for primary SD, 0.62 for secondary SD, and 0.49 for tertiary SD).

Table 6: Distribution of depression according to MS patient's personal data.

Personal data	No/ m depre	inimal ssion	Depr	ession	P value		
	No.	%	No.	%			
Age in years							
<30	9	10.3	78	89.7	0.660		
30-39	19	13.3	124	86.7	0.000		
40+	11	15.1	62	84.9			
Gender							
Male	22	15.1	124	84.9	0.271		
Female	17	10.8	140	89.2			
Have childre	Have children						
Yes	29	15.2	162	84.8	0.117		
No	10	8.9	102	91.1			
Number of o	Number of children						
1-2	12	16.2	62	83.8	0.264		
3-4	8	11.0	65	89.0	0.364		
5+	9	20.5	35	79.5			
Educational	level						
Basic	0	0.0	12	100.0			
Secondary	11	16.7	55	83.3	0.265		
University/	28	12.4	197	87.6			
more	20	12.4	197	87.0			
Use anti-dep	Use anti-depressants						
Yes	1	2.1	47	97.9	0.015*		
No	38	14.9	217	85.1			

P: Pearson χ2 test; * p<0.05 (significant).

DISCUSSION

The current study aimed to assess sexual dysfunction among patients with multiple sclerosis and its relationship with patient's psychological health. Also, to assess factors affecting sexual dysfunction among the study cases. Chronic medical conditions, including MS, are frequently associated with SD. 19 MS has a detrimental impact on the sexuality of both men and women. The current study included MS patients at different ages besides those who had and others who don't had children. The study revealed that more than 80% of the patients had had difficulty in erection either getting election or even keeping it. This is very high percentage which may be due to the disease itself or as side effect for the drugs used to treat MS.20 This was concordant with what reported by many research with varying rate from 23% to 91%. ²¹⁻²⁴ Regarding the sexual relation process, the study also revealed that nearly three quarters of the patients' tool long time to reach orgasm and they feel less sexual pleasure. This may be due to poor or absence of erection from male side and insipient vaginal secretion from

females' side (74%). The study also clarified many psychological aspects which play a vital role in failure of the sexual relation regardless other organic dysfunction. These factors include worry about satisfying partner (68%), feel less confidence in sexual activity (68%), and feeling of being sexually rejected due to MS (53%). These findings matched what was found by Orasanu et al.25 The researcher showed the most common severe symptoms were shared by both sexes: too long to achieve orgasm/climax (37.8%), inadequate lubrication/difficult erection (36.5%), less intense or pleasure with orgasm/climax (35.2%), lack of interest or desire (32.1%), problems moving the body (29.1%), less feeling or numbness in genitals (28.8%), feeling less confident (25.5%), and body less attractive (24.8%). Also, the findings were concordant with what was reported by Lew-Starowicz et al, and Kessler et al. 26,27 Totally, the study revealed that MS patients had poor primary, secondary or even tertiary sexual dysfunction (all had scores which nearly were 50% of the maximum). Primary in MS associated with neurologic changes in the central nervous system with disturbed sexual feelings and/or sexual response including impaired genital sensation (which was reported by 63% of the patients), reduced libido, difficulties with stimulation and orgasm, decreased vaginal secretions and problems with achieving or maintaining an erection (which all were reported among more than two thirds of the cases). 28,29 Neurologic symptoms caused by MS that indirectly harm the genital system, such as fatigue, muscle stiffness, weakness, or spasms, sphincteric dysfunction, difficult flexibility, tremor, incoordination, medications, concentration and intellectual problems, and numbness are the main factors behind secondary sexual dysfunction.^{28,29} Tertiary SD described the psychological aspects of MS which disturb sexuality and may include mood, body and self-image, depression, feeling less sexy and less confident about one's sexuality, fear of being rejected and sexual satisfaction worry.²⁸ All these aspects were reported by at least half of the current study patients.

As for psychological aspects, the current study revealed that more than 90% of the patients felt tired, and no energy to do anything. Also, cases complained of loss of appetite and poor sleep hygiene, lack of interest in doing daily activities with poor concentration and memory disturbance. Totally, nearly all of them had some degree of depression (98%), most were mild to moderate depression. Depression was high among all cases regardless age, gender, educational level or even drug intake. The study also revealed that there was a significant positive correlation between depression score and all types of sexual dysfunction. The correlation found between SD and depression may partially explain the high frequency of SD in MS patients. These findings were concise with other studies findings concerning effect of psychological status on sexual activity. 30-33

Irrespective of high effort, being cross sectional study with consecutive sampling may be potential source of bias. Also being self-administered questionnaire may be affected by participants perception and understanding of the questions making them may not give the full truth.

CONCLUSION

In conclusion, the study revealed that sexual dysfunction in multiple sclerosis patients is not a simple process, but interrelated aspects play the major role in modifying sexual activity (primary, secondary, and tertiary) among MS patients. MS was associated with high sexual dysfunction with other psychological disorders affecting male and female patients equally regardless age and educational level. Patients with MS need periodic psychological and physical assessment with health education to improve their quality of life including sexual aspects which may be the main worry among those cases. Detecting sexual dysfunction among the cases may help in improving this problem and patients quality of life by releasing high stress among MS patients.

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Ethical approval: The study was conducted in accordance with the Declaration of Helsinki, and the Ethics and Research Committee of the College of Medicine of King Khalid University approved the protocol

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