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Evaluation of sexual self-efficacy and sexual function in women with multiple sclerosis in Mashhad, Iran, in 2019: A cross-sectional study

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Keywords
Multiple Sclerosis; Self Efficacy; Sexual Health; Sexual Dysfunction; Cross-Sectional Studies; Iran

Abstract

Background: In chronic illnesses, sexual dysfunction (SD) is one of the most prevalent complaints. Sexual self-efficacy (SSE) is an individual's beliefs about his/her ability to perform an effective sexual function and be favorable to their partner. The aim of the present study was to assess SSE and sexual function in women with multiple sclerosis (MS).

Methods: This cross-sectional study was carried out in 2019 on 260 married women referring to the MS clinic and MS society of Khorasan-Razavi in Mashhad, Iran. The research population was selected using convenience sampling. The Sexual Self-Efficacy Questionnaire (SSEQ), Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 (MSISQ-19), and the Female Sexual Function Index (FSFI) were completed by the participants who had the inclusion criteria. The collected data were analyzed using descriptive statistics and Spearman's rank correlation coefficient in SPSS software.

Results: The participants had a mean age of 35.2 ± 8.4 years and their mean duration of MS was 4.46 ± 3.71 years. The findings showed a negative correlation between SSE and SD (r = -0.606; P = 0.001) and a positive correlation between SSE and sexual function (r = 0.644; P = 0.001). Moreover, MSISQ-19 and FSFI scores supported each other (r = -0.675; P = 0.001).

Conclusion: SD is prevalent among women with MS. Moreover, sexual function is substantially associated with SSE in these women.

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Introduction

In multiple sclerosis (MS), one of the most common complaints is sexual dysfunction (SD)[1] and the prevalence of sexual problems in MS patients is 15.4-80.0%, although this prevalence varies between men and women.[2,3] SD in MS patients is categorized into the 3 levels of primary, secondary, and tertiary.[3-5] Primary sexual disorders are caused by multiple sclerotic lesions of the central nervous system (CNS) and directly affect sexual response and sensation. These include decreased sensation in the genital organs and libido, difficulty with sexual stimulation and orgasm, decreased or no vaginal lubrication, and trouble in erection or maintaining it. Secondary sexual disorders are physical changes associated with MS that indirectly disrupt sexual responses. These changes are caused by symptoms that are related to the nervous system of the genital organs, including fatigue, muscle weakness, increased spasm, sphincter of Oddi dysfunction (SOD), and impaired mobility. Tertiary sexual disorders are caused by the psychological, emotional, social, and cultural effects of MS on the sexual function, for example changes in self-esteem, self-confidence, depression, and anger.[4,5]

Different regions of the world are divided into 3 categories of high, medium, and low prevalence according to the prevalence of MS. It has been suggested that MS is a geographic disease.[6] In a systematic review of the epidemiology of MS in Iran, the prevalence of MS in Iran was reported as 29.3 per 100000 population. The odds ratio of women to men in Iran is 3.04 (95% CI: 2.85–3.24; $P < 0.001$).[7] According to Ghandehari et al., Khorasan Razavi Province, Iran, has a prevalence of 12 per 100000 population, and a female/male ratio of 3.8 to 1.8.[6] MS often affects young adults, so in Iran, where young people comprise the country's largest population, the burden of illness can be substantial on the country's health system.[8]

Sexual self-efficacy (SSE) is a multidimensional construct that includes an individual's belief about his/her ability for effective sexual function, desirability for a sexual partner, assessment of ability, and self-efficacy in sexual performance.[9] SSE is essential to having a successful sexual function.[10] SSE is the most important concept in the field of sexual health and is influenced by several factors such as socio-demographic status, physical disorders, marital status, sexual history, and psychological factors.[11] According to a study conducted in Poland with the aim of examining the relationship between demographic characteristics, signs and symptoms of MS, and SD in women with MS,[12] SD was observed in 27.27% of participants. The occurrence of SD was related to older age at diagnosis, lower education, and living in small towns. The women's sexual function was evaluated using the Female Sexual Function Index (FSFI). In another study in 2013 in Kermanshah Province, Iran, the Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 (MSISQ-19) was used to examine the sexual problems of women with MS and assess their relationship with the quality of life (QOL) of the participants.[13] According to the findings of this study, the most common sexual problems were orgasmic disorder, pain, burning sensation and discomfort, and concern about spouse's sexual satisfaction.[13] In a systematic review in 2009,[14] the most common symptoms of SD were orgasmic disorder, loss of libido, and pain during intercourse. Increased sexual activity has been rarely reported.[15] In the study by Dehghan-Nayeri et al., 81.9% of women with MS had SD.[16] The most common SD was delayed orgasm, increased spasms, and concerns about spouse's satisfaction and the least disorder was related to decreased feelings of femininity. 74.7%, 38.5%, 44.5% of participants had primary, secondary, and tertiary SD. In another study with the aim of comparing SSE and sexual function between fertile and infertile women, undesirable SSE was associated with abnormal sexual function in both groups and this relationship was more significant in infertile women.[17]

Investigations on the inter-personal nature of chronic illnesses have illustrated that couples' marital and sexual satisfaction often decreases after a chronic illness attack.[18]

It has been recognized that the degree of physical impairment has a significant effect on the sexual life of patients living with neurological disorder due to the various psychological, biological, and social features of disease-related physical inability.[19,20]

It has also been noted that a higher degree of physical impairment contributes to the fear of rejection, decreased self-image, lack of confidence, and higher stress levels in the interaction between patients and their sexual partners, which may disturb their emotional and sexual functioning.[3,21] In Iran, sexuality issues remain unanswered and neglected in women with MS. Even women who do not have chronic illnesses avoid talking about

sexual issues.[22]

The goal of this study was to investigate SSE and sexual functioning in Iranian women with MS. According to the findings of these studies, it is possible to follow an effective approach to eliminate or minimize SD, and thereby, enhance patients' QOL.

Materials and Methods

The present cross-sectional research was performed on women diagnosed with MS and referred to the MS comprehensive clinic and MS society of Khorasan-Razavi in Mashhad, Iran, for treatment and medication during October 2018-August 2019. The study participants were selected using convenience sampling method. The inclusion criteria were being married, 18-50 years of age, approved diagnosis of MS by a neurologist based on the McDonald criteria (2010),[23] ability to understand and speak Persian, duration of more than 6 months since MS diagnosis, and providing a written informed consent. The participants were excluded if they were postmenopausal, were addicted to drugs or alcohol, had another pre-existing major chronic illness and/or psychiatric disorder (e.g., hypertension, epilepsy, diabetes, and cardiovascular disease), consumed drugs affecting sexual function (anti-depressant, anti-hypertension, sexual enhancement/reducing drugs), corticosteroid therapy during the last month, being in relapse phase, relapse of the disease in the last 4 weeks, pregnancy, lactation, had experienced a recent sever life crisis, and had a history of pelvic surgery.

Using a pilot sample, the variance was estimated, and then, using Cochran's simple random sampling formula, sample size was estimated.

$$\hat{n} = \frac{z^2 s^2}{d^2} = (1.96)^2 \times (0.16) / (0.05)^2 = 245.86 \approx 246$$

The sample size for women was estimated as 185 people since the proportion of women with the disease is 3 times that of men. Considering the possible attrition of the samples, the sample size was determined as at least 200 women with MS.

Instruments used for data collection included a demographic information form, the MSISQ-19, the FSFI, and the Sexual Self-Efficacy Questionnaire (SSEQ).

The demographic information form included the patient's age, spouse's age, marriage length, disease duration, patient's education, patient's occupation, spouse's education, method of contraception, and number of children.

The MSISQ-19 is a questionnaire with 19 items that measure the effect of MS symptoms on sexual activity and satisfaction of individuals in the last 6 months. Each item of the MSISQ-19 is categorized as one of the 3 levels of primary (direct physical 5Q: 12-16-18-19-20), secondary (indirect physical 9Q: 1-2-3-4-5-6-8-10-11), and tertiary (psychosocial 5Q: 7-9-13-14-15). Each item is scored on scale ranging from 1 (never; never disturbs my sexual function or satisfaction) to 5 (always; always disturbs my sexual function or satisfaction). Higher scores indicate more SD.[4] The validity of this questionnaire has been confirmed in previous studies.[20,24,25] Mohammadi et al. validated the Persian version of this questionnaire.[26] According to this study, the Cronbach's alpha coefficient of the whole scale was 0.90 and of the primary, secondary, and tertiary subscales was 0.85, 0.90, and 0.78, respectively. There was a significant relationship between the questionnaire subscales, which is in line with the findings of the study by Sanders et al.[4]

The FSFI designed by Rosen et al. is used to assess women's sexual function over the past month. This scale was validated in a group of women with reduced sexual arousal. The questionnaire has 19 items in 6 subscales, including libido (items 1-2), sexual arousal (items 3-6), lubrication (items 7-10), orgasm (items 11-13), satisfaction (items 14-16), and pain (items 17-19). Fakhri et al. have confirmed the validity and reliability of this questionnaire in Iran.[27] The total score of the FSFI ranges between 1.6 and 36. In each subscale, a score of less than 65% (< 3.9) is indicative of performance impairment. A higher score indicates improved sexual function.[28] The reliability of this questionnaire in the present study was verified (79%) by using the test-retest approach on 20 participants over a 2-week interval.[26] The FSFI has been standardized in Iran by Fakhri et al. and its psychometric indicators have been confirmed.[29]

The SSEQ was designed on the basis of Schwartz's general SSEQ by Vaziri and Lotfi Kashani. This instrument consists of 10 items scored on a 4-point Likert scale (ranging from 0 to 3). The questionnaire's minimum and maximum scores are 0 and 30, respectively. The score ranges of 0-10, 11-20, and 21-30 are representative of low, moderate, and high self-efficacy levels, respectively. Cronbach's alpha (r = 0.86), Spearman-Brown multiplication (r = 0.811), and the

Gutmann method (r = 0.811) were used to obtain the reliability of this questionnaire. In addition, the instrument's validity has been verified using the content validity method in Iran.[30]

After obtaining an approval from the Research Committee of Mashhad University Medical Sciences, the researcher referred to the Khorasan-Razavi MS Comprehensive Clinic and MS Society and invited all women with MS to participate in the research. Then, the research objectives were explained to every eligible subject. The participants were asked to complete the questionnaires (demographic information form, MSISQ, FSFI, and SSEQ) after providing a written informed consent.

The participants were assured that their data would remain confidential and that they could be informed of the study results. In total, 260 women were enrolled in the study. The research questionnaires were completed by all participants and there was no sample loss.

The data were analyzed in SPSS software (version 22, IBM Corp., Armonk, NY, USA) using descriptive statistics and Spearman's rank order correlation coefficient (according to the non-normal distribution of the data based on the Kolmogorov-Smirnov test). All P values of less than 0.05 were considered statistically significant.

Results

According to the data analysis, the mean age of the participants was 35.2 ± 8.4 years. The majority of the respondents were employed (n = 164; 63%) and had a diploma or university degree (n = 208; 80%). The subjects' mean number of live children was 2.0 ± 1.25 and most of them used non-hormonal methods of contraception (i.e., condom) (Table 1). As demonstrated in table 1, MSISQ score is related to the patient's age (P = 0.010), and spouse's age (P = 0.001) and education level (P = 0.011).

Based on MSISQ and FSFI, 150 (57.7%) and 214 (82.3%) women met the criteria for SD (Table 2).

The results indicate that the mean scores of SD (MSISQ), sexual function (FSFI), and SSEQ were 37.82 ± 10.42, 23.66 ± 4.42, and 13.80 ± 6.72, respectively (Table 3).

The minimum and maximum scores of SD were 21 and 70, and the minimum and maximum scores of sexual function were 4.8 and 33.7, respectively. Moreover, the minimum and maximum SSE scores were, respectively, 1 and 30 (Table 3).

Based on the MSISQ results, 52 (20.0%), 115 (44.2%), and 68 (26.2%) individuals had first, second, and third degree disorder, respectively.

Table 1. Demographic characteristics of patients with multiple sclerosis (MS) and their relationship with total Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 score (MSISQ-19) (n = 260)

Variable	Levels	n (%)	Mean ± SD	Range	P*
Age (year)	18-30	85 (32.7)	35.21 ± 8.36	18-53	0.010
	31-40	103 (39.6)			
	> 40	72 (27.7)			
Spouse's age (year)	20-30	56 (21.5)	39.57 ± 9.50	21-70	0.001
	31-40	78 (30.0)			
	41-50	101 (38.8)			
	> 50	25 (9.6)			
Length of marriage (year)	0.5-10	103 (39.6)	13.22 ± 7.66	0.8-34	0.575
	11-20	101 (38.8)			
	> 20	56 (21.5)			
Education level	Elementary	52 (20.0)			0.011
	Secondary	66 (25.4)			
	University	142 (54.6)			
Occupation	Housewife	95 (36.5)			0.630
	Employed	164 (63.1)			
	Retired	1 (0.4)			
Contraception method	Sterilization	7 (2.7)			0.070
	Hormonal	93 (35.8)			
	Non-hormonal	103 (39.6)			
	Withdrawal	55 (21.2)			
	None	2 (0.8)			
Number of children			1.99 ± 1.25	0-6	
MS duration (years)	0.5-10	232 (89.2)	4.46 ± 3.71	0.8-20	0.069
	11-20	28 (10.8)			

*One-way ANOVA

Table 2. Sexual dysfunction (SD) levels among Iranian women with multiple sclerosis (MS) based on the Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 (MSISQ-19)

SD criteria	Never [n (%)]	Rarely [n (%)]	Occasionally [n (%)]	Almost always [n (%)]	Always [n (%)]	Mean ± SD (1-5)	SD (%)
Primary level							
Reduced feeling or numbness in my genital 12	128 (49.2)	86 (33.1)	35 (13.5)	11 (4.2)	0 (0)	1.73 ± 0.85 (1-4)	4.2
Lack of sexual interest or desire 16	99 (38.1)	73 (28.1)	66 (25.4)	22 (8.5)	0 (0)	2.04 ± 0.99 (1-4)	8.5
Less intense or pleasurable orgasms or climaxes 17	99 (38.1)	67 (25.8)	61 (23.5)	33 (12.7)	0 (0)	2.10 ± 1.60 (1-4)	12.7
Delayed orgasm or climax 18	87 (33.5)	71 (27.3)	67 (25.8)	31 (11.9)	4 (1.5)	2.20 ± 1.08 (1-5)	13.4
Inadequate vaginal wetness or lubrication 19	89 (34.2)	74 (28.5)	64 (24.6)	32 (12.3)	1 (0.4)	2.16 ± 1.05 (1-5)	12.7
Secondary level							
Muscle tightness or spasms in my arms, legs, or body 1	39 (15.0)	104 (40.0)	80 (30.8)	37 (14.2)	0 (0)	2.44 ± 0.91 (1-4)	14.2
Bladder or urinary symptoms 2	82 (31.5)	98 (37.7)	66 (25.4)	14 (5.4)	0 (0)	2.05 ± 0.89 (1-4)	5.4
Bowel symptoms 3	93 (35.8)	96 (36.9)	61 (23.5)	10 (3.8)	0 (0)	1.95 ± 0.86 (1-4)	3.8
Feelings of dependency because of MS 4	104 (40.0)	78 (30.0)	54 (20.8)	24 (9.2)	0 (0)	1.99 ± 0.99 (1-4)	9.2
Tremors or shaking in my hands or body 5	76 (29.2)	92 (35.4)	68 (26.2)	22 (8.5)	2 (0.8)	2.16 ± 0.97 (1-5)	9.3
Pain, burning, or discomfort in my body 6	71 (27.3)	87 (33.5)	73 (28.1)	23 (8.8)	6 (2.3)	2.25 ± 1.03 (1-5)	11.1
Problems in moving my body during sexual activity 8	133 (51.2)	78 (30.0)	36 (13.8)	12 (4.6)	1 (0.4)	1.73 ± 0.89 (1-5)	5.0
Problems with concentration, memory, or thinking 10	89 (34.2)	82 (31.5)	73 (28.1)	15 (5.8)	1 (0.4)	2.07 ± 0.94 (1-5)	6.2
Exacerbation or significant worsening of MS 11	117 (45.0)	83 (31.9)	51 (19.6)	9 (3.5)	0 (0)	1.81 ± 0.87 (1-4)	3.5
Tertiary level							
Feeling that my body is less attractive 7	135 (51.9)	82 (31.5)	28 (10.8)	13 (5.0)	2 (0.8)	1.71 ± 0.90 (1-5)	5.8
Feeling less feminine due to MS 9	155 (59.6)	73 (28.1)	26 (10.0)	6 (2.3)	0 (0)	1.55 ± 0.77 (1-4)	2.3
Fear of being rejected sexually because of MS 13	111 (42.7)	75 (28.8)	37 (14.2)	30 (11.5)	7 (2.7)	2.03 ± 1.13 (1-5)	14.2
Worries about sexually satisfying my partner 14	92 (35.4)	81 (31.2)	51 (19.6)	33 (12.7)	3 (1.2)	2.13 ± 1.07 (1-5)	13.9
Feeling less confident about my sexuality due to MS 15	141 (54.2)	83 (31.9)	25 (9.6)	11 (4.2)	0 (0)	1.64 ± 0.82 (1-4)	4.2

SD: Sexual dysfunction (score ≥ 4 in any MSISQ-19 item); MS: Multiple sclerosis

Table 3. Descriptive statistics of questionnaires and their subscales

Variable	Mean ± SD	Range
MSISQ levels		
Primary level	10.25 ± 4.30	5-22
Secondary level	18.50 ± 4.72	11-34
Tertiary level	9.06 ± 3.20	5-20
Total score	37.80 ± 10.42	21-70
Sexual function domains		
Desire (Libido)	3.64 ± 0.85	1.2-6.0
Excitement	3.67 ± 0.97	0-6
Lubrication	3.84 ± 0.90	0-5.7
Orgasm	3.78 ± 0.89	0-6
Satisfaction	4.30 ± 1.12	1.2-6.0
Pain	4.43 ± 0.93	0-6
Total score	23.66 ± 4.42	4.8-33.7
Sexual self-efficacy		
Total score	13.80 ± 6.72	1-30

MSISQ: Multiple Sclerosis Intimacy and Sexuality Questionnaire-19; SSE: Sexual self-efficacy

As can be seen, there was the highest level of disorder at the second level (indirect disorders including fatigue, muscle weakness, increased spasm, SOD, and impaired mobility) (Tables 2 and 3). In sexual function domains (FSFI), the most frequent disorder was in the desire domain (68.0%; n = 177). The highest prevalence of SD was seen in excitement (64.2%), orgasm (50.0%), lubrication (48.1%), satisfaction (36.2%), and pain (25.0%). According to the SSEQ, 35.4%, 49.6%, and 15.0% of participants had low, moderate, and high SSE, respectively (most of the participants were moderate in SSE).

According to the results of Spearman's test, SSE had a negative correlation with SD (r = -0.606; P = 0.001) and its levels (Table 4). Furthermore, there was a significant positive relationship between SSE and sexual function (r = 0.644; P = 0.001) and its domains (Table 5). According to our analysis, MSISQ and FSFI scores supported each other (r = -0.675; P = 0.001) (Table 5). This means that the lower score of MSISQ and the higher score of FSFI are indicative of the better SSE of the individual.

Table 4. Relationship of sexual dysfunction (SD) levels with sexual self-efficacy (SSE)

SD levels	SSE	P
	Correlational coefficient	
Primary level	-0.611	0.001
Secondary level	-0.441	0.001
Tertiary level	-0.443	0.001
Total score	-0.606	0.001

SD: Sexual dysfunction; SSE: Sexual self-efficacy

Discussion

This cross-sectional study was performed to evaluate the prevalence of and relationship between SSE and sexual function in women with MS. The mean age of women with MS in the present study was 35.21 years, which is consistent with other Iranian studies.[31-34] In addition, SD is affected by patient's age, and spouse's age and education. The finding related to education is in conformity with the results obtained in some previous studies.[25,32,35] However, Dehghan-Nayeri et al.[16] and Ashtari et al.[36] found no meaningful relationship between SD and education.

In line with the current study results, Dehghan-Nayeri et al. found no significant relationship between SD and contraceptive methods in women with MS,[16] but Roya et al. reported a significant relationship between these variables.[32]

Moreover, Dehghan-Nayeri et al. have shown a significant association between the total score of MSISQ-19 and the patient's age that is consistent with the present study findings.[16] However, in contrast with the current study results, they found no relationship between spouse's age and total MSISQ-19 score.[16]

The results of this study confirm the previous reports that SD is a common problem among MS patients.[16,25,32,35] Based on MSISQ and FSFI scores, 57.7% and 82.3% of women met the criteria for SD. In the study by Askari et al., the prevalence of SD was lower than that in the present study (67.0% vs. 82.3%). This difference is due to the different cut-off points in the studies (26.5 vs. 28).[30]

According to the results of the present study, secondary SD was the most common level of SD (44.2%) (Table 2). Corticospinal and cerebellar dysfunction, hormone dysregulation secondary to inflammation or neurologic lesions in the hypothalamus, and medications commonly prescribed for MS-associated symptoms, such as baclofen, gabapentin, amantadine, tricyclic antidepressants, and selective serotonin reuptake inhibitors, can have negative sexual effects.[37] This result contrasts with the findings of some studies that have found primary SD to be more common among MS patients.[16,25,32,34,38,39] Some of these studies had examined patients with more progressive MS compared to the present study. Moreover, some of them were performed in other countries.[25] Perhaps, this contrast in results is due to differences in the cultural context of participants, their access to counseling facilities, and the study sample size.

According the results of the present study, delay in orgasm, muscle tightness or spasms, and fear of being rejected sexually were, respectively, the most common symptoms among the symptoms of primary, secondary, and tertiary SD (Table 2). These results were confirmed by that of the studies by Dehghan-Nayeri et al.,[16] Rahnama et al.,[34] and Merghati-Khoei et al.[35]

In some studies, the most prevalent complaint was at the primary level and related to orgasmic delay,[16,32,35] whereas in the present study the most common complaint was at the secondary level (muscle tightness or spasms). This disparity may be related to the fact that in these studies antidepressants are probably used by participants, and one of the side effects of these drugs is delayed orgasm.[35] Furthermore, the cut-off point of the MSISQ in some studies was considered to be equal to or greater than 3, whereas in the present study, based on the MSISQ Application Guide, the cut-off point was equal to or greater than 4. For this reason, the mean total score of the MSISQ and all 3 levels of SD has been reported as higher in some studies than in the present study.[32,35] The reason for the higher scores in the study by Roya et al. may be the partial overcoming of patriarchy in the Azeri culture.[32]

The high percentage of primary and tertiary SD in the present study (20.0% and 26.2%, respectively) has revealed the complex and multidimensional nature of SD in women with MS.[20,40] Based on the results of the present study, sexual function was estimated as poor in Iranian women with MS based on the FSFI (23.66 ± 4.42). In the 6 domains of sexual function, the most disorder was related to sexual desire. Kisic-Tepavcevic et al., in a study aimed at examining SD in 93 patients with MS, reported similar results.[21] In another study by Scheepe et al., women with SD scored low on all subdomains of the FSFI.[41] In particular, desire, arousal, lubrication, and the ability to achieve orgasm were affected.[41] In the study by Kooranian et al., the highest dysfunction was reported in sexual satisfaction[42] and in the study by Mohammadi et al. in the arousal domain.[33] This difference could be due to different sample sizes and different levels of disability in participants.

The results of our study revealed that the rate of SSE in women with MS was moderate (13.80 ± 6.72). This finding is consistent with the results of a recent study by Ghasemi et al. measuring SSE in MS patients.[39]

Based on our results, SSE and sexual function were positively correlated. Thus, the improvement of each one improves the other. In fact, SSE anticipates sexual activity and there is a general relationship between stress in sexual activity and SD.[43] In addition, in a study by Kafaei Atrian et al., which examined the relationship between SSE and sexual function in married women, SSE had a strong relationship with sexual function and some of its subscales including libido, orgasm, lubrication, and sexual arousal.[44]

Reissing et al. have confirmed that there is a linear relationship between SSE and sexual function in a study on sexual compatibility, sexual self-education, and sexual attitude among 84 young women.[45] They also stated that the enhancement of SSE can solve the essential sexual problems of women.[45] This finding has been confirmed in other studies.[39,46-48]

However, there was no significant positive association between SSE and sexual function in a study carried out by Ziaei et al.[49] They studied 79 married women with the mean age of 75.50 ± 31.94 years using only 4 questions to identify SSE, but the current study was performed with 10 SSE questions on 260 MS patients with a mean age of 35.21 ± 8.36 years. The discrepancy in results may be due to the difference in participants' age, sample size, and questionnaire type.

Generally, sexual function is a complex process influenced by various factors including SSE.[50] In this study, SD was assessed using 2 questionnaires (MSISQ and FSFI). The strengths of this study were relatively large sample size, no dropout, detailed assessment of SSE and sexual function in the participants, and collection of data from two referral centers.

The present study had some limitations. Information bias must be considered because all data related to the presence and severity of SD symptoms were self-reported. Furthermore, the participants were married women; because of the cultural context of Iran, we could not include widowed, divorced, and single women in the study.

Application: A majority of individuals are reluctant to explore their sexual and intimacy issues.[21] Although sexual functioning in MS is recognized as a key determinant of QOL, very few MS patients speak to health professionals about their sexual problems.[51,52] The results of several studies have shown that most patients with MS benefited from well-informed sexual counseling with their doctors.[53,54]

Furthermore, it has to be noted that healthcare

professionals identified several barriers in managing SD in their patients.[55]

The most frequently mentioned difficulties included personal shame, time limitation, lack of appropriate expertise, and concerns related to inability to manage the issues raised.[55] Assessment and treatment of SD should begin soon after MS diagnosis and continued over time.[56] One of the commonest barriers to reporting SD in patients with MS is not being asked about sexual problems.[38]

These findings can direct clinicians toward a more cautious and sensitive approach when assessing MS-related symptoms in order to increase their attention to sexual issues. Nevertheless, an emerging awareness of the importance of evaluating sexual functioning in MS leads to the fact that the screening of SD in MS could be considered as one of the indicators of comprehensive clinical assessment of MS.[21] Moreover, available evidence suggests that SSE is necessary for the sexual function and safe sexual behavior.[57]

One of the strategies to reduce problems and to make improvements is sex therapy. Teaching suitable ways of establishing an effective relationship with the sex partner can lead to better relationships and appropriate confronting of future failures.[58]

Many different types of healthcare providers can assess SD in MS, including physicians (urologists, gynecologists, neurologists, physiatrists, psychiatrists, and primary care physicians), nurses, psychologists, social workers, physical therapists, occupational therapists, and marriage counselors. Teamwork among providers may improve the possibility of addressing SD in these patients.[56]

Conclusion

Based on the results of this study, SD is prevalent in women with MS and needs special attention. Sexual function in all its domains is clearly associated with SSE in women with MS. Evidently, the influence of cultural factors on these circumstances cannot be ignored. The findings of this study can be used in programs to promote sexual function and SSE in women with MS. In this regard, it is recommended that future researches explore the effect of educational and counseling interventions on SSE and its association with sexual function in women with MS.

Conflict of Interests

The authors declare no conflict of interest in this study.

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