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Sexual Dysfunction in Iranian Azeri Women With Multiple Sclerosis: Levels and Correlates

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Abstract

Objectives: Focusing on the associated factors of sexual dysfunction is essential for promoting the quality of life in multiple sclerosis (MS) patients. Therefore, the present study aimed to assess sexual dysfunction, along with its levels and correlates in women with MS.

Materials and Methods: A total of 150 women aged 18-45 who referred to the MS society of Tabriz (Iran) were recruited in this cross-sectional study using a convenience sampling method during March-June 2018. The data were collected employing demographic characteristics questionnaire, Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 (MSISQ-19), Fatigue Severity Scale (FSS), and Beck Depression Inventory-Short Form (BDI-13) Items. Then, a neurologist rated the level of disability by the Expanded Disability Status Scale (EDSS). Finally, multivariate linear regression was applied to analyze the data.

Results: The mean (standard deviation) age of MS patients was 36.64 (5.93) and the mean score of MSIS was 47.30 (14.92), ranging from 19 to 95. In addition, among the MS patients, 133 (88.6%) women reported sexual dysfunction (SD) including 125 (83.3%) women with primary SD, 85 (56.6%) women with secondary SD, and 55 (36.6%) women with tertiary SD. The results of multivariate regression analyses showed that predictive variables for SD in women with MS included education, depression, and spouse cooperation in home affairs.

Conclusions: In general, SD is a common manifestation of MS. Women with MS should be screened and treated for depression. Further, the findings demonstrated that implementing support strategies by the husband could reduce SD in women with MS.

Keywords: Sexual dysfunction, Intimacy and sexuality, Multiple sclerosis

Introduction

Multiple Sclerosis (MS) is the most common demyelinating diseases, which is thought to be due to the interaction of genetic and environmental factors (1). In addition, MS is an increasingly debilitating disease and is characterized by plaques in the white matter of the brain or spinal cord (2) and has four types including relapsing-remitting MS, primary progressive MS, secondary progressive MS, and progressive relapsing MS (3).

Currently, almost 2.3 million people worldwide suffer from MS and the prevalence of MS is 3 to 4 times higher in women than in men (1,2,4). Further, MS typically occurs in the age range of 20-40 (5), therefore, women of reproductive age are the most vulnerable (6, 7) so that the divorce rate among such women is higher (8).

Sexual dysfunction (SD) is widespread among MS patients, with a prevalence rate of 40%-85% (9-11). It refers to a problem occurring during the sexual response cycle that prevents the couple from satisfying through sexual activity (12).

Changes in the sexual function of MS patients are classified into three levels. Primary SD originates from neurological changes in the central nervous system and directly affects sexual functions such as arousal and orgasmic problems, less feeling or numbness of genital, the lack of sexual desire, and inadequate vaginal wetness. Secondary SD can be the result of physical changes that indirectly affect sexual function. Its physical symptoms include urinary tract disorder, bowel problems, cramps and muscle weakness, cognitive problems, and difficulty in moving. Furthermore, tertiary SD derives from psychological and sociocultural aspects of the disease that can interfere with sexual desire and function. Fear of being sexually rejected, less confident about sexuality, and worry about the body attractiveness are among the symptoms of this level of SD (13,14).

However, among other symptoms of MS, SD is still underreported (15,16). Previous studies indicated that

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women who suffer from MS experience SD far more than male patients (1,2,4), therefore, SD assessment seems important for young married women with MS (17). In addition, investigating SD-related factors is of great importance for promoting the quality of life of women with MS (18). Accordingly, a clearer understanding of the relationships would enable physicians to manage SD appropriately.

Despite a male-dominant culture, there is a gap in the literature about SD of Azeri women with MS and women's difficulties in expressing their own feelings and sexual experiences. Therefore, evaluating the sexual experiences of women with MS in various sociocultural perspectives is a necessity. It is worth mentioning that the majority of MS patients are young women in childbearing age and MS has a disabling nature and a high prevalence among the patients, which leads to low quality of life. As a result, the current study was conducted to determine the SD, along with its levels and correlates in women with MS. Understanding the characteristics and correlations of SD results in designing appropriate interventions.

Materials and Methods

Study Design and Participants' Characteristics

This research was a cross-sectional study conducted during March-June 2018. The target population included all married women with MS who referred to the MS Association of Tabriz, one of the five biggest cities in the northwest of Iran. The inclusion criteria encompassed sexually active married women of reproductive age (between 18-45 years old), and passing at least 6 months from the definite diagnosis of MS. The exclusion criteria were pregnant and lactating women, those hospitalized due to the progression or relapse of the disease during the last 6 months, the presence of other diseases affecting sexual function such as thyroid problems, diabetes mellitus and cardiovascular diseases, as well as the consumption of medications like anti-depressants, oxybutynin, clonazepam, gabapentin, beta-blockers, and sildenafil that affect sexual function and activity.

Sample Size

Similar to the study by Celik et al (10), the present study used the following formula to calculate the sample size:

$$n = \frac{Z_{1-\frac{\alpha}{2}}\delta^2}{d^2}$$

where, m = 42.6, SD = 12.9, α = 0.05 with a confidence interval of 95% and d = 2.13, and the sample size was estimated to be 150.

Sampling

After the study was approved by the Ethics Committee of the Tabriz University of Medical Sciences (IR.TBZMED.REC.1396.115), sampling was conducted using a convenience method. The researcher referred to MS Association of Tabriz, evaluated the eligibility of the participants based on the inclusion and exclusion criteria, and then provided the patients with information about the purpose, the method of the study, and the confidentiality of their information. In the case of willingness to participate in the study, informed consent forms were assigned by the participants. Then, 150 women with MS completed the demographic characteristic questionnaire, MS intimacy and sexuality questionnaire-19 (MSISQ-19), Fatigue Severity Scale (FSS), and Beck depression inventory-short form items (BDI-13). The level of disability was measured through the Expanded Disability Status Scale (EDSS) by a neurologist as well.

Data Collection Instruments

A demographic characteristic questionnaire, MSISQ-19, EDSS, FSS, and BDI-13 were utilized to collect the required data. The demographic characteristics questionnaire included items about the patients' age, the number of children, education, occupation, family income, residence status, marital duration, the duration of illness, the frequency of intercourse during the last month, contraceptive method, the type of MS, smoking and alcohol addictions, the history of domestic violence, the level of emotional support, and spouse cooperation in home affairs.

The MSISQ-19 contained 19 questions about primary SD (questions 12 & 16-19), secondary SD (questions 1-6, 8, 10, & 11), tertiary SD (7, 9, & 13-15) and the responses were based on a five-point Likert-type scale including "1 = never", "2 = rarely", "3 = occasionally", "4 = almost always", and "5 = always". Obtaining a score of 4 or 5 on each item was considered as SD. Moreover, the range of the total scores varied from 19 to 95 and higher scores indicated more SD (13). The Iranian version of MSISQ-19 (19) was found to have high internal consistency (Cronbach α = 0.9).

In the present study, physical disability in MS women was measured by a neurologist using the EDSS the score of which ranged from 0 to 10 and a score of more than 7 belonged to individuals who were limited to a wheelchair. The EDSS was found to have adequate reliability (intraclass correlation coefficient = 0.86) (20).

Additionally, the intensity of fatigue was assessed using the FSS. The scale contained 9 items and rated on a 7-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree and the total score was between 9 and 63.

FSS was validated in Iran and was found to have high internal consistency (Cronbach's α = 0.96) and adequate reliability (intraclass correlation coefficient = 0.93) (21).

In addition, Beck depression inventory short form encompassed 13 items and each item had four option responses scoring from 0 to 3. The BDI-13 scores ranged from 0 to 39. The depression was considered normal, mild, moderate, and severe if it was within the range of 0-4, 5-7, 8-15, 16-39, respectively. BDI-13 was validated in Iran by

Rajabi in 2005 (with an internal consistency of 0.89).

Statistical Analysis

Data were analyzed using the SPSS software, version 25.0. Descriptive statistics including the mean and frequency (percent) were applied to describe the socio-demographic characteristics and MS intimacy, along with sexuality and its levels. Further, bivariate tests including independent *t* test, Pearson correlation coefficient, and one-way ANOVA were used to determine the relationship between MS intimacy and sexuality with socio-demographic characteristics, depression, disability, and fatigue. Those variables with a *P* value of less than 0.2 in the bivariate tests entered into the multivariate linear regression model using Backward strategy.

Results

Table 1 represents the demographic characteristics of MS patients and its relationship with SD. The mean (standard deviation) of the age of MS patients and their spouses is 36.64 (5.93) and 43.15 (8.16), respectively. Most of the participants (92.6%) are households and most of the women (65.3%) suffer from relapsing-remitting MS type. The contraceptive method of 54.6% of women is considered a withdrawal. About one-third of the participants (32.6%) report experiencing some types of

Table 1. Demographic Characteristics of MS Patients and its Relationship With Sexual Dysfunction

Demographic Characteristics	No. (%)	MSISQ *P* value	Primary SD *P* value	Secondary SD *P* value	Tertiary SD *P*value
Age (y)*	36.64 (5.93)	0.25**	0.16**	0.17**	0.38**
Spouse's age (y) *	43.15 (8.16)	0.41**	0.32**	0.66**	0.56**
Number of children*	1.69 (0.99)	0.82#	0.76#	0.49#	0. 71#
Length of marriage (y) *	16.56 (7.11)	0.34**	0.13**	0.33**	0.28**
Disease duration*(y)	4.78 (2.15)	0.31**	0.44**	0.01**	0. 37**
Frequency of intercourse during the last month*	2. 34 (1.86)	0.01 #	0.01 #	0.05 #	0.03 #
Education		0.04 #	0.19 #	0.1 #	0.05 #
Illiterate	3 (2%)				
Elementary/guidance	60 (40%)				
High school/diploma	48 (32%)				
Academic	39 (26%%)				
Occupation		0.59&	0.78&	0. 45&	0.31&
Housewife	139 (92.6%)				
Employed	11 (7.4%)				
Income Status		0.26 #	0.11 #	0.36 #	0.05 #
Insufficient	55 (36.6%)				
Relatively sufficient	84 (56%)				
Sufficient	11 (7.3%)				
Contraception method		0. 24 #	0.19 #	0.03 #	0. 30 #
IUD	13 (8.6%)				
Condom	35 (23.3%)				
Tubectomy	20 (13.3%)				
Withdrawal	82 (54.6%)				
MS types		0.22 #	0.04 #	0.03 #	0.003 #
RRMS	98 (65.3%)				
PPMS	28 (18.6%)				
SPMS	10 (6.6%)				
PRMS	14 (9.3%)				
EDSS*	7.39 (3.56)	0.005**	0.13**	0.002**	0.02**
Fatigue*	39.83 (10.6)	0.01**	0.01**	0.04**	0.01**
Depression*	7.53 (4.8)	<0.001**	<0.001**	<0.001**	<0.001**
Intimate partner violence		0.006#	0.004#	0.1#	0.006#
Physical	11 (7.3%)				
Sexual	17 (11.3%)				
Verbal	21 (14%)				
Total	**150**				

Note. *Mean (Standard Deviation); **Pearson Correlation; # ANOVA; &Independent *t* test.
MSISQ: Multiple sclerosis intimacy and sexuality questionnaire-19; SD: Sexual dysfunction; IUD: Intrauterine device; MS: Multiple sclerosis; PPMS: Primary progressive multiple sclerosis; SPMS: Secondary progressive multiple sclerosis; PRMS: Progressive relapsing multiple sclerosis; EDSS: Expanded Disability Status Scale.

Table 2. The Mean Score of Multiple Sclerosis Intimacy and Sexuality and its Dimensions

Domains	Mean (Standard Deviation)*	Number of Questions	Min-Max Scoring
Primary SD	15.70 (4.07)	5	5 - 25
Secondary SD	20.63 (7.61)	9	9-45
Tertiary SD	10.96 (5.28)	5	5 - 25
Total score	47.30 (14.92)	19	19-95

SD, sexual dysfunction.

violence (i.e., physical, sexual, or verbal) by their spouses.

Furthermore, the mean (standard deviation) score of MS intimacy and sexuality is 47.30 (14.92), ranging from 19 to 95 (Table 2). As shown, among the MS patients, 133 (88.6%) women report SD including 125 (83.3%) women with primary SD containing anorgasmia (n = 114, 76%), less pleasurable orgasms (n = 106, 70.6%), the lack of sexual desire (n = 95, 63.3%), inadequate vaginal wetness (n = 43, 28.6%), and numbness in the genitals (n = 14, 9.3%).

Moreover, 85 (56.6%) of cases report secondary SD including problems with concentration and memory (n = 51, 34%), pain, burning, or discomfort with the body (n = 41, 27.3%), intestinal symptoms (n = 30, 20%), problems with moving the body during sexual activity (n = 30, 20%), muscle tightness in the body, (n = 27, 18%), urinary symptoms (n = 19, 12.6%), feelings of dependency (n = 16, 11%), tremors in the hands (n = 11, 7.3%), finally, and exacerbation or significant worsening of the disease (n = 8, 5.3%).

Tertiary SD is highlighted by 55 (36.6%) patients, encompassing feeling less feminine (n = 41, 27.3%), feeling of less attractiveness of the body (n = 33, 22%), feeling of less confident about sexuality (n = 30, 20%), a fear of being rejected sexually (n = 22, 14.6%), and worries about sexually satisfying the partner (n = 19, 12.6%).

Based on the results of bivariate analysis provided in Table 1, there is a significant relationship between MS intimacy and sexuality with education ($P = 0.04$), the frequency of intercourse during the last month ($P = 0.01$), depression ($P < 0.001$), disability ($P = 0.005$), fatigue ($P = 0.01$), emotional support by the spouse ($P = 0.02$), spouse's cooperation in home affairs ($P = 0.01$), and intimate partner violence ($P = 0.006$).

Additionally, the determinants of SD and its levels in women with MS are presented in Table 3. After entering the variables with $P < 0.2$ in the multivariate linear regression model, the predictive variables for MS intimacy and sexuality include education, depression, and spouse's cooperation in home affairs, which totally explain 57.7% of the observed variance.

In bivariate analysis, significant relationships are observed between primary SD with depression ($P < 0.001$), fatigue ($P = 0.01$), secondary and tertiary SD ($P < 0.001$), the frequency of intercourse ($P = 0.01$), spouse violence ($P = 0.004$), and the type of MS ($P = 0.04$). In addition, secondary SD is related to the disease duration ($P = 0.01$), depression ($P < 0.001$), fatigue ($P = 0.04$), disability ($P = 0.002$), primary and tertiary SD ($P < 0.001$), contraceptive method ($P = 0.03$), the type of MS ($P = 0.03$), spouse's emotional support ($P = 0.04$), and spouse's cooperation in home affairs ($P = 0.004$). Further, a significant association is found between the tertiary SD with depression ($P < 0.001$), fatigue ($P = 0.01$), disability ($P = 0.02$), primary and secondary SD ($P < 0.001$), the frequency of intercourse ($P = 0.03$), the type of MS ($P = 0.03$), spouse's emotional support ($P = 0.004$), alcohol consumption by the spouse ($P = 0.01$), and the spouse violence ($P = 0.006$), the details of which are provided in Table 1.

As demonstrated in Table 3, after entering the variables with $P < 0.2$ in the multivariate linear regression model, the predictive variables for primary SD in women with MS contain age, depression, and tertiary SD, which in total explained 56% of the variance. Additionally, the predictive variables for secondary SD included contraceptive methods, MS type, disability, disease duration, and tertiary SD, which account for 73.5% of the variance. The predictive variables for tertiary SD are the frequency of intercourse, income, MS type, along with primary and secondary SD, which explain 71% of the observed variance (Table 3).

Discussion

This study investigated the levels and correlates of SD in Iranian Azeri women with MS. Among the MS patients, 88.6% of women reported primary (83.3%), secondary (56.6%), and tertiary (36.6%) SD. The high rate of SD shows that SD is a common problem among women with MS, which is in line with the results of previous studies (9,23-25). In addition, multivariate regression analyses revealed that predictive variables for the sexual disorders of women with MS included education, depression and spouse's cooperation in home affairs so that the SD was lower in women with high education levels. This finding is in conformity with the results obtained by some previous studies (23,24). However, Ashtari et al found no meaningful relationship between SD and education (9).

In line with this study, Demirkiran et al and Dehghan-Nayeri et al concluded that the total score of MS intimacy and sexuality questionnaire-19 was correlated with depression (23, 24). Further, the findings of another study by Marck et al confirmed the correlation between SD of MS patients with depression (25). Moreover, the findings of a study conducted in Canada showed that after controlling the age, gender, disease duration, and the severity of depression, the sexual satisfaction significantly increased over time in MS patients with positive support from the spouse (26), which corroborate with the results of the current study. It seems that the implementation of supportive strategies by sexual partners can reduce SD in MS patients.

Table 3. Determinants of Sexual Dysfunction and its Levels in Women With MS

Variable	β (CI 95%)	*P*
Education (Reference: Academic)	Reference	-
Illiterate	10.8 (2.20-21.31)	<0.001
Elementary/guidance	6.13 (1.61-11.65)	0.03
High school/diploma	3.76 (1.71-5.24)	0.04
Depression	2.40 (1.80-2.99)	<0.001
Spouse's cooperation in home affairs (Reference: yes)	Reference	-
No	2.67(1.33-5.01)	0.02
MSISQ Adjusted R^2: 0.577%		
Age	0.12 (0.001-0.24)	0.04
Depression	0.24 (0.03-0.46)	0.02
Tertiary SD	0.39 (0.19-0.58)	<0.001
Primary SD Adjusted R^2:0.56		
Disease duration	0.49 (0.26-0.71)	<0.001
Disability	0.19 (0.05-0.33)	0.008
Tertiary SD	0.80 (0.58-0.91)	<0.001
Contraception method (Reference: Tubectomy)	Reference	-
IUD	-0.29 (-8.37-7.79)	0.94
Condom	2.06 (-3.56 to 7.68)	0.46
Withdrawal	5.50 (3.15-7.85)	<0.001
MS type (Reference: relapsing-remitting MS)	Reference	-
Progressive types	12.37 (7.39-17.35)	<0.001
Secondary SD Adjusted R^2: 0.735		
MS type (Reference: relapsing-remitting MS)	Reference	-
Progressive types	3.32 (1.20-5.57)	0.03
Primary SD	0.39 (0.14-0.64)	0.003
Secondary SD	0.30 (0.17-0.43)	<0.001
Frequency of intercourse during the last month	2.95 (1.31-5.58)	0.02
Income status (Reference: insufficient)	Reference	-
Relatively sufficient	-0.25 (-0.53-0.04)	0.09
Sufficient	-2.01(-3.50 to 0.51)	0.01
Tertiary SD Adjusted R^2:0.71		
Primary SD Adjusted R^2:0.56		

MS: Multiple sclerosis; SD: Sexual dysfunction; IUD: Intrauterine device; MSISQ: Multiple sclerosis intimacy and sexuality questionnaire-19.

Further, primary SD was the common type of SD that is consistent with the findings of the other previous studies (9,23,24). Furthermore, anorgasmia and less pleasurable orgasms were found to be common among primary SD variables of the present. Similarly, in other studies in Iran, orgasm problems were the most common SD in women with MS (9,24) while in other studies by Demirkiran et al and Mark et al, the lack of sexual desire was the most widespread complaint (23, 25). It is noteworthy that almost 20% of samples in the study by Marck et al were men (25) and participants in the study of Demirkiran et al were older compared to those of the current study (23).

In this study, predictive variables for primary SD in women with MS included age, depression, and tertiary SD. Overall, SD is believed to increase with age and chronic disease as MS can exacerbate this effect (27, 28). Based on the results of the present study, the correlation between primary and tertiary SD showed the effect of psychosocial factors on SD of women with MS.

Moreover, predictive variables for secondary SD encompassed contraception method (withdrawal), the progressive types of MS, disease duration, disability, and tertiary SD. Similar to the results of the present study, Ashtari et al observed a significant relationship between secondary and tertiary SD with the progressive types of MS (9). Therefore, a higher frequency of secondary SD in women with progressive types of MS may be due to disability and psychological effects that accompany these cycles. Additionally, Ashtari et al found disability as one of the factors contributing to secondary SD (9).

The results of the current study demonstrated a significant correlation between disease duration and secondary SD while not showing such a relationship with primary SD, which is in line with the findings of some previous studies (9,29). The physical problems are supposed to enhance with increasing the disease duration (14,30).

Contrary to the findings of the current study, Dehghan-Nayeri et al found no significant relationship between SD and contraceptive methods in MS patients (24).

In this study, predictive variables for tertiary SD contained no sexual intercourse during the last month, income, the type of MS, and primary and secondary SD. Therefore, having a pleasurable sexual relationship can strengthen the sexual function concerning the relationship between reduced sexual activity and tertiary SD (psychological factors).

Similar to the findings of previous studies (23,24), SD was lower among MS patients with upper-class income in the current study. It may be due to more access to sexual and health services by increasing income status.

The use of standard questionnaires was considered as the strength of this study while the design of the study was one of the limitations of this study. A cross-sectional study cannot indicate the causal relationship between the variables. In addition, the sampling method of MS patients was another limitation of this study. All patients were selected from the MS Association in Tabriz, Iran, which limits the generalizability of the results. Therefore, future studies are required in this respect, which are suggested to introduce effective interventions in order to improve the sexual function of MS patients.

Implication for Practice

The findings of this study indicate the need for strategies

to effectively manage depression in MS-affected women with SD and improve their husbands' support.

Conclusions

In general, SD is a common symptom of MS. Predictive variables for SD in women with MS were education, depression, and spouse cooperation in home affairs. Thus, women with MS should be screened and treated for depression. Finally, the implementation of support strategies by the husband is believed to prevent or reduce SD in MS patients.

Conflict of Interests

The authors declare that there is no conflict of interests.

Ethical Issues

The Ethics Committee of Tabriz University of Medical Sciences approved the present study (IR.TBZMED.REC.1396.115).

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