Relationship Between Bowel/bladder, and Sexual Dysfunction With Health-Related Quality of Life in Women With Multiple Sclerosis (MS).

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Relationship between bowel/bladder, and sexual dysfunction with health-related quality of life in women with multiple sclerosis (MS).

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Abstract:

Background: Bladder, bowel, and sexual dysfunction are among common complications in patients with multiple sclerosis (MS). These complications could affect the quality of life. The goal of this study is to assess bowel, bladder, and sexual dysfunction and quality of life in married women with MS.

Methods: One hundred and twenty-seven married women with MS were enrolled. They fill the valid and reliable Persian version of the Female sexual function index (FSFI), SF-36, Bladder Control Scale (BLCS), and The Bowel Control Scale (BWCS).

Results: Mean age and disease duration were 38±7.9 and 8.4±6.5 years, respectively. There was significant negative correlation between SF-36 and BWCS (r=-0.25, p=0.001) and BLCS (r=-0.36, p=0.001) and significant positive correlation between FSFI and SF-36(r=0.27, p=0.004).

There was a significant negative correlation between age and total FSFI (r=-0.34, p<0.001) and also between EDSS and FSFI (r=-0.21, p=0.01).

By considering 26.55 as the cut-off point of FSFI, we found that women with sexual dysfunction had a more impaired quality of life and more bowel control problems. Linear regression analysis showed that EDSS and BLCS are independent predictors of SF-36.

Conclusion: Bowel/bladder and sexual dysfunction have negative impacts on the quality of life in women with multiple sclerosis.

Keywords: Sexual dysfunction, multiple sclerosis, quality of life

Introduction:

Multiple sclerosis (MS) is an inflammatory disease of the central nervous system, affecting women more than men(1). Health related quality of life (QOL) is reduced in patients with MS. Different factors are considered to play role in decreasing QOL in these patients such as bladder, bowel and sexual dysfunction which occur any time during the disease course(2-4).

The prevalence of bladder dysfunction is between 50-80% and near 96% of MS patients will have bladder dysfunction after 10 years of disease onset(2, 4-6). Location of the plaques and lower extremity pyramidal tract findings are important factors in developing bladder dysfunction(5).

Bowel dysfunction is reported in 40-68% of MS patients (7-9) and constipation, diarrhea, impaction, and incontinence are different forms of bowel problems in MS cases.

Bowel dysfunction has a negative impact on QOL in these patients(3).

Sexual dysfunction (SD) is one of the concerns in women with MS which is ignored in most countries due to cultural and religious issues. The prevalence ranges from 27-95% and a recent meta-analysis estimated the pooled prevalence as 55%(10-12). Physical, psychological, pain, spasticity, fatigue, body image, and medications play role in sexual dysfunction occurrence(5). Literature showed that patients with SD had lower scores on all the subscales of MSQOL(13).

There are little studies regarding bowel, bladder and sexual dysfunction and quality of life in Iranian women with MS. So, we designed this study to assess bowel, bladder and sexual dysfunction and quality of life in these women.

Methods:

This cross-sectional study was done in MS clinic of Sina hospital of Tehran university of medical sciences between March and October 2020.

Inclusion criteria were: women 18-50 years of age, married, no history of major disease such as diabetes mellitus, bowel and bladder cancers or inflammatory diseases, major depression and anxiety disorders and other serious condition.

All participants filled informed consent forms according the Declaration of Helsinki and the study had been approved by the local ethics committee of Tehran medical university with the code number IR.TUMS.NI.REC.1399.018.

We asked the patients to fill valid and reliable Persian version questionnaires including Female sexual function index (FSFI), SF-36, Bladder Control Scale (BLCS), and The Bowel Control Scale (BWCS).

FSFI includes 19-item self-report questions to measure female sexual function providing scores on six domains as well as a total score. These domains include: desire, arousal, lubrication, orgasm, satisfaction, and pain. Total score is the sum of all items(14).

The SF-36 questionnaire consists of 36 questions in eight aspects. All questions are scored on a scale of 0–100. Physical functioning, role limitations due to physical health, role limitations due

to emotional problems, energy/fatigue, emotional well-being, social functioning, pain, and general health are eight subscales and higher the score, the better quality of life(15).

The Bladder Control Scale (BLCS) is a structured, four-item, self-reported questionnaire and three of these items are scored on a Likert scale from 0 (not at all) to 4 (daily), and the fourth item (during the past 4 weeks, how much have bladder problems restricted your overall lifestyle) is scored from 0 (not at all) to 10 (severely). The total score ranges between 0-22 and higher the score, higher bladder control problems(16).

The Bowel Control Scale (BWCS) includes five items measuring bowel dysfunction. Four of these items are scored on a Likert scale from 0 (not at all) to 4 (daily), and the fifth item (during the past 4 weeks, how much have bowel problems restricted your overall lifestyle) is scored from 0 (not at all) to 10 (severely). Total score ranges between 0-26, higher the score, greater bowel control problems(16).

Data regarding age, disease duration, Expanded Disability Status Scale (EDSS), education and occupation status were recorded.

All data were analyzed using SPSS software version 23 (SPSS

Inc., Chicago, IL, USA). Data is presented as Mean ±SD for continuous or frequencies for categorical variables.

Correlation coefficients were calculated. Linear regression analysis by considering SF-36 score as dependent and FSFOF, Bowel/bladder scores as independent variables was done.

p value less than 0.05 was considered significant.

Results:

One hundred and twenty-seven married women with MS enrolled. Mean age and disease duration were 38±7.9 and 8.4±6.5 year, respectively. Basic characteristics of the patients are shown in table 1.

Table 1: Basic characteristics of the patients

variables	**Findings**
Age (year)	38±7.9
Disease duration (Year)	8.4±6.5
EDSS	1.6±1.1
Education level <12 years ≥ 12 years	 32(32.4%) 95(67.6%)
Occupation Employed Unemployed	 16(12.4%) 111(87.4%)

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117 Mean scores of the questionnaires are shown in table 2.

118 Table 2: Mean scores of the questionnaires

Variable	**Findings**
BWCS	4.7±4.7
BLCS	4±5.7
Total FSFI	**21.6±7.4**
Desire	3.1±1
Arousal	3.1±1.3
Lubrication	3.7±1.6
Orgasm	3.4±1.7
Satisfaction	3.9±1.4
Pain	4.1±1.8
Total SF-36	**51.7±17.6**
Physical functioning	60.6±25.7
Role limitations due to physical health	34.3±35
Role limitations due to emotional problems	39.9±37.2
Energy/fatigue	41.2±18.4
Emotional well-being	50.5±18.4
Social functioning	62.2±22.8

Pain	66.7±20.5
General health	57.2±17

There was significant negative correlation between SF-36 and BWCS (r=-0.25, p=0.001) and BLCS (r=-0.36, p=0.001) and significant positive correlation between FSFI and SF-36(r=0.27, p=0.004).

There was significant negative correlation between age and total FSFI (r=-0.34, p<0.001) and also between EDSS and FSFI (r=-0.21, p=0.01).

By considering 26.55 as the cut-off point of FSFI, we found that women with sexual dysfunction had more impaired quality of life and more bowel control problems (table 3).

Table 3: Comparison of different questionnaires in women with and without SD.

Variables	≤26.55 N=91	>26.55 N=36	P value
SF-36	47.8±15.7	62.3±17.9	<0.001
BWCS	5.6±4.7	2.6±4	0.005
BLCS	4.6±6.3	2.9±4.9	0.2

Linear regression analysis showed that EDSS and BLCS are independent predictors of SF-36(Table 4).

Table 4: Linear regression analysis by considering SF-36 as depend variable and other variables as independent.

Variables	**B**	**P value**
EDSS	-5.9	0.002
BWCS	-0.17	0.7
BLCS	-0.99	0.01
FSFI	0.46	0.08
Disease duration	2.1	0.66

Discussion:

The result of the current study showed that there was a significant negative correlation between bowel and bladder dysfunction and quality of life and more bowel/bladder dysfunction, more impaired quality of life. In a previous study which was conducted by Vitkova et al, 223 MS patients were enrolled and their results confirmed our findings. They found a significant negative

correlation between bowel/bladder scores and mental as well as physical aspects of quality of life(9).

Like our findings, there was a significant positive correlation between FSFI and SF-36 score which shows that women with a better sexual function, have better quality of life. We also found that women with SD (FSFI<26.55) had lower SF-36 score as well as higher BWCS and BLCS which shows that women with MS who have SD have more difficulties regarding bowel/bladder control.

The prevalence of SD in this study was 71.7% while in a recent study by Nazari et al the prevalence is reported as 70.3% while in other studies it is reported between 22.2-87.1%(11, 17-20).The difference is due to different inclusion criteria's as well as different instruments applied for SD evaluation.

Bladder dysfunction is common in MS cases and studies show that 75% of patients develop voiding dysfunction which affects their sexual activity(21). Fragala et al reported that SD was 91% in cases with detrusor over-activity and 66% in cases without(22).

Age is an important item for SD. As the results show, we found significant a negative correlation between age and total FSFI which indicates that older age is associated with lower FSFI score (SD). Gumus et al and Gava et al found negative correlation between age and FSFI in women with MS(23, 24).

When women get older, they experience dyspareunia and diminished libido more than before(12).

Physical disability of MS patients which is shown with EDSS, had negative correlation with FSFI. In a previous study, Konstantinidis at al, reported significant negative correlations between

FSFI and its subscales except for desire and satisfaction(25). Alehashemi et al, and Ghajarzadeh et al reported significant negative correlation between EDSS and FSFI which confirms our findings as well as Gumus ans Gava(23, 24, 26, 27).

The most impaired parts of SD in MS women are desire and arousal which could be based on psychological difficulties in these women as they suffer from depression, anxiety and fatigue more than healthy subjects(28, 29). Young et al reported SD in MS women in relation to depression, fatigue and physical function

(30).

There was a significant negative correlation between SF-36 and BWCS (and BLCS and a significant positive correlation between FSFI and SF-36.

Linear regression analysis also demonstrated that EDSS is a strong negative predictor of SF-36, and bladder score is another negative predictor.

This could show that bladder dysfunction should be considered in patients with MS more and more.

This study had some strength. We evaluated SD, bowel and bladder dysfunction simultaneously and we also considered quality of life.

Conclusion: Our study showed that there was a significant negative correlation between bowel, bladder and sexual dysfunction and quality of life and more bowel/bladder and sexual dysfunction, more impaired quality of life.

Declarations:

- **Ethics approval and consent to participate**

We are confirming that informed consent was obtained from all subjects according the Declaration of Helsinki, all of the subjects were married women over 18 years old and all of them were qualified to give consent, so they filled the consent form individually. The study had been approved by the local ethics committee of Tehran medical university with the code number IR.TUMS.NI.REC.1399.018.

- **Consent for publication**

We obtained permission from patients in the consent form to publish their information without mentioning their names.

- **Authors' contributions**

M.A. & A.N.M prepared idea and proposal, M.A., A.N.M, S.N. and S.H collected data, M.A and S.Z.E.R. analyzed data and prepared primary draft. all authors read and proofed final article.

- **Availability of data and materials**

The data that support the findings of this study are available on request from the initial and corresponding author (M.A. & S.Z.E.R)

- **Competing interests**

We have no competitive interests with any institution or individual.

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- **Authors' information**

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References:

1. Nazari F, Shaygannejad V, Mohammadi Sichani M, Mansourian M, Hajhashemi V. Sexual dysfunction in women with multiple sclerosis: prevalence and impact on quality of life. BMC urology. 2020;20(1):15.
2. Nortvedt M, Riise T, Myhr K, Landtblom A-M, Bakke A, Nyland H. Reduced quality of life among multiple sclerosis patients with sexual disturbance and bladder dysfunction. Multiple Sclerosis Journal. 2001;7(4):231-5.
3. Khan F, Pallant JF, Shea TL, Whishaw M. Multiple sclerosis: prevalence and factors impacting bladder and bowel function in an Australian community cohort. Disability and rehabilitation. 2009;31(19):1567-76.
4. Nortvedt M, Riise T, Frugaård J, Mohn J, Bakke A, Skår A, et al. Prevalence of bladder, bowel and sexual problems among multiple sclerosis patients two to five years after diagnosis. Multiple Sclerosis Journal. 2007;13(1):106-12.
5. Hawker KS, Frohman EM. Bladder, bowel, and sexual dysfunction in multiple sclerosis. Current Treatment Options in Neurology. 2001;3(3):207-13.
6. Azadvari M, Emami Razavi SZ, Shahrooei M, Naser Moghadasi A, Azimi A, Farhadi-Shabestari HR. Bladder Dysfunction in Iranian Patients with Multiple Sclerosis. Journal of multidisciplinary healthcare. 2020;13:345-9.
7. Chia Y-W, Fowler CJ, Kamm MA, Henry MM, Lemieux M-C, Swash M. Prevalence of bowel dysfunction in patients with multiple sclerosis and bladder dysfunction. Journal of neurology. 1995;242(2):105-8.
8. Bakke A, Myhr K, Grønning M, Nyland H. Bladder, bowel and sexual dysfunction in patients with multiple sclerosis--a cohort study. Scandinavian journal of urology and nephrology Supplementum. 1996;179:61-6.
9. Vitkova M, Rosenberger J, Krokavcova M, Szilasiova J, Gdovinova Z, Groothoff JW, et al. Health-related quality of life in multiple sclerosis patients with bladder, bowel and sexual dysfunction. Disability and rehabilitation. 2014;36(12):987-92.
10. Solmaz V, Ozlece HK, Him A, Güneş A, Cordano C, Aksoy D, et al. Evaluation of the association between sexual dysfunction and demyelinating plaque location and number in female multiple sclerosis patients. Neurological research. 2018;40(8):683-8.
11. Bartnik P, Wielgoś A, Kacperczyk J, Pisarz K, Szymusik I, Podlecka-Piętowska A, et al. Sexual dysfunction in female patients with relapsing-remitting multiple sclerosis. Brain and behavior. 2017;7(6):e00699.
12. AZIMI A, HANAEI S, SAHRAIAN MA, MOHAMMADIFAR M, RAMAGOPALAN SV, GHAJARZADEH M. Prevalence of Sexual Dysfunction in Women with Multiple Sclerosis: a Systematic Review and Meta-Analysis. Maedica. 2019;14(4):408.
13. Tepavcevic D, Kostic J, Basuroski I, Stojsavljevic N, Pekmezovic T, Drulovic J. The impact of sexual dysfunction on the quality of life measured by MSQoL-54 in patients with multiple sclerosis. Multiple Sclerosis Journal. 2008;14(8):1131-6.
14. Fakhri A, Pakpour AH, Burri A, Morshedi H, Zeidi IM. The Female Sexual Function Index: translation and validation of an Iranian version. The journal of sexual medicine. 2012;9(2):514-23.
15. Montazeri A, Vahdaninia M, Mousavi SJ, Omidvari S. The Iranian version of 12-item Short Form Health Survey (SF-12): factor structure, internal consistency and construct validity. BMC public health. 2009;9(1):341.
16. Ritvo PG, Fischer JS, Miller DM, Andrews H, Paty D, LaRocca N. Multiple sclerosis quality of life inventory: a user's manual. New York: National Multiple Sclerosis Society. 1997;65.
17. Marck CH, Jelinek PL, Weiland TJ, Hocking JS, De Livera AM, Taylor KL, et al. Sexual function in multiple sclerosis and associations with demographic, disease and lifestyle characteristics: an international cross-sectional study. BMC neurology. 2016;16(1):210.

18. Merghati-Khoei E, Qaderi K, Amini L, Korte JE. Sexual problems among women with multiple sclerosis. Journal of the neurological sciences. 2013;331(1-2):81-5.
19. Lew-Starowicz M, Rola R. Prevalence of sexual dysfunctions among women with multiple sclerosis. Sexuality and disability. 2013;31(2):141-53.
20. Cordeau D, Courtois F. Sexual disorders in women with MS: assessment and management. Annals of physical and rehabilitation medicine. 2014;57(5):337-47.
21. DasGupta R, Fowler CJ. Sexual and urological dysfunction in multiple sclerosis: better understanding and improved therapies. Current opinion in Neurology. 2002;15(3):271-8.
22. Fragala E, Russo G, Di Rosa A, Giardina R, Privitera S, Favilla V, et al. Relationship between urodynamic findings and sexual function in multiple sclerosis patients with lower urinary tract dysfunction. European Journal of Neurology. 2015;22(3):485-92.
23. Gumus H, Akpinar Z, Yilmaz H. Effects of multiple sclerosis on female sexuality: a controlled study. The journal of sexual medicine. 2014;11(2):481-6.
24. Gava G, Visconti M, Salvi F, Bartolomei I, Seracchioli R, Meriggiola MC. Prevalence and psychopathological determinants of sexual dysfunction and related distress in women with and without multiple sclerosis. The journal of sexual medicine. 2019;16(6):833-42.
25. Konstantinidis C, Tzitzika M, Bantis A, Nikolia A, Samarinas M, Kratiras Z, et al. Female sexual dysfunction among Greek women with multiple sclerosis: correlations with organic and psychological factors. Sexual medicine. 2019;7(1):19-25.
26. Alehashemi A, Mostafavian Z, Dareini N. Sexual function in Iranian female multiple sclerosis patients. Open access Macedonian journal of medical sciences. 2019;7(8):1303.
27. Ghajarzadeh M, Jalilian R, Mohammadifar M, Sahraian MA, Azimi A. Sexual function in women with multiple sclerosis. Acta Medica Iranica. 2014:315-8.
28. Ghajarzadeh M, Sahraian MA, Fateh R, Daneshmand A. FATIGUE, DEPRESSION AND SLEEP DISTURBANCES ININIRANIAN PATIENTS WITH MULTIPLE SCLEROSIS. 2012.
29. Askari F, Ghajarzadeh M, Mohammadifar M, Azimi A, Sahraian MA, Owji M. Anxiety in patients with multiple sclerosis: association with disability, depression, disease type and sex. Acta Medica Iranica. 2014:889-92.
30. Young CA, Tennant A, Group TS. Sexual functioning in multiple sclerosis: Relationships with depression, fatigue and physical function. Multiple Sclerosis Journal. 2017;23(9):1268-75.