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RESEARCH PAPER

Health-related quality of life in multiple sclerosis patients with bladder, bowel and sexual dysfunction

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Abstract

Purpose: Bladder, bowel and sexual dysfunction are often overlooked symptoms in patients with multiple sclerosis (MS) and can be associated with lower health-related quality of life (HRQoL). The aim is to explore the association of bladder, bowel and sexual dysfunction with HRQoL in MS patients stratified by disease duration ($\leq$5 and >5 years) and controlled for clinical and sociodemographic variables. *Methods*: The study comprised 223 MS patients (mean age 38.9 $\pm$ 10.8 years, 67% female, mean EDSS 3.0 $\pm$ 1.5) who filled out the Short-Form-36 Health Survey, the Bladder Control Scale, the Bowel Control Scale and the Incapacity Status Scale. The relationships between the variables were analyzed with multiple linear regression using the SF36's Physical Component Summary (PCS) and Mental Component Summary (MCS) as dependent variables. *Results*: More severe bladder dysfunction was associated with lower PCS in both disease duration groups ($\beta = -0.35$, $p \leq 0.001$ versus $\beta = -0.43$, $p \leq 0.001$), whereas more severe sexual dysfunction was associated with lower MCS in the group with shorter disease duration ($\beta = -0.23$, $p \leq 0.05$). *Conclusion*: Bladder and sexual dysfunction are associated with a poorer HRQoL in MS patients even if they have had MS for a relatively short time. Recognition and proper treatment is needed to prevent the development of more severe dysfunction; this may also lead to a better HRQoL.

➤ Implications for Rehabilitation

- Bladder and sexual dysfunction are associated with a poor health-related quality of life in MS patients.
- Sexual dysfunction may explain mental health issues among individuals with a short disease duration.
- Recognition and treatment may prevent the development of more severe sexual and bladder dysfunction and increase physical health-related quality of life.

Keywords

Bladder dysfunction, bowel dysfunction, multiple sclerosis, quality of life, sexual dysfunction

History

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Introduction

Health-related quality of life (HRQoL) is significantly reduced in patients with multiple sclerosis (MS) compared with the healthy population. There is a growing interest in the identification of factors associated with the HRQoL of MS patients [1–4]. Bladder, bowel and sexual dysfunction are common symptoms of MS [5–21]. They can occur at any time during the course of MS. Several studies have shown that they can be the source of significant disability and result in a reduction of HRQoL [5–10,22–24].

The prevalence of bladder dysfunction among MS patients is in a range from 50–80% [5,24], and it is associated with poor HRQoL [5,6]. This association was shown in two studies by Nortvedt et al. in samples of patients with disease duration from 9 to 19 years and in the early stage of MS [5,6]. They found that the presence of bladder dysfunction was associated with worse physical functioning in MS patients with longer disease duration and in the early stages of MS [5].

Bowel dysfunction and its adverse association with a patient's HRQoL has received less attention, although its prevalence is high [5–9,22–24], ranging from 40% to 68% [10,15,22]. Nortvedt et al. found poorer HRQoL in MS patients with bowel dysfunction in a sample of 55 patients 2–5 years after diagnosis [6]. Khan et al. described the negative impact of bowel dysfunction on HRQoL, although the correlation was weak, it was statistically significant [9].

Many studies have shown a high prevalence of sexual dysfunction in MS patients [5–7,11–21]. A study by McCabe showed that patients with MS had lower levels of sexual activity and sexual satisfaction compared with healthy controls [18].

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The relationship between sexual dysfunction and HRQoL in MS patients has been analyzed only in a few studies [5–7]. Tepavcevic et al. investigated in a sample of 109 MS patients the type, intensity and frequency of sexual dysfunction and their association with HRQoL. The results showed that patients with sexual dysfunction had a lower score on all the subscales of Multiple Sclerosis Quality of Life (MSQoL) [7]. The aforementioned study by Nortvedt et al. showed that sexual dysfunction was related to lower physical and mental quality of life after adjustment for disability in MS patients with disease duration from 9 to 19 years [5].

The studies mentioned above assessed the association of bladder, bowel and sexual dysfunction with HRQoL in MS patients. The potential weakness of these studies could be that the association of bladder, bowel and sexual dysfunction and HRQoL was not considered independently from other sociodemographic and clinical data. Also, the role of disease duration is unclear. Thus, the aim of our study is to explore the association of bladder, bowel and sexual dysfunction with the physical and mental dimension of HRQoL in patients with MS stratified by disease duration ($\leq$5 and >5 years) and controlled for clinical and sociodemographic variables. On the basis of the aforementioned literature, we expect that all three types of dysfunction will be associated with lower PCS and MCS in the group with short disease duration as well as with long disease duration.

Materials and methods

Sample

The study comprised MS patients from the eastern part of Slovakia selected from our clinical MS database. Between December 2003 and January 2006 consecutive eligible patients with MS were asked to participate in the study. Exclusion criteria were: cognitive impairment determined by a MMSE score of <24, history of psychiatric or medical condition affecting the outcomes of the study, pregnancy, patients not speaking Slovak, under 18 years of age. Of the 412 MS patients who were deemed eligible for the study, 223 patients (mean age 38.9 ± 10.8 years, 67% female, mean EDSS 3.0 ± 1.5) were interviewed and 189 patients did not respond (response rate of 54.1%). There were no statistically significant differences between non-respondents and the participants regarding gender. However, non-respondents (45.1 ± 10.5 years) were significantly older than the participants (38.4 ± 10.6 years) ($p < 0.05$).

This study was approved by the local Ethics Committee of the University Hospital L. Pasteur and the Faculty of Medicine, PJ Safarik University in Kosice, 2002. Each patient provided a signed informed consent form prior to the study.

The procedure started by sending the questionnaires, an invitation letter and a written informed consent form to the participants' homes by postal mail. After two weeks, a trained interviewer called each patient in order to arrange a face-to-face interview, allowing clarification of patient responses and completion of missing answers in the questionnaires. A neurological examination was performed immediately after the interview; the same neurologist was used to evaluate all patients.

Measures

Disability assessment

Neurological impairment and disability were measured using the Expanded Disability Status Scale (EDSS) [25]. The EDSS score is determined by a neurologist, who assesses the following functions: pyramidal, cerebellar, brain stem, sensory, bowel and bladder, visual and cerebral (mental). Disability caused by MS is graded on a continuum from 0 (normal neurological examination) to 10 (death caused by MS). EDSS scores of 1.0 to 4.5 refer to people with MS who are fully ambulatory. EDSS steps 5.0 to 9.5 are defined by the impairment to ambulation.

Health-related quality of life

Patients assessed their own health-related quality of life (HRQoL) using the SF-36 Short Form Health Survey [26]. This includes eight multi-item scales of functioning and well-being that represent physical and mental health status. The mental component summary (MCS) contains four scales: vitality, social functioning, role-emotional and mental health. The physical component summary (PCS) also contains four scales: physical functioning, role-physical, bodily pain and general health. The scale scores range from 0 (poor health) to 100 (optimal health), with a lower score indicating lower HRQoL. Cronbach's alpha for the SF-36 total score in the present sample was 0.93; for the PCS 0.90; and for the MCS 0.89.

Bladder Control Scale

The Bladder Control Scale (BLCS) is a structured, four-item, self-reported questionnaire which provides a brief assessment of bladder control and the extent to which bladder problems have an impact on everyday activities [27]. Three of these items (during the past 4 weeks, how often have you: 1 – lost control of your bladder or had an accident; 2 – almost lost control of your bladder or had an accident; 3 – altered your activities because of bladder problems) 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 from 0 to 22, with higher scores indicating greater bladder control problems. Cronbach's alpha for the BLCS in the present sample was 0.85.

Bowel Control Scale

The Bowel Control Scale (BWCS) consists of five items measuring bowel dysfunction and changes in daily activities due to bowel symptoms [27]. Four of these items (during the past 4 weeks, how often have you: 1 – been constipated; 2 – lost control of your bowels or had an accident; 3 – almost lost control of your bowels or had an accident; 4 – altered your activities because of bowel control problems 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). The total score ranges from 0 to 26, with higher scores indicating greater bowel control problems. Cronbach's alpha for the BWCS in the present sample was 0.79.

Incapacity Status Scale

Sexual dysfunction was assessed by using the Incapacity Status Scale (ISS), which contains an item regarding sexual activity [28]. Patients were asked to circle one of the five responses: 0 – sexual activity as before and/or not experiencing any sexual problems, 1 – less sexual activity as before, but still not concerned, 2 – sexually less active as before and concerned, 3 – sexually inactive but concerned and 4 – no sexual activity but not concerned. Patients were divided into two groups – the first group included patients with no sexual problems or who were less or not sexually active but were not concerned (score 0, 1 and 4). The second group included less or not sexually active MS patients who were concerned (score 2 and 3).

All measurement instruments were translated into the Slovak language and underwent cultural adaptation [29].

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Sociodemographic and clinical data

Sociodemographic data about the participants including gender, age and education (elementary, secondary and university) were derived from the interview. Further clinical data consisted of disease duration (years), clinical course (relapse-remitting form, secondary progressive form, primary progressive form) [30] and treatment with Disease Modifying Drugs (DMD) (yes/no). We dichotomized disease duration according to Kallmann et al. in $\leq$5 and >5 years [31].

Statistical analyses

Firstly, the study variables described were stratified by disease duration. T-tests and Chi-square tests were conducted to determine the differences in scores between the disease duration subgroups in sociodemographic variables, clinical variables, PSC and MSC. Next, bivariate correlations among the study variables were explored, also stratified by disease duration using, Spearman Rank correlation coefficients. Finally, the relationships between demographic and clinical variables, functional status and HRQoL were analyzed with multiple linear regression analysis using both summary components of the SF-36 (PCS and MCS) as dependent variables. The entry method was used, with the variables entered in two blocks: the first block contained the independent variables sexual, bladder and bowel dysfunction, and in the second block we added the clinical variables (EDSS, use of DMD, disease duration) and the sociodemographic data (gender, age, education). The analyses were calculated separately for patients with disease duration $\leq$5 years and for those >5 years. Statistical analyses were performed using SPSS 16.0 (SPSS Inc, Chicago, IL) for Windows.

Results

The main clinical and demographic data for the whole sample and for the two subgroups are presented in Table 1. Patients with shorter disease duration were younger ($p \leq 0.001$), had predominantly relapse – remitting course ($p \leq 0.001$), lower EDSS ($p \leq 0.001$) and more frequently used a DMD treatment ($p \leq 0.001$) than those with longer disease duration. Greater bladder control problems ($p \leq 0.05$) and worse PCS ($p \leq 0.01$) were reported by patients with longer disease duration than by those with shorter disease duration.

Correlations between the study variables

A Spearman's rho correlation was calculated to show the cross-sectional relationships between the variables. In both groups, those patients reporting more bladder symptoms also tended to report more bowel ($R = 0.34$, $p \leq 0.0001$ versus $R = 0.56$, $p \leq 0.0001$) and sexual problems ($R = 0.22$, $p = 0.02$ versus $R = 0.26$, $p = 0.016$). In both groups having more sexual dysfunction, bladder problems and bowel problems correlated with lower PCS and MCS (Tables 2 and 3).

Linear regression model

Self-perceived physical health

The variance in self-perceived physical health (PCS) was explained by a model consisting of sexual dysfunction, bowel dysfunction, bladder dysfunction, EDSS, use of DMD, disease duration, gender, age and education in both disease duration groups (Table 4). This model shows that the adjusted explained variance of PCS in both groups was very similar: 40% in the group with shorter versus 45% in the group with longer disease duration. EDSS appeared to be the strongest variable associated with PCS in each group ($\beta = -0.35$, $p \leq 0.001$, 95% CI: -8.0; -2.4 versus $\beta = -0.43$, $p \leq 0.001$, 95% CI: -8.4; -3.0), and patients with more severe disability had worse PCS. Bladder dysfunction was significantly associated with lower PCS in both groups, with higher explained variance occurring in patients with longer disease duration ($\beta = -0.23$, $p \leq 0.05$, 95% CI: -1.6; -0.1 versus $\beta = -0.24$, $p \leq 0.05$, 95% CI: -1.6; -0.1). Bowel and sexual dysfunction were not found to be significantly associated with PCS in either group.

Table 1. Sample characteristics by disease duration.

	All	Disease duration $\leq$5 years	Disease duration >5 years	
	N (%) or Mean ± SD (range)	*N* (%) or Mean ± SD (range)	*N* (%) or Mean ± SD (range)	*p* Value
No. of patients, *n*	223	124	99	
Gender				
Female	150 (67.3)	85 (68.5)	65 (65.7)	ns
Male	73 (32.7)	39 (31.5)	34 (34.3)	ns
Age (years)	38.9 ± 10.8 (18–65)	36.7 ± 10.9 (18–65)	41.6 ± 10.0 (21–62)	<0.001
Education				
Elementary school	60 (27.8)	33 (27.3)	27 (28.4)	ns
Secondary school	118 (54.6)	69 (57.0)	49 (51.6)	ns
University	38 (17.6)	19 (15.7)	19 (20)	ns
Clinical course				
RR	147 (65.9)	104 (83.9)	43 (43.4)	<0.001
SP	53 (23.8)	8 (6.5)	45 (45.5)	<0.001
PP	23 (10.3)	12 (9.7)	11 (11.1)	ns
EDSS	3.0 ± 1.5 (1.0–8.5)	2.6 ± 1.4 (1.0–8.5)	3.6 ± 1.4 (1.0–8.5)	<0.001
Use of DMD	113 (50.7)	82 (66.1)	31 (31.3)	<0.001
Bladder problems	4.7 ± 5.8 (0–22)	3.9 ± 5.5 (0–22)	5.7 ± 6.0 (0–22)	<0.05
Bowel problems	2.6 ± 4.1 (0–23)	2.2 ± 3.9 (0–23)	3.0 ± 4.3 (0–22)	ns
Sexual dysfunction				
Patients not concerned	170 (82.9)	96 (84.2)	74 (81.3)	ns
Patients concerned	35 (17.1)	18 (15.8)	17 (18.7)	ns
MCS	56.7 ± 16.0 (12–96)	56.8 ± 15.7 (14–96)	56.6 ± 12.3 (12–91)	ns
PCS	48.1 ± 20.4 (7–100)	51.5 ± 20.2 (10–97)	43.8 ± 19.8 (7–100)	<0.01

RR: relapse-remitting form, SP: secondary progressive form, PP: primary progressive form, EDSS: Expanded Disability Status Scale, DMD: disease modifying drugs, MCS: mental component summary, PCS: physical component summary, ns: nonsignificant. *t*-Test and chi-square tests were used to determine the differences between the subgroups.

Table 2. Spearman's correlations between the study variables in the group with disease duration ≤5 years.

	Sexual dysfunction	Bladder dysfunction	Bowel dysfunction	PCS	MCS
Sexual dysfunction		0.22 $p = 0.02$	0.13 $p = 0.18$	−0.27 $p = 0.004$	−0.30 $p = 0.002$
Bladder dysfunction			0.34 $p < 0.0001$	−0.46 $p < 0.0001$	−0.36 $p < 0.0001$
Bowel dysfunction				−0.20 $p = 0.038$	−0.24 $p = 0.013$
PCS					
MCS					

Sexual dysfunction: 0 – sexually active, sexually less or not active, but not concerned, 1 – sexually less or not active, but concerned. MCS: mental component summary, PCS: physical component summary. Spearman's coefficient and p values are displayed.

Table 3. Spearman's correlations between the study variables in the group with disease duration >5 years.

	Bladder dysfunction	Bowel dysfunction	PCS	MCS
Sexual dysfunction	0.26 $p = 0.016$	0.11 $p = 0.318$	−0.30 $p = 0.003$	−0.29 $p = 0.006$
Bladder dysfunction		0.56 $p < 0.0001$	−0.54 $p < 0.0001$	−0.38 $p < 0.0001$
Bowel dysfunction			−0.39 $p < 0.0001$	−0.29 $p = 0.005$
PCS				
MCS				

Sexual dysfunction: 0 – sexually active, sexually less or not active, but not concerned, 1 – sexually less or not active, but concerned. MCS: mental component summary, PCS: physical component summary. Spearman's coefficient and p values are displayed.

Self-perceived mental health

The variance in self-perceived mental health (MCS) was explained by the same model as was used for PCS. The final model explained 12% of the variance in the group of patients with shorter disease duration and 32% in the group with longer disease duration. In the final model, more sexual dysfunction was associated with lower MCS in the group with disease duration of 5 years or less ($\beta = -0.23$, $p \leq 0.05$, 95% CI: −20.7; −0.4). Elementary education appeared to be the strongest variable associated with lower MCS in the group of patients with longer disease duration ($\beta = -0.41$, $p \leq 0.01$, 95% CI: −23.5; −4.3).

To exclude the interference between the bowel, bladder and sexual dysfunction, we completed multicollinearity statistics that showed no linear relationship among the study variables (the variance inflation factor (VIF) ranged from 1.04–3.31).

Discussion

The aim of the study was to explore whether the presence of bladder, bowel and sexual dysfunction may explain the worse physical and mental component of health-related quality of life in MS patients stratified by disease duration (≤5 and >5 years) and controlled for other clinical and sociodemographic variables. We found that bladder dysfunction was associated with low PCS in both disease duration groups, while more severe sexual dysfunction was associated with low MCS in the group of patients with disease duration of 5 years or less.

Bladder dysfunction and health-related quality of life

Bladder dysfunction is a common symptom of MS [5–7,9–10]. In this study, we confirmed our expectations that patients with bladder dysfunction had a low PCS. The scores were low for patients in an early stage of the disease and also for patients with longer disease duration. No association between bladder dysfunction and MCS was found.

Our findings are in line with the results of a single study performed by Nortvedt et al. who observed an association of bladder, bowel and sexual dysfunction with HRQoL independently of other clinical data in a sample of 218 MS patients with disease duration from 9 to 19 years. In the early stage of MS, the importance of bladder dysfunction controlled for other variables has not yet been analyzed.

Bowel dysfunction and health-related quality of life

Our study is the first that analyses the association of bowel dysfunction with PCS and MCS independently from other clinical data. We found that the presence of bowel dysfunction did not show any statistically significant relation between bowel problems and PCS and MCS in either group, those with shorter or with longer disease duration.

As there is no study investigating the association of bowel dysfunction with HRQoL using a linear regression model, we think our results might be explained by the fact that in our sample the majority of the patients (70%) marked their bowel dysfunction (mainly constipation) as being uncomfortable for them, but it did not change their daily activities. The interference between the variables was excluded by multicollinearity statistics.

Sexual dysfunction and health-related quality of life

Many studies have shown a high prevalence of sexual dysfunction in MS patients, including in those with short disease duration [6–8,11–21]. In our study, we observed whether sexual dysfunction in MS patients may explain their worse HRQoL. We found that sexual dysfunction was associated with low self-perceived mental health in the group of the patients in the early stage of the disease. However, sexual difficulties were not associated with HRQoL in the longer disease duration group. This finding contrasts with the results of the mentioned study of Nortvedt et al. showing that sexual dysfunction was related to lower PCS and MCS after adjustment for disability in MS patients with disease duration from 9 to 19 years [5].

Our results might be explained in two ways. First, by the age of patients: patients with shorter disease duration were significantly younger and may have had a higher frequency of sexual intercourse than those older and with longer disease duration. Kontula and Haavio-Mannila showed in their study that age was significantly associated with sexual activity in a sample of 844 healthy people [32]. A second explanation might be the adjustment to the disease in the group with longer disease duration [33,34].

Strengths and limitations

This is the first study exploring the association of bladder, bowel and sexual dysfunction and health-related quality of life independently of sociodemographic and clinical data using linear regression analyses and stratified by disease duration. Some limitations of this

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Table 4. Linear regression model: associations of sexual, bowel and bladder dysfunction with PCS and MCS (SF36) by disease duration, controlled for clinical and sociodemographic variables.

Disease duration	PCS				MCS			
	≤5 yrs		>5 yrs		≤5 yrs		>5 yrs	
	Adjusted beta	B (95%CI for B)	Adjusted beta	B (95%CI for B)	Adjusted beta	B (95%CI for B)	Adjusted beta	B (95%CI for B)
Model 1								
Sexual dysfunction	−0.16	−2.9 (−13.2; 7.5)	−0.07	−3.9 (−15.5; 7.6)	−0.19	−8.8 (−18; 0.4)	−0.10	−4.2 (−15.4; 5.0)
Bowel dysfunction	−0.12	−0.8 (−1.8; 0.3)	−0.09	−0.4 (−1.5; 0.7)	−0.20	−0.8 (−1.7; 0.1)	−0.18	−0.6 (−1.6; 0.3)
Bladder dysfunction	−0.41***	−1.5 (−2.3; −0.8)	−0.39**	−1.4 (−2.3; −0.4)	−0.14	−0.4 (−1.0; 0.23)	−0.26	−0.7 (−1.4; 0.1)
R^2/Adjusted R^2		0.26/0.24		0.22/0.19		0.15/0.12		0.18/0.15
Model 2								
Sexual dysfunction	0.02	1.3 (−8.6; 11.2)	−0.08	−4.3 (−14.7; 6.1)	−0.23*	−10.6 (−20.7;−0.4)	−0.08	−3.3 (−12.2; 5.6)
Bowel dysfunction	−0.02	−0.2 (−1.2; 0.8)	0.01	−0.04 (−0.9; 1.0)	−0.17	−0.7 (−1.7; 2,5)	−0.08	−0.3 (−1.1;0.5)
Bladder dysfunction	−0.23*	−0.8 (−1.6; −0.1)	−0.24*	−0.8 (−1.6; −0.1)	−0.05	−0.1 (−0.9; 0.61)	−0.16	−0.4 (−1.1;0.2)
EDSS	−0.35***	−5.2 (−8.0; −2.4)	−0.43***	−5.7 (−8.4; −3.0)	−0.13	−1.6 (−4.4; 1.2)	−0.17	−1.8 (−4.1; 0.5)
Use of DMD	0.05	2.1 (−4.9; 9.1)	0.08	3.3 (−6.0; 12.6)	0.08	2.6 (−4.4; 9.5)	0.01	0.1 (−7.9; 8.1)
Disease duration	0.05	0.7 (−1.7; 3.0)	0.09	0.4 (−0.5; 1.4)	0.03	0.3 (−2.0; 2.6)	0.12	0.5 (−0.4; 1.3)
Female gender	−0.03	3.6 (−8.4; 5.9)	−0.14	−5.7 (13.4; 1.9)	−0.14	−4.8 (−12.0; 2.4)	−0.21*	−6.7 (−13.3; −0.05)
Age	−0.29***	−0.6 (−0.9; −0.2)	−0.01	−0.2 (−0.6; 0.2)	−0.11	−0.2 (−0.5; 1.2)	−0.17	−0.3 (−0.6; 0.08)
Elementary education[a]	−0.15	−6.8 (−16.8; 3.1)	−0.28*	−12.2 (−23.0; −1.1)	0.16	5.8 (−4.0; 15.8)	−0.41**	−14.0 (−23.5; −4.3)
Secondary education[a]	−0.02	−0.9 (−9.7; 7.8)	−0.12	−5.0 (−15.5; 5.5)	0.20	6.7 (−2.0; 15.4)	−0.05	−1.5 (−10.6; 7.5)
R^2/Adjusted R^2		0.46/0.40		0.52/0.45		0.21/0.12		0.42/0.32

EDSS: expanded disability status scale, DMD: disease modifying drugs, adjusted beta, unstandardized beta coefficients (B) and 95% confidence intervals for B are displayed.
[a]University education was set as the reference category.
*$p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

study should be mentioned. The participating MS patients were significantly younger than the non-respondents, so we can assume that non-respondents were the proportion of the oldest group with the longest disease duration, and thus possibly the most affected group, which might have prevented them from the participating. A possible consequence of this might be that outcomes are more related to younger patients than to older ones, and the results cannot be extended and generalized to the whole MS population. A second limitation is that the study has a cross-sectional design which does not provide us information about changes over time, and thus does not allow us to explore causal pathways.

Implications

Bladder and sexual dysfunction are associated with a significantly lower score on HRQoL in MS patients even if they have had MS for a relatively short time. We suggest that more attention should be paid to these problems. Recognition, examination and proper treatment is needed to prevent the development of more severe dysfunction and could also lead to an improvement of HRQoL. MS patients should be screened for bladder and sexual dysfunction. The private nature of the sexual dysfunction can inhibit the patient and the physician during an interview. It might therefore be useful to use questionnaires as a screening method for the recognition of sexual problems. It would be interesting to follow a sample over time. Longitudinal data could provide us with more information regarding causal relationships between bladder and sexual dysfunction and PCS and MCS.

Declaration of interest

The authors report no declarations of interest.

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