# P1054: Sexual Dysfunction in Multiple Sclerosis: Who is at risk?

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# Contributions and Disclosures

### Author contributions

P.A., F.L., K.L., and P.S.R. contributed to the study concept and design. P.A., F.L., P.S.R., T.M., M.P., M.S., T.Z., and G.Z. contributed to acquisition of data. P.A., F.L., G.B., M.P., M.S. K.B. helped with analysis and interpretation of data.

### Declarations of conflicting interests

**P.A.** has participated in meetings sponsored by, received speaker honoraria or travel funding from Biogen, Merck, Roche, Sanofi-Genzyme and Teva, and received honoraria for consulting from Biogen. He received a research grant from Quanterix International and was awarded a combined sponsorship from Biogen, Merck, Roche, Sanofi-Genzyme and Teva for a clinical study. **F.L.** has participated in meetings sponsored by or received honoraria for acting as an advisor/speaker for Bayer, Biogen, Celgene, MedDay, Merck, Novartis, Roche, Sanofi-Genzyme and Teva. **K.L.** reports no conflicts of interest concerning this work. **T.M.** has participated in meetings sponsored by or received travel funding from Biogen, Celgene, Merck, Novartis, Roche, Sanofi-Genzyme and Teva. **M.P.** and **M.S.** report no conflicts of interest concerning this work. **P.S.R.** has received honoraria for consultancy/speaking from AbbVie, Alexion, Almirall, Biogen, Merck, Novartis, Roche, Sandoz, Sanofi-Genzyme, has received research grants from Amicus, Biogen, Merck and Roche. **T.Z.** has participated in meetings sponsored by or received travel funding from Biogen, Merck, Novartis, Roche, Sanofi-Genzyme and Teva. **G.Z.** has participated in meetings sponsored by or received travel funding from Biogen, Merck, Novartis, Roche, Sanofi-Genzyme and Teva. **K.B.** has participated in meetings sponsored by and received travel funding from Roche. **T.B.** has participated in meetings sponsored by and received honoraria (lectures, advisory boards, consultations) from pharmaceutical companies marketing treatments for MS: Allergan, Almirall, Bayer, Biogen, Biologix, Bionorica, Celgene, MedDay, Merck, Novartis, Octapharma, Roche, Sanofi-Genzyme, Teva and TG Pharmaceuticals. His institution has received financial support in the past 12 months by unrestricted research grants (Biogen, Merck, Novartis, Sanofi-Genzyme, Teva and for participation in clinical trials in multiple sclerosis sponsored by Alexion, Biogen, Merck, Novartis, Octapharma, Roche, Sanofi-Genzyme, Teva. **G.B.** has participated in meetings sponsored by, received speaker honoraria or travel funding from Biogen, Celgene, Merck, Novartis, Sanofi-Genzyme and Teva, and received honoraria for consulting Biogen, Roche and Teva.


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# Background

- Reported prevalence of sexual dysfunction (SD) in patients with multiple sclerosis (pwMS) is 50-90% in men and 40-80% in women. ***R.C. Rosen: Curr Psych Rep (2000)***
- SD in pwMS significantly lowers quality of life. ***M. Lew-Starowicz: J Sex Med (2014)***
- Prevalence rates and actual diagnoses of SD clearly oppose one another as only about 5% of patients are actually asked about their sexual functioning.
- SD remain significantly underdiagnosed in pwMS. ***M. Zorzon: MSJ (1999)***
- There is not much data on *independent* risk factors for SD in pwMS.
- SD has been discussed as a byproduct of depression and anxiety.

# Study objectives

- To investigate the prevalence of SD in a cohort of 100 pwMS.
- To unveil possible associations with:
  - Disease parameters (age, sex, EDSS, disease duration…)
  - Quality of life (MSQoL-54)
  - Anxiety and depression (HADS)
- To calculate the risk for SD based on our parameters using multivariate regression models.

# Methods

- Cross-sectional study of 100 pwMS.
- SD was determined based on:

  MSISQ-19 (Multiple Sclerosis Intimacy and Sexuality Questionnaire-19)

  *F.W. Foley: MSJ (2013)*
- Disease history and parameters evaluated by MSologists.
- Association with other patient reported outcomes:

  HADS (Hospital Anxiety and Depression Scale)

  *A.S. Zigmond: Acta psychiatry Scand (1983)*

  MSQoL-54 (Multiple Sclerosis Quality of Life-54 questionnaire)

  *B.G. Vickrey: Qual of Life Res (1995)*

# Results: Sociodemographics and clinical information

| | Category | Value |
|---|---|---|
| **Participants analyzed** | number | 93 |
| **Age**[a] | overall age | 39,3 (11,4)[b] |
| | 18-35 | 36 (39%) |
| | 36-49 | 39 (42%) |
| | >50 | 18 (19%) |
| **Sex**[a] | female | 53 (57%) |
| | male | 40 (43%) |
| **Disease phenotype**[a] | relapsing MS | 65 (70%) |
| | progressive MS | 28 (30%) |
| **EDSS**[a] | median | 2 (0-4,5)[c] |
| | 0-3,5 | 63 (68%) |
| | 4 or above | 30 (32%) |
| **Number of relapses**[b] | last 12 months | 0,46 (0,8) |
| **Disease duration**[b] | years | 8,2 (6,7) |
| **Bladder or bowel dysfunction**[a] | yes | 33 (35%) |
| **Sensory dysfunction**[a] | yes | 37 (40%) |
| **MS medication**[a] | moderately effective | 31 (33%) |
| | highly active | 47 (51%) |
| | no treatment | 15 (16%) |
| **Family status**[a] | single | 29 (31%) |
| | relationship | 31 (33%) |
| | married | 33 (35%) |
| **Children**[c] | yes | 0 (0-2) |
| **Education**[a] | ≤9 years of schooling | 36 (39%) |
| | Secondary schooling | 28 (30%) |
| | College degree | 29 (31%) |

[a]absolute number (%)
[b]mean (standard deviation)
[c]median (interquartile range)

**EDSS:** Expanded Disability Status Scale
**MS:** Multiple Sclerosis

# Results: Comparison of patients with and without SD

| | Category | Sexual function intact† | Any sexual dysfunction† | p-value |
|---|---|---|---|---|
| **Participants analyzed[a]** | number | 50 (54%) | 43 (46%) | N/A |
| **HADS: anxiety[a]** | score | 15 (30%) | 17 (40%) | n.s. |
| **HADS: depression[a]** | score | 3 (6%) | 12 (28%) | 0.005 |
| **MSQoL-54: physical[c]** | score | 81 (69 - 89) | 52 (41 - 68) | <0.001 |
| **MSQoL-54: mental[c]** | score | 86 (70 - 89) | 50 (38 - 82) | <0.001 |
| **Age[a]** | overall age | 37[c] (29 - 46) | 40 (34 - 50) | n.s. |
| | 18-35 | 24 (48%) | 12 (28%) | |
| | 36-49 | 19 (38%) | 20 (47%) | n.s. |
| | >50 | 7 (14%) | 11 (26%) | |
| **Sex[a]** | female | 28 (56%) | 25 (58%) | n.s. |
| | male | 22 (44%) | 18 (42%) | |
| **Disease phenotype[a]** | relapsing MS | 41 (82%) | 24 (56%) | 0.006 |
| | progressive MS | 9 (18%) | 19 (44%) | |
| **EDSS[a]** | median | 1[c] (0 - 3) | 4 (1.5-6) | <0.001 |
| | 0-3,5 | 44 (88%) | 19 (44%) | <0.001 |
| | 4 or above | 6 (12%) | 24 (56%) | |
| **Number of relapses[c]** | last 12 months | 0 (0 - 1) | 0 (0-1) | n.s. |
| **Disease duration[c]** | years | 6 (2 - 12) | 8 (3 - 14) | n.s. |
| **Bladder or bowel dysfunction[a]** | yes | 8 (16%) | 26 (61%) | <0.001 |
| **Sensory dysfunction[a]** | yes | 16 (32%) | 20 (47%) | n.s. |
| **Family status[a]** | single | 15 (30%) | 14 (33%) | |
| | relationship | 24 (48%) | 7 (16%) | N/A |
| | married | 11 (22%) | 22 (51%) | |
| **Children[c]** | yes | 0 (0-1) | 0 (0-2) | N/A |
| **Education[a]** | ≤9 years of schooling | 18 (36%) | 18 (42%) | |
| | Secondary schooling | 16 (32%) | 12 (28%) | N/A |
| | College degree | 16 (32%) | 13 (30%) | |
| **MS medication[a]** | moderately effective | 19 (38%) | 12 (28%) | |
| | highly active | 18 (36%) | 29 (67%) | N/A |
| | no treatment | 13 (26%) | 2 (5%) | |

[a]absolute number (%)
[b]mean (standard deviation)
[c]median (interquartile range)
†according to MSISQ-19

**EDSS:** Expanded Disability Status Scale
**HADS:** Hospital Anxiety and Depression Scale
**MSISQ-19:** Multiple Sclerosis Intimacy and Sexuality Questionnaire-19
**MS:** Multiple Sclerosis
**MSQoL-54:** Multiple Sclerosis Quality of Life-54 questionnaire
**N/A:** not applicable or performed
**n.s.:** not significant

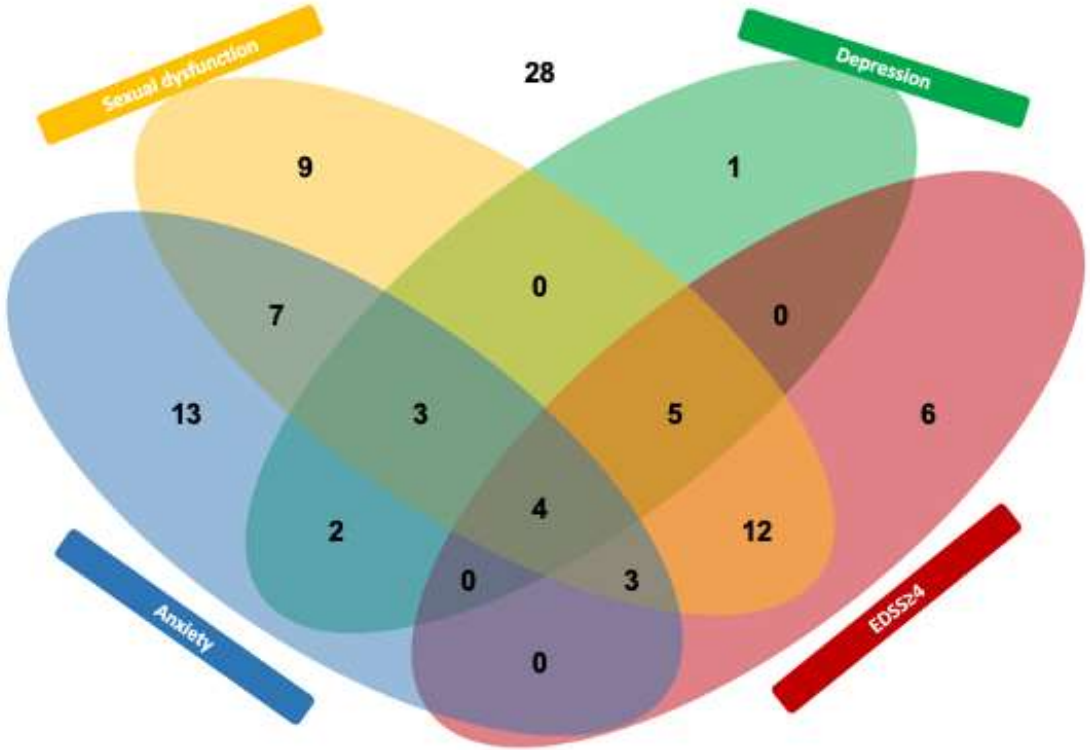
# Results: Risk factors for sexual dysfunction

| | OR (univariate) | 95% CI | p-value | OR (multivariate) | 95% CI | p-value |
|---|---|---|---|---|---|---|
| **Anxiety** | 1.5 | 0.6 – 3.6 | 0.382 | 2.2 | 0.7 – 6.3 | 0.159 |
| **Depression** | 6.1 | 1.6 – 23.3 | 0.005 | 3.2 | 0.7 – 14.4 | 0.131 |
| **EDSS ≥4** | 9.3 | 3.3 – 26.3 | <0.001 | 10.0 | 3.3 – 31.4 | <0.001 |
| | | | | Nagelkerke $R^2$ 0.342 | | |
| | | | | | | |
| | **OR (multivariate)** | **95% CI** | **p-value** | | | |
| **Anxiety** | 2.2 | 0.7 – 6.8 | 0.169 | | | |
| **Depression** | 4.6 | 0.9 – 23.2 | 0.069 | | | |
| **EDSS ≥4** | 18.1 | 4.2 – 78.6 | <0.001 | | | |
| | Nagelkerke $R^2$ 0.366 (adjusted for age and sex) | | | | | |

Calculated by binary logistic regression model.

**EDSS:** Expanded Disability Status Scale
**OR:** odds ratio
**95%CI:** 95% confidence interval

# Results: Venn diagram




Interplay (Venn diagram) between sexual dysfunction and the MS outcomes depression, anxiety, and EDSS. Numbers indicate participants from this study (n=93)

# Conclusions

- SD is common in pwMS.
- Prevalence in our study: 58% women and 42% men.
- EDSS≥4 resulted in an 18-fold OR increase for SD as the only independent risk factor.
- Depression is a univariate risk factor and seems to be an epiphenomenon of increasing disability and SD.
- Screening for SD is particularly relevant for patients with EDSS≥4.
- There is still a need for a consensus on how to discuss sexuality with pwMS.