RESEARCH ARTICLE

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Validation of the French version of the Multiple Sclerosis Intimacy and Sexuality Questionnaire 15 Tools which help nurse for assessing the effect of perceived multiple sclerosis symptoms on sexual activity and satisfaction

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Abstract

Aim: To validate a French version of the Multiple Sclerosis Intimacy and Sexuality Questionnaire 15 which examines patients' perception of the effect of multiple sclerosis symptoms on their sexual activity.

Methods: After completing a translation/re-translation process to ensure linguistic and content validity, the Multiple Sclerosis Intimacy and Sexuality Questionnaire 15 French (MSISQ-15Fr) was completed by patients with multiple sclerosis. The validity of the construction, reliability, stability and reproducibility of the translation was evaluated.

Explanatory mixed observational study: Validation of a French assessment tool for sexual disorders (borrowed theoretical framework): the Multiple Sclerosis Intimacy and Sexuality Questionnaire 15 (MSISQ 15)

Results: The normed χ^2 was 1.21, the root mean square error of approximation was 0.046 [0.00; 0.07], the comparative fit index was 0.974, and the standardized root mean square was 0.065. The calculated Cronbach's coefficients indicated strong internal coherence, and the intraclass correlation coefficient was satisfactory at 0.9. Translations of the *Multiple Sclerosis Intimacy and Sexuality Questionnaire 15* (MSISQ-15) have already been validated in five languages. This French version is valid, stable and reproducible. It provides French-speaking nurses an accessible and appropriate tool that will enable them to play an active role in the sexual health strategy recommended by the World Health Organization.

KEYWORDS
French Multiple Sclerosis Intimacy and Sexuality Questionnaire 15 (MSISQ-15), multiple sclerosis, neurology, nursing, sexual health

Field of research: The tool could potentially be used for other pathologies.

1 | INTRODUCTION

Sexual health, important topic in nursing, contributes to the construction of identity and well-being, and it is a human right. Moreover, sexual dysfunctions (SDs) observed in humankind can be predictive factors of potential fatal pathologies, and some risky behaviours can lead to endanger the individual or even the community. Chronic neurological diseases like multiple sclerosis (MS) lead to various and sometimes multiple disabilities which hinder sexual expression (Lefebvre & Jovic, 2019). The disease affects 100,000 people in France and 2.3 million people worldwide. Symptoms begin between the ages of 20 and 40 and 40% to 75% of patients with MS present sexual disorders (Bronner et al., 2010) which affect quality of life (Bronner et al., 2010; Kessler et al., 2009). Sexual disorders are underestimated (Kessler et al., 2009) because patients do not discuss about them spontaneously. Health professionals rarely investigate them during consultations, and the organization of responsibilities and knowledge is not very formalized (Giami et al., 2013). If nurses were less passive about sexual health (Bruno, 2003; Moore et al., 2013), they could have the best position to implement the French national sexual health strategy 2017–2030 (solidarities-sante-.grouv.fr, 2017).

According to King (1990), nursing cares allow to preserve and optimize patient's function in different way (personal, interpersonal and social), which can be affected by sexuality. The obstacles to nurses involved in managing sexual health have been identified as lack of knowledge and tools (Moore et al., 2013); environment, including time (Kotronoulas et al., 2009); and positioning (Nakopoulou et al., 2009). Nursing care mainly relies on consideration of perceptions and analysing the strengths and weaknesses of a patient's internal and external environment (King, 1999). Tools such as questionnaire on sexuality can facilitate nurses' achievements.

A validated English-language self-report questionnaire is available for evaluating patient perception of the influence of MS symptoms on sexual activity and satisfaction: the Multiple Sclerosis Intimacy and Sexuality Questionnaire. The latest version (*Multiple Sclerosis Intimacy and Sexuality Questionnaire 15* [MSISQ-15]) contains 15 questions (Foley et al., 2013). The scale evaluates patient difficulties and remaining potential, as recommended by King.

The MSISQ-15 has been validated in Persian (Mohammadi et al., 2014), Brazilian Portuguese (Silva et al., 2015), Dutch (Noordhoff et al., 2018) and Italian (Monti et al., 2020). There is currently no available validated French-language scale. Our study aimed to create a French translation of the MSISQ-15 and evaluate its validity, reliability and reproducibility.

2 | METHODS

Patients were recruited from outpatient structures in the neurology department at the La Pitié Salpêtrière hospital in Paris, France. Data were collected over a period of 3 weeks (November to December 2019). Inclusion criteria included all patients aged 18 or older diagnosed with MS using the McDonald criteria (Polman et al., 2005) who were not under judicial protection, understood and spoke French and consented to take part in the study. The study was approved by the French Institutional Review Board (Comité de protection des personnes, CPP N° 2716) and was carried out in compliance with the ethical principles outlined in the Helsinki Declaration. The characteristics of the study were designed to meet on Mixed Methods Appraisal Tool quality criteria (Hong et al., 2019) and strongly inspired by COSMIN (Gagnier et al., 2021) and Tsang et al. (2017) guidelines.

2.1 | Measurements

MSISQ-15 is a self-report questionnaire with 15 questions that evaluates patients' perceptions of the impact of MS symptoms on sexual activity. It divides SD into three dimensions: primary, arising from neurological system function (questions 8, 12, 13, 14, 15); secondary, resulting from the secondary effects of MS (questions 1, 2, 3, 4, 5); and tertiary, derived from psychological, emotional social and cultural elements (questions 6, 7, 9, 10, 11). Patients rate each item from 1 (never) to 5 (always).

For this study, the sex, age, number of years in education, date of diagnosis and type of MS were collected for each patient. To evaluate patients' level of neurological severity, the Expanded Disability Status Scale (EDSS) was used (Polman et al., 2005). It is a clinical ranking scale divided into eight functional systems. There are four major functional systems—pyramidal, cerebellar, brainstem and sensory, and four minor systems—bowel and bladder, visual, cerebral and other. The overall score is measured on a 20-point scale from 0 to 10 in half-point increments, where 0 indicates normal neurological examination and 10 indicates MS-related death. The Patient Determined Disease Steps (PDDS) self-report questionnaire was used to evaluate the severity of the incapacity declared by participants (Horton et al., 2010). The PDDS scale goes from 0 (normal) to 9 (bedridden).

2.2 | Study methods

The completed document in few minutes was collected by the nurse researcher explained the study objectives to the patient and gives her/him a document containing the different self-report questionnaires listed. The researcher informed the patient that the overall anonymized results for the study could be communicated to her/him on its request.

2.3 | Linguistic validity

The French translation of the original MSISQ-15 was validated using a process inspired by the Delphi method (Tomasik, 2010; Williams & Webb, 1994). A panel of French experts (sexologists, neurologists,

nurses and psychologists) were individually sent an unvalidated French MSISQ-15 used in Canada along with the original validated English-language version. The experts (ignorant of the other experts' identities) either validated the translation or suggested alternatives within a period of 15 days. The researcher created a second translation that factored in the experts' suggestions and returned it to the experts who sent back their validation or suggestions within a 15-day period. A third version was then sent and validated. Within 15 days, a meeting with the experts was organized to validate the consensus reached on a French version of MSISQ-15. The French translation was then sent to an English-speaking neurologist who was unaware of the initial version. He sent an English version of the MSISQ-15(he respected the idioms and semantics of the original scale, back to the researcher) which conclude the translation/retranslation work.

2.4 | Content validity

It was evaluated by a panel of professional experts. The experts that were approached to participate in the MSISQ-15 translation/re-translation process all worked in neurology and validated the capacity for the questionnaire's elements to measure relevant concepts for the target population. The nurses indicated that they were prepared to use the questionnaire in future patient's care.

2.5 | Pre-test of understandability

It was evaluated by a panel of patients with MS. The 12 patients, who were questioned, had first quickly completed the MSISQ-15 in its entirety (<10 min). Ten of the 12 patients stated that they had easily understood all the questions, while two needed to re-read certain items. Two of the 12 patients were particularly interested in the study and were interviewed. They found every question to be important. The patients found the French version clear and quick to complete, and they appreciated the self-report approach.

2.6 | Test/retest

Ten patients returned 1 month later for follow-up; their clinical condition was medically assessed as stable, so they completed the MSISQ-15 a second time to assess the test/retest effect.

2.7 | Statistical methods

Demographical and clinical data of patients were described as mean and standard deviation for continuous variables and as count and percentages for categorical variables.

To investigate the underlying factor structure of the translated questionnaire, a confirmatory factor analysis (CFA;

Jöreskog, 1969) was performed setting the structure with the three dimensions subscales on SD items: the primary, the secondary and the tertiary. The robust maximum likelihood estimation was used as items had non-normal distribution. Several indices were measured to evaluate the model fit: with a normed $\chi^2 < 2$ as good and <3 as acceptable; a root mean square error of approximation (RMSEA) <0.05 as good and <0.08 as acceptable; a comparative fit index (CFI) >0.95 as good and between 0.9 and 0.95 as acceptable; and a standardized root mean square (SRMR) <0.10 as good (Schweizer, 2010). Reliability for internal consistency of the MSISQ-15-scale was examined by calculating the Cronbach's α coefficient and its 95% confidence interval (CI) on all items and in each of the three dimensions subscales on SD items: the minimum accepted value was set to 0.7 (Nunnally, 1978).

Relative test–retest reliability was assessed using intraclass correlation coefficients (ICCs) with two-way mixed effects, absolute agreement, single measurement: ICC (3.1). Absolute test–retest reliability was assessed with the standard error of measurement (SEM) and minimal detectable change at the 95% CI (MDC_{95}) statistics, respectively (Weir, 2005).

In order to investigate the impact of different measures on MSISQ-15 total score, the three SD subscales, the presence of SD (as at least one question at 4 or 5) and the severity of SD (as the sum of questions with at least score at 4 or 5), we performed generalized linear models (GLM). We used a GLM with Bernoulli distribution and logit link for presence of SD and GLMs with normal distribution and identity link for the others scores. The effects investigated were age; gender; education; disease duration; MS type; EDSS and DPPS (with four categories: 0–1; 2–3; 4–5; 6–7). Corrections for multiple comparisons were performed using Benjamini–Hochberg method. For all regressions, Cohen's f2 was calculated to assess effect sizes. Normality of residuals and heteroskedasticity were checked visually. Cook's distances and hat values were computed to investigate potential influencers and outliers.

All analyses were performed using R 3.4.4 (R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/) with lavaan 0.6-5 and psych 1.8.12 packages.

2.8 | Ethics

The study was approved by the competent French legal authority and the Institutional Review Board (Comité de protection des personnes, CPP N° 2716) and was carried out in compliance with the ethical principles outlined in the Helsinki Declaration. Patients signed an informed consent form before taking part in the study. DGSO: PHRIP Neurosex P140709 du 10/08/2016.

3 | RESULTS

One hundred and eleven patients completed the MSISQ-15 scale, 99 of whom (89.2%) responded to all items. There was no difference

in age, sex, education or MS disease progression between patients who completed all items and the 12 who did not.

The characteristics of the analysed sample are presented in Table 1. Sixty-five out of 99 patients (65.7%) had RR-MS; 27 (27.3%) had SP-MS; and 7 (7.1%) had PP-MS. Patients had a mean age of 44.3 years and an average of 14.5 years of education (a French baccalaureate qualification is equivalent to a high school diploma or A' levels and indicates 12 years of education). The average time period for disease progression was 11.7 years, and 68.7% of the population were women.

Seventy-one patients scored at least one item at 4 or 5 on the MSISQ-15 scale, indicating that 71.7% of the study population with MS suffered from SD. These 71 patients scored an average of 4.3 ± 3.3 items at 4 or 5. The average total MSISQ-15 score (ranging

TABLE 1 Sample characteristics

	All samples (N = 98)
Age	44.31 ± 11.33
Gender (Women)	68 (68.69%)
Education (in years)	14.47 ± 2.72
Evolution (in years)	11.67 ± 7.85
Service (HDJ)	77 (77.78%)
MS type	
PP	7 (7.07%)
RR	65 (65.66%)
SP	27 (27.27%)
EDSS	3.59 ± 2.24
DPPS	2.89 ± 1.93
PDDS	
0	12 (13.48%)
1	14 (15.73%)
2	14 (15.73%)
3	11 (12.36%)
4	18 (20.22%)
5	12 (13.48%)
6	6 (6.74%)
7	2 (2.25%)
Mobility difficulties (yes)	67 (68.37%)
Concentration/memorizing difficulties (yes)	60 (61.86%)
Insensitivity disorders (yes)	64 (65.98%)
Intestinal/urinary disorders (yes)	63 (64.95%)
Visual impairment (yes)	49 (51.58%)

Note: Data are given as mean ± standard deviation for continuous variables and as count (percentages) for categorical variables.

Abbreviations: DPPS, Patient Determined Disease Steps; EDSS, Expanded Disability Status Scale; HDJ, ambulatory hospitalization; MS type, Multi sclerosis type; MSISQ-15, Multiple Sclerosis Intimacy and Sexuality Questionnaire 15; PP, primary plaque sclerosis; Q, question; RR, relapsing–remitting plaque sclerosis; SP, secondary primary multiple sclerosis.

from 15 to 70) was 35.2 ± 13.0 (Table 2). It should also be noticed that all items suffered from floor effect: the questions with the least number of patients answering "never" were the Q1 and Q14 with 30 patients (30.3%) and the questions with the most number of patients answering "never" were the Q9 with 54 patients (54.55%). When looking at the three subscales and the full scale, floor effects were no longer present except for the tertiary item subscale with 22 patients (22.22%) who answered never at the 5 questions. All items, subscales and the full scale were positively skewed.

3.1 | Confirmatory factor analysis

All items are closely correlated with the corresponding subscale, except item 4 (standardized factor = 0.34; Table 3). Additionally, factors 1 and 2 are correlated with $r = 0.58$, $p < .001$, factors 2 and 3 are correlated with $r = 0.46$, $p < .001$, and factors 1 and 3 are correlated with $r = 0.72$, $p < .001$ (Table 3). The measurement model of the MSQIS-15 scale was evaluated using CFA testing the subscale structure. The normed χ^2 was 1.212, the RMSEA was 0.046 [0.00; 0.07], the CFI was 0.974, and the SRMR was 0.065. Therefore, all indicators suggested a good fit.

3.2 | Reliability

The Cronbach's α for the MSISQ-15 scale was 0.90 [0.87; 0.93] on all items; 0.88 [0.85; 0.91] on primary item subscale; 0.74 [0.66; 0.81] on secondary item subscale and 0.90 [0.86; 0.92] on tertiary item subscale. All these coefficients were higher than the threshold value of 0.7, indicating a high internal consistency in both overall scale and in each subscale. Cronbach's α was not improved by deleting any item from the scale, as for the tertiary item subscale. On the contrary, deleting question 14 improved Cronbach's α to 0.89 [0.85; 0.92] on the primary scale, and deleting question 4 improved Cronbach's α to 0.76 [0.69; 0.82] on the secondary scale.

To examine the reliability between the three subscales and between the full scale and the three subscales, Pearson's *r* correlations were performed. The MSISQ-15 scale was highly correlated with the primary item subscale ($r = 0.88$), the secondary item subscale ($r = 0.70$) and the tertiary item subscale ($r = 0.85$). The correlation was weaker between the three subscales (primary vs. secondary: $r = 0.45$; primary vs. tertiary: $r = 0.67$; secondary vs. tertiary: $r = 0.38$; Figure 1).

3.3 | Test/retest (n = 9)

The average test/retest period was 28.77 days. Mean difference ± standard deviation of the MSISQ-15 scale between test and retest was −2.67 ± 5.7; its SEM was 4.03, and its minimal detectable change at 95% (MDC$_{95}$) was 11.17. Several scores had reliable

TABLE 2 Item scores and MSISQ-15 scale for the 99 patients who completed all items

	Mean ± standard deviation	Low score: N (%)	High score: N (%)	Skewness
MSISQ-15 total	35.25 ± 13.10	15: 5 (5.05%)	70: 1 (1.01%)	0.31
Primary sexual dysfunction	12.57 ± 5.81	5: 14 (14.14%)	25: 2 (2.02%)	0.39
Q8. Less feeling or numbness in my genitals	2.33 ± 1.43	1: 42 (42.42%)	5: 13 (13.13%)	0.67
Q12. Lack of sexual interest or desire	2.65 ± 1.37	1: 31 (31.31%)	5: 12 (12.12%)	0.20
Q13. Less intense or pleasurable orgasms or climaxes	2.44 ± 1.40	1: 39 (39.39%)	5: 11 (11.11%)	0.43
Q14. Takes too long to orgasm or climax	2.71 ± 1.44	1: 30 (30.3%)	5: 16 (16.16%)	0.24
Q15. Inadequate vaginal wetness or lubrication (women)/difficulty getting or keeping a satisfactory erection (men)	2.43 ± 1.39	1: 38 (38.38%)	5: 10 (10.1%)	0.44
Secondary sexual dysfunction	10.78 ± 4.44	5: 10 (10.1%)	24: 1 (1.01%)	0.67
Q1. Muscle tightness or spasms in my arms, legs, or body	2.52 ± 1.29	1: 30 (30.3%)	5: 8 (8.08%)	0.33
Q2. Bladder or urinary symptoms	2.23 ± 1.36	1: 44 (44.44%)	5: 10 (10.1%)	0.74
Q3. Bowel symptoms	1.97 ± 1.23	1: 52 (52.53%)	5: 5 (5.05%)	1.01
Q4. Tremors or shaking in my hands or body	2.00 ± 1.25	1: 53 (53.54%)	5: 6 (6.06%)	0.94
Q5. Pain, burning, or discomfort in my body	2.06 ± 1.22	1: 48 (48.48%)	5: 4 (4.04%)	0.77
Tertiary sexual dysfunction	11.91 ± 5.75	5: 22 (22.22%)	25: 4 (4.04%)	0.49
Q6. Feeling that my body is less attractive	2.65 ± 1.37	1: 31 (31.31%)	5: 13 (13.13%)	0.22
Q7. Feeling less masculine or feminine due to MS	2.53 ± 1.37	1: 32 (32.32%)	5: 13 (13.13%)	0.45
Q9. Fear of being rejected sexually because of MS	1.95 ± 1.24	1: 54 (54.55%)	5: 7 (7.07%)	1.10
Q10. Worries about sexually satisfying my partner	2.29 ± 1.38	1: 44 (44.44%)	5: 10 (10.1%)	0.61
Q11. Feeling less confident about my sexuality due to MS	2.49 ± 1.48	1: 39 (39.39%)	5: 15 (15.15%)	0.46

values, notably for secondary items. The ICC for MSISQ-15Fr was 0.9 [95% CI: 0.63; 0.98], which is satisfying (Table 4).

3.4 | Factors likely to affect scale scores

They were investigated for the 82 patients who provided complete data for the MSISQ-15 scale and the factors of interest. There was no effect on age, sex, MS type, number of years in education and EDSS. PDDS regrouping in four categories (normal group [score 0–1]; disability group [score 2–3]; walking stick group [score 4–5]; wheelchair/bilateral support group [score 6–7]) was the only factor affecting all scores except for the secondary sub-scale (MSISQ total f2 = 0.24, p = .005; primary sub-scale f2 = 0.15, p = .029; secondary sub-scale f2 = 0.10, p = .074; tertiary sub-scale f2 = 0.21, p = .007; presence of SD f2 = 0.12, p = .038 and severity of SD f2 = 0.23, p = .005). A greater effect was observed in the wheelchair/bilateral support group (score 6–7) than in the normal group (score 0–1), for total, primary, tertiary and severity scores, than in the disability group (score 2–3) for tertiary and total scores, and then the walking stick group (score 4–5) for tertiary, total and severity scores. The disability group (score 2–3) scored higher than the normal group (score 0–1) in severity only.

4 | DISCUSSION

The study revealed the construct validity, reliability and reproducibility of the French translation of the self-report MSISQ-15 (Table 5). It is a reliable tool with high internal coherence, and a Cronbach's α almost as high as the original English-language tool, with the exception of the secondary subscale. Comparisons of patient characteristics between those who fully completed questionnaires and those who did not confirmed that there was no non-response bias. The converging correlations for PDDS confirmed the validity of the model, which had already been demonstrated using CFA. Our results mirror those of the original study of Foley et al. (2013) and Noordhoff et al. (2018) study. The study results indicate that patients' perception of secondary symptoms affects sexuality less often. Patients more frequently feel that tertiary and primary symptoms have a negative impact on their sexuality. These results are consistent with the results from the study of Foley et al. However, the Brazilian study's results (Silva et al., 2015) revealed that secondary dysfunctions could more affect sexuality. There are some differences in the studied population: a slightly lower average age of the population and a shorter disease duration in the Brazilian study, which could explain the differences in patients' perceptions, but this needs to be investigated by further research.

TABLE 3 Parameter estimates, error terms, and *t*-values from the CFA

	Unstandardized factor loading ± Error term	*t*-Values	*p*	Standardized factor loading
Primary sexual dysfunction				
Q8	1.00 ± 0.00			0.78
Q12	0.89 ± 0.12	7.53	<.001*	0.73
Q13	1.14 ± 0.11	10.57	<.001*	0.91
Q14	1.12 ± 0.12	9.77	<.001*	0.87
Q15	0.74 ± 0.12	6.07	<.001*	0.60
Secondary sexual dysfunction				
Q1	1.00 ± 0.00			0.56
Q2	1.26 ± 0.27	5.28	<.001*	0.67
Q3	1.20 ± 0.25	5.40	<.001*	0.70
Q4	0.59 ± 0.21	3.55	<.001*	0.34
Q5	1.25 ± 0.26	5.66	<.001*	0.74
Tertiary sexual dysfunction				
Q6	1.00 ± 0.00			0.76
Q7	1.07 ± 0.13	9.64	<.001*	0.81
Q9	0.80 ± 0.12	6.30	<.001*	0.67
Q10	1.12 ± 0.13	10.83	<.001*	0.84
Q11	1.27 ± 0.14	11.95	<.001*	0.89

Abbreviation: Q, Question.

*$p < .001$.
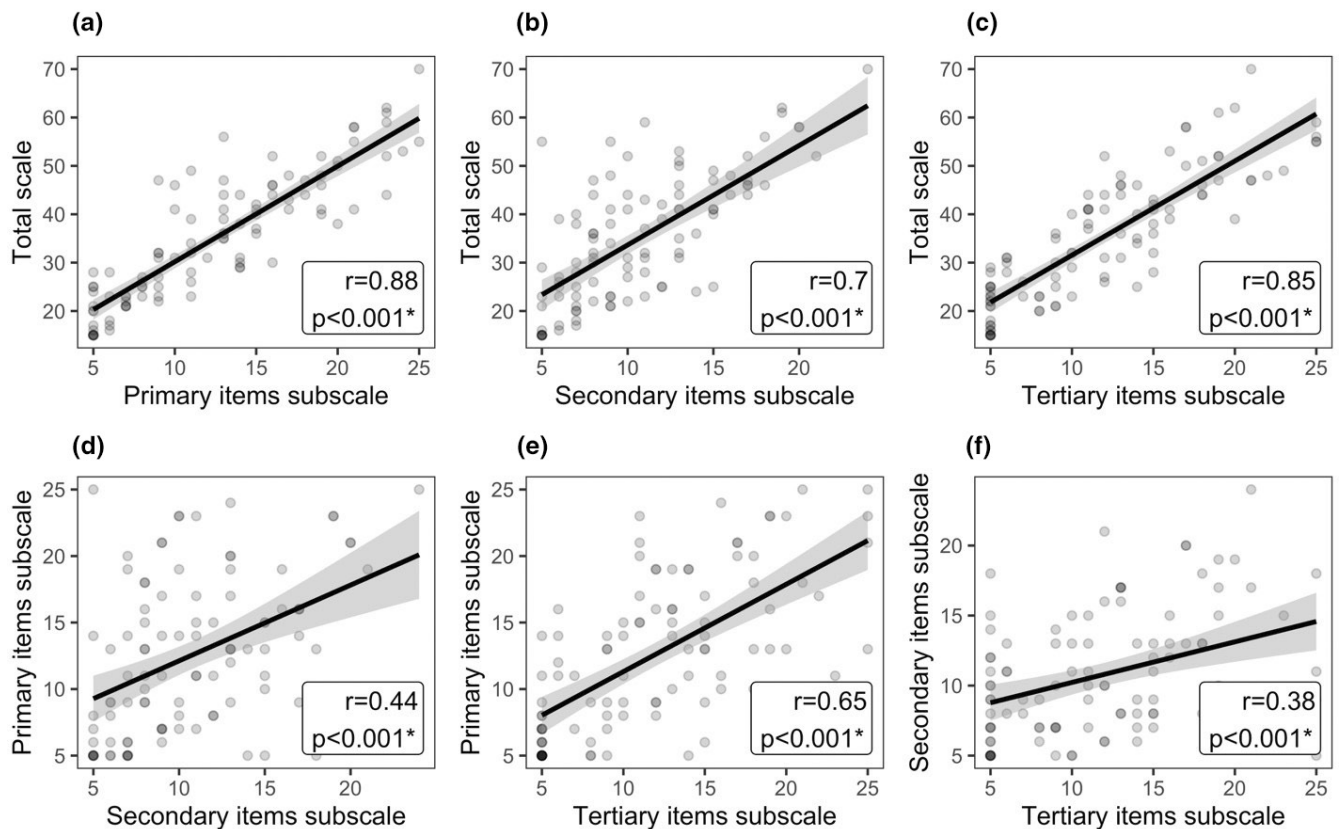
FIGURE 1 Association between the full scale and the three subscales. Association between total scale and primary item subscale (a), total scale and secondary item subscale (b), total scale and tertiary item subscale (c), primary item subscale and secondary item subscale (d), primary item subscale and tertiary item subscale (e), secondary item subscale and tertiary item subscale (f). Pearson's correlation coefficient and its *p*-value are presented in the framework.

The correlations between SD and perceived disability did not extend to the EDSS score, which also evaluates disability. The literature is divided on the existence of correlations between EDSS and SD: some studies find correlations (Foley et al., 2013; Mohammadi

et al., 2014; Sanders et al., 2000), and others as ours find no correlations (McCabe et al., 1996; Silva, 2015). Our study found that over 74% of patients with MS in a population from France suffer from SD, thus supporting the findings in the international literature (Bronner et al., 2010).

The analysis of factors likely to affect the scale indicated that the tool can be used by patients of any age, sex, MS type or educational level without impacting their results.

There are a considerably number of French-speaking territories, and as sexual health is a priority for the WHO, the tool should be used by a largest number of professionals. The disabilities experienced by patients with MS can discriminate them and/or lead to risk-taking in sexual expression. The ability to investigate the sexual health of these patients using a validated international tool is crucial for clinical care and research.

However, our study suffers from some limitations. Firstly, the decision to recruit only patients receiving follow-up care in a hospital could have resulted in a recruitment bias, and women and patients with primary progressive MS are indeed slightly under-represented in our study sample in comparison with the overall French MS population. However, the examination of factors likely to affect the scale revealed that sex and MS type have no effect, and the results are, therefore, interpretable.

Furthermore, we used a Canadian translation which was invalid. This French-speaking version took the French culture into account and was realized by a person who was not a member of our research team. Nevertheless, we wished to work with this tool and with the valid English tool, that is why the translation/re-translation process does not follow the exact recommendations proposed by Beaton et al. (2007). Because of the cross-sectional design study,

TABLE 4 Intraclass correlation coefficients (ICC) for test/retest reliability

	ICC [95% CI]
MSISQ-15 total	0.90 [0.63; 0.98]
Primary sexual dysfunction	0.91 [0.65; 0.98]
Q8	0.97 [0.89; 0.99]
Q12	0.52 [−0.21; 0.87]
Q13	0.89 [0.58; 0.97]
Q14	0.86 [0.50; 0.97]
Q15	0.91 [0.62; 0.98]
Secondary sexual dysfunction	0.30 [−0.24; 0.76]
Q1	0.20 [−0.37; 0.72]
Q2	0.88 [0.59; 0.97]
Q3	0.43 [−0.25; 0.83]
Q4	0.13 [−0.42; 0.68]
Q5	0.22 [−0.33; 0.73]
Tertiary sexual dysfunction	0.93 [0.74; 0.98]
Q6	0.82 [0.39; 0.96]
Q7	0.93 [0.67; 0.98]
Q9	0.83 [0.43; 0.96]
Q10	0.64 [0.01; 0.91]
Q11	0.93 [0.72; 0.98]

Abbreviations: MSISQ-15, Multiple Sclerosis Intimacy and Sexuality Questionnaire 15; Q, question.

TABLE 5 French MSISQ15

Durant les six derniers mois, les symptômes ou troubles suivants ont interféré avec Mon activité ou Mon Plaisir sexuel	1: Jamais	2: Presque jamais	3: Parfois	4: Presque toujours	5: Toujours
1. Des raideurs musculaires ou des spasmes dans les bras, les jambes ou le corps					
2. Des troubles vésicaux ou urinaires					
3. Des troubles intestinaux					
4. Des tremblements ou des secousses dans les mains ou le corps					
5. Des douleurs, des brûlures ou un inconfort dans mon corps					
6. Le sentiment d'être moins attirant(e)					
7. Le sentiment de perte de virilité ou de féminité, en raison de ma SEP					
8. Une moindre sensibilité ou un engourdissement dans mes organes génitaux					
9. La peur d'être sexuellement rejeté à cause de ma SEP					
10. Des inquiétudes quant à la satisfaction sexuelle de mon (ma) partenaire					
11. Un sentiment de perte de confiance quant à ma sexualité en raison de ma SEP					
12. Un manque d'intérêt sexuel ou de désir					
13. Des orgasmes moins intenses ou moins agréables					
14. La nécessité d'un délai trop long pour atteindre l'orgasme					
15. Une sécheresse vaginale (femmes)/une érection insuffisante ou qui ne se maintient pas (hommes)					

the sensitivity to change was not assessed. The MSISQ15 is a self-reported questionnaire which assesses patients' perception of the MS' impact on their sexual health. A similar questionnaire does not exist; therefore, the concurrent validity is difficult to measure.

5 | CONCLUSIONS

This questionnaire was already available in five languages, and a French translation was needed. This tool will enable French-speaking nurses to evaluate patients' perceptions of the effects of MS on their sexuality. Nurses will, therefore, be able to interact with patients and support them in attaining fixed objectives for maintaining or recovering their sexual health (King, 1999). The tool will also enable nurses to prioritise or focus their interventions on relevant areas and to monitor and evaluate interventions in sexual health. If necessary, the scale will also facilitate the referral of patients to the most appropriate expert. The self-report nature of the questionnaire eliminates obstacles linked to nursing environment, including time (Kotronoulas et al., 2009). The French MSISQ-15 will enable French nurses to be more proactive in investigating, providing care and monitoring the sexual health of patients with MS.

CONFLICT OF INTEREST
The authors have no conflict of interest.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES
Beaton, D., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2007). Recommendations for the cross-cultural adaptation of the DASH & QuickDASH outcome measures. *Institute for Work & Health*, 1(1), 1–45.

Bronner, G., Elran, E., Golomb, J., & Korczyn, A. D. (2010). Female sexuality in multiple sclerosis: The multidimensional nature of the problem and the intervention. *Acta Neurologica Scandinavica*, 121(5), 289–301. https://doi.org/10.1111/j.1600-0404.2009.01314.x

Bruno, M. (2003). Research in cancer and sexuality. Forum: Cancer. *Body Image and Sexuality. The Cancer Council South Australia*. http://www.cancersa.org.au/i-cms_file.

Foley, F. W., Zemon, V., Campagnolo, D., Marrie, R. A., Cutter, G., Tyry, T., Beier, M., Farrell, E., Vollmer, T., & Schairer, L. (2013). The Multiple Sclerosis Intimacy and Sexuality Questionnaire—Re-validation and

development of a 15-item version with a large US sample. *Multiple Sclerosis Journal*, 19(9), 1197–1203. https://doi.org/10.1177/1352458512471876

Gagnier, J. J., Lai, J., Mokkink, L. B., & Terwee, C. B. (2021). COSMIN reporting guideline for studies on measurement properties of patient-reported outcome measures. *Quality of Life Research*, 30, 1–22.

Giami, A., Moulin, P., & Moreau, É. (2013). La place de la sexualité dans le travail infirmier: l'érotisation de la relation de soins. *Sociologie du travail*, 55(1), 20–38. https://doi.org/10.1016/j.soctra.2012.12.001

Hong, Q. N., Pluye, P., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M.-C., & Vedel, I. (2019). Improving the content validity of the mixed methods appraisal tool: A modified e-Delphi study. *Journal of Clinical Epidemiology*, 111, 49–59. https://doi.org/10.1016/j.jclinepi

Horton, M., Rudick, R. A., Hara-Cleaver, C., & Marrie, R. A. (2010). Validation of a self-report comorbidity questionnaire for multiple sclerosis. *Neuroepidemiology*, 35(2), 83–90.

Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, 34(2), 183–202.

Kessler, T. M., Fowler, C. J., & Panicker, J. N. (2009). Sexual dysfunction in multiple sclerosis. *Expert Review of Neurotherapeutics*, 9(3), 341–350. https://doi.org/10.1586/14737175.9.3.341

King, I. M. (1990). Health as the goal for nursing. *Nursing Science Quarterly*, 3(3), 123–128. https://doi.org/10.1177/089431849000300307

King, I. M. (1999). A theory of goal attainment: Philosophical and ethical implications. *Nursing Science Quarterly*, 12(4), 292–296. https://doi.org/10.1177/08943189922107205

Kotronoulas, G., Papadopoulou, C., & Patiraki, E. (2009). Nurses' knowledge, attitudes, and practices regarding provision of sexual health care in patients with cancer: Critical review of the evidence. *Support Care Cancer*, 17(5), 479–450. https://doi.org/10.1007/s00520-008-0563-5

Lefebvre, S., & Jovic, L. (2019). Constructing a research problem: From the story of a female patient with multiple sclerosis to a nursing research project on sexual health. *Recherche en Soins Infirmiers*, 4, 123–143. https://doi.org/10.3917/rsi.139.0123

McCabe, M. P., McDonald, E., Deeks, A. A., Vowels, L. M., & Cobain, M. J. (1996). The impact of multiple sclerosis on sexuality and relationships. *Journal of Sex Research*, 33(3), 241–248. https://doi.org/10.1080/00224499609551840

Mohammadi, K., Rahnama, P., Montazeri, A., & Foley, F. W. (2014). The Multiple Sclerosis Intimacy and Sexuality Questionnaire-19: Reliability, validity, and factor structure of the Persian version. *The Journal of Sexual Medicine*, 11(9), 2225–2231. https://doi.org/10.1111/jsm.12531

Monti, M., Marquez, M. A., Berardi, A., Tofani, M., Valente, D., & Galeoto, G. (2020). The multiple sclerosis intimacy and sexuality questionnaire (MSISQ-15): Validation of the Italian version for individuals with spinal cord injury. *Spinal Cord*, 1-6, 1128–1133. https://doi.org/10.1038/s41393-020-0469-8

Moore, A., Higgins, A., & Sharek, D. (2013). Barriers and facilitators for oncology nurses discussing sexual issues with men diagnosed with testicular cancer. *European Journal of Oncology Nursing*, 17(4), 416–422. https://doi.org/10.1016/j.ejon.2012.11.008

Nakopoulou, E., Papaharitou, S., & Hatzichristou, D. (2009). Patients' sexual health: A qualitative research approach on Greek nurses' perceptions. *The Journal of Sexual Medicine*, 6(8), 2124–2132. https://doi.org/10.1111/j.1743-6109.2009.01334.x

Noordhoff, T. C., Scheepe, J. R., 't Hoen, L. A., Sluis, T. A., & Blok, B. F. (2018). The Multiple Sclerosis Intimacy and Sexuality Questionnaire (MSISQ-15): Validation of the Dutch version in patients with multiple sclerosis and spinal cord injury. *Neurourology and Urodynamics*, 37(8), 2867–2874. https://doi.org/10.1002/nau.23804

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill.

Polman, C. H., Reingold, S. C., Edan, G., Filippi, M., Hartung, H.-P., Kappos, L., Lublin, F. D., Metz, L. M., McFarland, H. F., O'Connor, P. W., Sandberg-Wollheim, M., Thompson, A. J., Weinshenker, B. G., & Wolinsky, J. S. (2005). Diagnostic criteria for multiple sclerosis: 2005 revisions to the "McDonald criteria". *Annals of Neurology*, *58*(6), 840–846. https://doi.org/10.1002/ana.22366

Sanders, A. S., Foley, F. W., LaRocca, N. G., & Zemon, V. (2000). The Multiple Sclerosis Intimacy and Sexuality Questionnaire-19 (MSISQ-19). *Sexuality and Disability*, *18*(1), 3–26. https://doi.org/10.1023/A:1005421627154

Schweizer, K. (2010). Some guidelines concerning the modeling of traits and abilities in test construction. *European Journal of Psychological Assessment.*, *26*, 1–2. https://doi.org/10.1027/1015-5759/a000001

Silva, R. A. P. D., Olival, G. S. D., Stievano, L. P., Toller, V. B., Jordy, S. S., Eloi, M., & Tilbery, C. P. (2015). Validation and cross-cultural adaptation of sexual dysfunction modified scale in multiple sclerosis for Brazilian population. *Arquivos de Neuro-Psiquiatria*, *73*(8), 681–687. https://doi.org/10.1590/0004-282X20150078

Strategie_nationale_sante_sexuelle.pdf. (2017). [Internet]. https://solidarites-sante.gouv.fr/IMG/pdf/strategie_nationale_sante_sexuelle.pdf

Tomasik, T. (2010). Reliability and validity of the Delphi method in guideline development for family physicians. *Quality in Primary Care*, *18*(5), 317–326.

Tsang, S., Royse, C. F., & Terkawi, A. S. (2017). Guidelines for developing, translating, and validating a questionnaire in perioperative and pain medicine. *Saudi Journal of Anaesthesia*, *11*(Suppl 1), S80–S89. https://doi.org/10.4103/sja

Weir, J. P. (2005). Quantifying test-retest reliability using the intraclass correlation coefficient and the SEM. *Journal of Strength and Conditioning Research*, *19*, 231–240.

Williams, P. L., & Webb, C. (1994). The Delphi technique: A methodological discussion. *Journal of Advanced Nursing*, *19*(1), 180–186. https://doi.org/10.1111/j.1365-2648.1994.tb01066.x