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Original Research Article

Multidisciplinary educational intervention for sexual health in patients with Multiple Sclerosis

Intervención educativa multidisciplinaria para la salud sexual en pacientes con Esclerosis Múltiple

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ABSTRACT

Introduction: Multiple sclerosis presents with a high prevalence of sexual, defined as a persistent deficit in the phase of the sexual response.

Objective: To evaluate the effectiveness of a multidisciplinary educational intervention for sexual health self-management in patients with multiple sclerosis.

Methods: This was a quasi-experimental study with a pre-test/post-test design, carried out from April 2023 to May 2025 at the Dr. Faustino Pérez Hernández Provincial Rehabilitation Hospital in Sancti Spíritus, Cuba.

Results: Before the intervention, the most frequent primary problem were lack of confidence in one's own sexuality; among the secondary problems, muscle spasms stood out; and among the tertiary problems, the feeling of reduced physical attractiveness. After the reduced physical attractiveness. After the intervention, notable reductions were observed in lack of confidence and in the perception of reduced attractiveness with an overall decrease in the frequency of all sexual problems.

Conclusions: The results of this study confirm the high prevalence of sexual diffusion and suggest that a multidimensional intervention can generate significant and clinically relevant improvements.

Keywords: educative intervention; medical rehabilitation; multiple sclerosis; sexual disorders; sexual diffusion; sexual education

RESUMEN

Introducción: La esclerosis múltiple cursa con alta prevalencia de disfunción sexual, definida como un déficit persistente o recurrente en las fases de la respuesta sexual.

Objetivo: Evaluar el efecto de una intervención educativa multidisciplinaria para el automanejo de la salud sexual en estos pacientes con esclerosis múltiple.

Métodos: Estudio cuasi-experimental, con análisis pre-test/post-test, realizado entre abril de 2023 y mayo de 2025 en el Hospital Provincial de Rehabilitación "Dr. Faustino Pérez Hernández", Sancti Spíritus, Cuba.

Resultados: Antes de la intervención, los problemas primarios más frecuentes fueron la falta de confianza en la propia sexualidad; entre los secundarios, destacaron los espasmos musculares; y entre los terciarios, la sensación de menor atractivo corporal. Después de la intervención, se observaron reducciones notables en la falta de confianza y en la percepción de menor atractivo, con una disminución general de la frecuencia de todos los problemas sexuales.

Conclusiones: Los resultados confirman la elevada prevalencia de disfunción sexual y sugieren que la intervención multidisciplinaria genera mejorías clínicamente relevantes, aunque se requieren estudios controlados para confirmar su efectividad.

Palabras clave: educación sexual; esclerosis múltiple; intervención educativa; difusión sexual; trastornos sexuales; rehabilitación médica

Introduction

Multiple sclerosis (MS) is a chronic neurodegenerative disease of autoimmune origin that affects the central nervous system, characterized by inflammation, demyelination, and progressive axonal damage. Its global prevalence is increasing, and its diagnosis is usually established in young adults, in the prime of their reproductive stage and maximum social and work activity. Since it interrupts nerve conduction in various areas of the system, MS presents heterogeneous clinical manifestations, ranging from motor and sensory deficits to cognitive and emotional disorders.

Among the most prevalent sequelae, although frequently silenced, is sexual dysfunction (SD). This can manifest as decreased desire, difficulties in arousal, anorgasmia, or pain during intercourse, and is due to a complex and multifactorial etiology. It involves not only direct neurological damage — such as the involvement of sacral sensory and autonomic pathways — but also psychological factors derived from the diagnosis (depression, anxiety, and low self-esteem) and social factors, such as changes in the partner role and the stigma associated with disability.

Despite its high incidence, SD in MS constitutes a critical public health problem, since it remains underdiagnosed and insufficiently addressed in routine clinical practice. The scarce spontaneous communication between the patient and the healthcare team, together with the limited specific training of professionals, perpetuates a cycle of denial and silent suffering that undermines quality of life and overall therapeutic adherence.

Addressing sexual health in this population is not a secondary aspect of care, but a primary clinical need. Sexuality constitutes an inherent component of human identity and a fundamental pillar of biopsychosocial well-being. When this dimension is compromised without adequate management, consequences are generated that transcend the individual and affect partner dynamics, the social support network, and the patient's perception of self-efficacy.

For this reason, comprehensive, person-centered care requires that healthcare teams move beyond a merely symptomatic approach and recognize sexual health as an essential indicator of the effectiveness of interventions in chronic diseases. Currently, available interventions tend to be limited to isolated pharmacological management or disjointed generic advice, without a structured and educational approach that empowers the patient.

The etiological complexity of this dysfunction instead demands an interdisciplinary approach that integrates neurology, specialized nursing, pelvic floor physiotherapy, psychology, and sexology. However, there is a critical care gap in the implementation of structured educational programs, with a biopsychosocial approach, that combine anatomical and physiological information with training in practical self-care skills, assertive communication strategies with the partner, and psychological coping techniques.

This approach does not medicalize the desire, but rather adapts the neurological environment to create optimal conditions in which the sexual response can manifest within the real parameters of the disease.

However, evidence on specific multidisciplinary educational interventions for this population is still limited. Therefore, the scientific community requires empirical data to determine whether an intervention model based on self-management translates into objective improvements in symptomatology and perceived sexual satisfaction.

In line with these needs, the present study aims to evaluate the effect of a multidisciplinary educational intervention for the self-management of sexual health in patients with multiple sclerosis.

Theoretical framework or conceptual references

Multiple sclerosis (MS) is a demyelinating disease of the central nervous system (CNS) that primarily affects young adults. Growing knowledge about MS has facilitated earlier diagnosis and has driven the development of increasingly effective therapeutic strategies. The assessment of health-related quality of life in patients requires a comprehensive approach, since this condition affects all dimensions of the individual's life (Vázquez Gómez et al., 2022).

In addition to motor and visual symptoms and gait alterations, other manifestations such as SD significantly affect the patient's quality of life (Gaviria Carrillo et al., 2023).

SD is characterized by a disturbance in the processes of the sexual response cycle: desire, arousal, and orgasm, or by pain associated with sexual intercourse (Beltran, 2023).

For Dastoorpoor et al. (2021) and Salari et al. (2023), MS is a chronic neurodegenerative disease associated with a high prevalence of SD. It frequently manifests as reduced libido, deficits in arousal and orgasm, and decreased satisfaction, which compromises quality of life and can put the patient's sexual health at risk.

According to Gaviria Carrillo et al. (2023), SD is a heterogeneous group of disorders with a clinically significant alteration in a person's ability to respond sexually or to experience sexual pleasure.

Panghal and Flora (2024), as well as Mohammed (2024), agree that, during the active phases of the disease, immune mechanisms, cytokine-induced apoptosis, oxidative and metabolic stress damage, and attack by antibodies and complement trigger massive destruction of oligodendrocytes.

Simultaneously, the body mobilizes a high number of still-undifferentiated oligodendrocyte progenitor cells to repair the affected areas. However, in certain cases, the degree of demyelination is so severe that it leads to the total elimination of oligodendrocytes, without effective remyelination occurring.

MS compromises evident physical dimensions and also underestimated aspects, such as sexual function. Its progression involves complex pathophysiological processes that affect the integrity of nerve tissue. For this reason, it is indispensable to adopt a perspective that transcends the mere management of symptoms.

Under this approach, sexual health cannot be understood solely as the absence of dysfunction, but as an active component of overall well-being. As a vital part of emotional, psychological, and physical well-being, positive sexual health is associated with lower levels of depression and anxiety, a higher quality of life, and greater life satisfaction in the general population (Vasconcelos et al., 2024). In patients with MS, sexual education must transcend the traditional realm of functionality and become a fundamental tool for bodily neuro-awareness. Demyelination unpredictably alters the transmission of sensory and motor signals, which can cause dissociation between sexual intention, perception of the stimulus, and physical response.

Specialized education should guide the patient in mapping their new neurology, teaching them to identify alternative erogenous zones that retain good neural connectivity, or to reinterpret altered sensations (such as paresthesias or hyperesthesias) that, far from being ignored, can be integrated into the sexual experience. This active process of sensory mapping, guided by a professional, empowers the patient, transforming uncertainty into self-knowledge and allowing an intimate reconnection with a body in constant change.

A critical and rarely addressed aspect is the proactive management of cognitive fatigue in sexual life. MS frequently involves "brain fog," attentional deficits, and cognitive fatigue, factors that can abruptly interrupt the arousal and enjoyment phase, generating frustration and avoidance. Sexual education should include protocols for conserving cognitive energy for intimacy, such as planning encounters at peak moments of mental clarity (usually in the morning), reducing distracting environmental stimuli (light, sound), and developing intimate "scripts" or routines that minimize the planning and decision-making load at the moment.

Peñalver et al. (2025) address SD in the population with MS, which presents a higher frequency than usually recognized. They also state that it constitutes a prevalent and underestimated symptom in MS, whose impact transcends the

merely physiological. Affecting critical dimensions such as self-image, self-esteem, and the dynamics of interpersonal and couple relationships leads to significantly compromising quality of life; it can arise at any moment during the course of MS and its prevalence varies between 50 and 90%.

However, despite its clinical and psychosocial relevance, this area has received scarce research attention compared to other symptoms of the disease, which constitutes an evident limitation.

Foley et al. (2013) classify SD in MS into three categories: primary: derived from direct neurological damage that affects the sexual response. They are a consequence of demyelinating lesions in the central nervous system (brain and spinal cord) that interrupt the nerve conduction pathways necessary for desire, arousal, and orgasm; secondary: a consequence of physical symptoms such as spasticity, that is, they are physical complications of MS that, although not sexual in nature, interfere indirectly with sexual activity or satisfaction; and tertiary: psychosocial, emotional, and cultural factors that arise from living with a chronic disease and that affect sexual identity and intimacy.

The educational intervention implemented is based on an innovative theoretical integration that transcends purely biomedical or traditional psychoeducational models. Its design rests on three interrelated conceptual pillars: the biopsychosocial model of adaptive sexuality, the theory of transformative learning in contexts of chronicity, and the neuro-sexual rehabilitation approach centered on patient agency.

First, the biopsychosocial model of adaptive sexuality expands Engel's paradigm, highlighted in Bolton (2023), where it is proposed that sexuality in MS emerges from the dynamic and non-linear interaction among: a) specific neurophysiological factors (e.g., temporal lobe disinhibition, alterations in sensorimotor connectivity that affect the erogenous body map); b) psychological constructs of reconceptualization (grieving the previous body, reformulation of intimacy); c) the relational and environmental context (partner dynamics, accessibility of space). This framework justifies the multidisciplinary composition of the facilitating team, where each professional intervenes on one vertex of this interactive triangle.

Second, the intervention drew on the theory of transformative learning in

contexts of chronicity (Mezirow, as cited in Prado, 2021). This perspective postulates that the diagnosis of a progressive neurological disease such as MS can provoke a "disorienting dilemma" that fractures previous meaning schemes about sexuality, the body, and functionality.

Methodology

A quasi-experimental before-and-after study (pre-test/post-test) with a predominantly quantitative approach was conducted from April 2023 to May 2025 at the "Dr. Faustino Pérez Hernández" Provincial Rehabilitation Hospital in Sancti Spíritus, Cuba.

The population consisted of 38 patients diagnosed with MS who presented SD and met the inclusion criteria: diagnosis of MS according to McDonald criteria (Stefan et al., 2026), age ≥ 18 years, active sexual life or desire to resume it, evidence of SD in the initial assessment, and informed consent. Data were collected from the patients' clinical records

The MSISQ-19 questionnaire was applied, in its MSISQ-15 version, validated by Foley et al. (2013) to operationalize the tripartite model (primary, secondary, and tertiary) of SD in MS, which reduces patient burden and maintains the same factor structure and reliability as the original version. Principal component analysis suggested that 15 items explained 63% of the total variance, matching the diagnostic capacity of the 19-item version.

The 15-item version is divided equally into 5 questions for each domain. The analysis employed descriptive statistics (frequencies, percentages) using SPSS v.25 software. The evaluation was defined through high scores on items 1-5 (direct neurological symptoms), items 6-10 (indirect physical symptoms), and items 11-15 (psychological and social factors). The validity of the educational intervention was established through expert judgment, to ensure the technical and pedagogical relevance of its contents. This consisted of conducting a round in which critics issued their judgments regarding the educational intervention for the self-management of sexual health in patients with MS, following the steps of the Delphi technique (as cited in Esteve Ríos et al., 2023).

A panel of seven experts in Neurology, Physical Rehabilitation, Clinical Sexology, and Health Psychology was formed. The knowledge coefficient (Kc) and the argumentation coefficient (Ka) were calculated: five experts reached a

Kc between 0.7 and 1 (rated by the authors as high) and two obtained a Kc between 0.6 and 0.75 (rated as medium), which evidences a positive selection. The experts analyzed the proposal and confirmed their approval, guaranteeing the alignment between the educational objectives and the dimensions of SD in patients with MS. The MSISQ-15 questionnaire has been validated in other studies, for example, in Esteve Ríos et al. (2023), used as an adaptation of the original version.

Results and discussion

The study was approved by the Ethics Committee and Scientific Council of the institution in minutes of the meeting No. 65 of 2023. The principles of the Declaration of Helsinki were complied with (as cited in Hernández Merino), and confidentiality, autonomy, and beneficence were guaranteed.

An educational intervention was implemented, planned in four weekly group workshops of 90 minutes each, led by a multidisciplinary team (rehabilitation physician, psychologist, sexologist). The modules included: 1) education about sexuality and MS; 2) communication and adaptation techniques in the couple; 3) practical management of limiting symptoms; and 4) resources for a satisfying intimacy. Personal issues were addressed privately, and individualized management strategies were provided. The analysis employed descriptive statistics (frequencies, percentages) with SPSS v.25 software.

The weekly group workshops were conceived as spaces for critical dialogue designed to facilitate a three-phase process: 1) deconstruction of internalized beliefs (such as the inevitability of asexuality); 2) reflection on new experiences and resources; and 3) reintegration of a transformed frame of reference that allows for a meaningful sexuality within current possibilities.

The sequence of modules followed this logic: it began with the deconstruction of biomedical knowledge, advanced toward communication and adaptation, and culminated in the practical appropriation of resources.

Finally, the neuro-sexual rehabilitation approach centered on patient agency constituted the third reference point, where principles of neuro-rehabilitation were merged with positive sex education. This approach operates under the premise that neuroplasticity, even in demyelinating contexts, can be directed toward the reappropriation of sexual experience through sensory mindfulness

techniques (tactile awareness) and guided experimentation.

The practical modules were based on this principle; not only the passive management of symptoms (pain, spasticity) was promoted, but also the exploration active and safe exploration of new pathways for pleasure and intimate connection, exercising personal agency in the face of the limitations imposed by the disease. Together with the specialists, this framework provided a solid and original basis for an intervention that seeks, in addition to informing, to catalyze a profound change in the experience of sexuality, and positions it as a rehabilitable domain and essential for quality of life.

The sample consisted of 38 patients. The most frequent age group was 30 to 39 years (26.31%), with a predominance of the female sex (60.52%) and the relapsing-remitting clinical form (73.68%) (See Table 1).

Table 1

Characterization of the study sample according to age, sex, and clinical form of patients diagnosed with MS at the "Dr. Faustino Pérez Hernández" Provincial Rehabilitation Hospital of Sancti Spíritus in the period April 2023 to May 2025

Age groups	**No.**	**%**
Under 29 years	1	2,63
30 to 39 years	10	26,31
40 to 49 years	9	23,68
50 to 59 years	9	23,68
Over 60 years	9	23,68
Total	38	100
Sex	**No.**	**%**
Male	15	39,47
Female	23	60,52
Clinical form	**No.**	**%**
Relapsing-remitting	28	73,68
Primary progressive	1	2,63
Secondary progressive	9	23,68

Note. Survey administered to the study sample and information from the corresponding clinical records.At the "Dr. Faustino Pérez Hernández" Provincial Rehabilitation Hospital of Sancti Spíritus between April 2023 and May 2025, primary sexual problems. Figure 1 shows a notable decrease in lack of confidence, which went from 47.36% to 13.15% in patients.

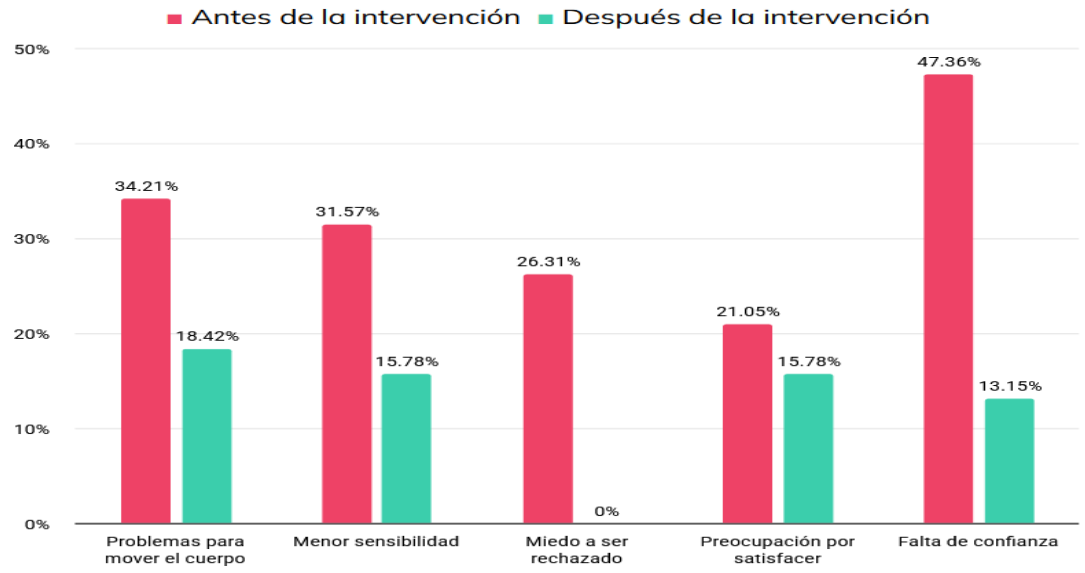

Figure 1

Frequency distribution of knowledge of primary sexual problems reported by patients diagnosed with MS

Note. Results of knowledge about primary problems from the questionnaire (MSISQ-15) on sexuality and intimacy in MS before and after the study. At this institution and in the same study period, secondary sexual problems. secondary (Figure 2): problems due to muscle tension or spasms prevailed (42.10% before vs. 28.94% after).

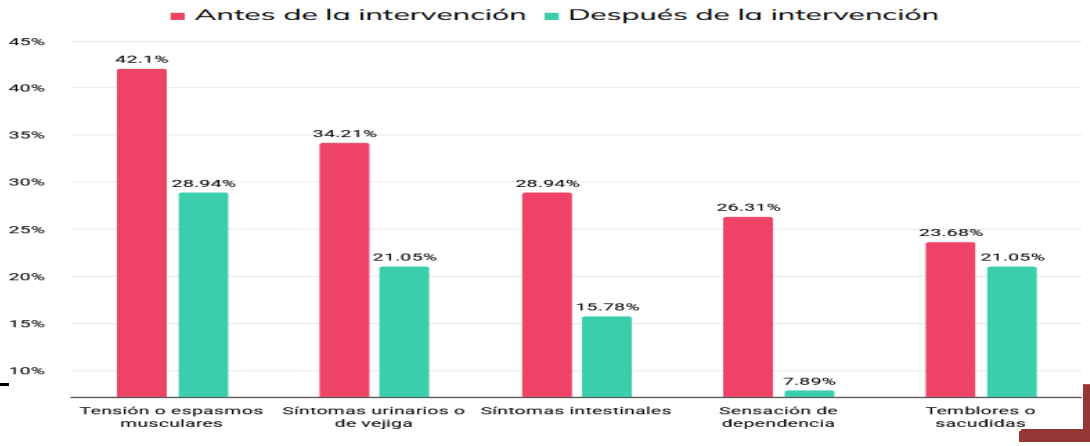

Figure 2

Frequency distribution, in the study sample, according to secondary sexual problems of patients diagnosed with MS

Note. Results of knowledge about secondary problems from the questionnaire (MSISQ-15) on sexuality and intimacy in MS before and after the study.

Tertiary sexual problems (Figure 3): the feeling that the body is less attractive went from 10.52% before to 2.63% after. The rest of the tertiary parameters were known by all patients after the intervention.

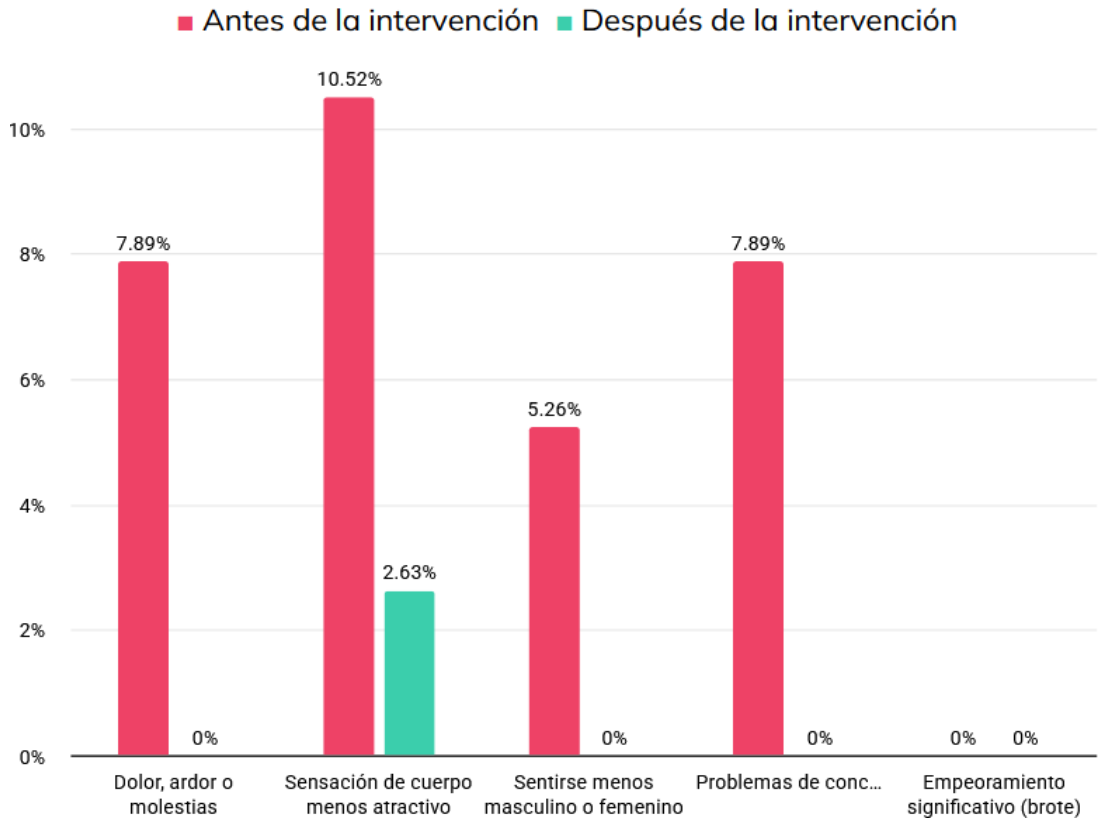

Figure 3

Frequency distribution, in the study sample, according to tertiary sexual problems of patients diagnosed with MS

Note. Results of knowledge about tertiary problems from the questionnaire (MSISQ-15) on sexuality and intimacy in MS before and after the study.

The present research evidenced a very high prevalence of SD in a cohort of 38 patients with MS, and confirms its character as an almost universal comorbidity. The results revealed a differential response pattern: while problems of tertiary origin (psychosocial and emotional) showed almost complete improvement, primary symptoms of direct

neurological damage responded substantially, and secondary symptoms derived from physical symptoms presented a moderate response. The complete resolution of decreased sexual desire in all patients and the marked improvement in lubrication problems in women were notable, in contrast to a more limited response in male erectile dysfunction.

The relative resistance of secondary symptoms suggests the need for interdisciplinary coordination to optimize the management of spasticity, fatigue, and medication effects. The persistence of some physical limitations indicates that specific rehabilitation interventions should complement the psychological and educational approach. However, as this is a pre-post study without a control group, the findings should be interpreted with caution, and controlled trials are required to confirm effectiveness. Future research should identify clinical and demographic predictors of optimal response, which would allow for more precise therapeutic personalization.

Longitudinal studies are required to evaluate the sustainability of long-term improvements, and controlled trials that isolate the most effective components of multifaceted interventions. Likewise, it is pertinent to explore the development and validation of assessment instruments sensitive to specific changes in each domain of SD in this population, in addition to investigating the impact of new pharmacological therapies and adapted physical rehabilitation on sexual function.

In light of the obtained findings, several future lines of research are proposed that allow expanding the evidence on addressing sexual health in multiple sclerosis. First, it is imperative to evaluate studies that delve into the neurophysiological mechanisms underlying the reported improvements, with special emphasis on the recovery of the processes of desire and arousal.

Conclusion

The multidisciplinary educational intervention suggests a favorable effect on the reduction of sexual problems in patients with multiple sclerosis, especially in the psychoemotional domain. The changes observed after its implementation point to a notable decrease in lack of confidence and the perception of being less attractive.

These findings confirm that sexual dysfunction constitutes an almost universal comorbidity in multiple sclerosis, but also that a multidisciplinary group intervention combining education and couple communication can generate significant improvements, especially in psychoemotional dimensions. The persistence of secondary symptoms underscores the need to complement the psychological approach with physical rehabilitation strategies such as management of spasticity, fatigue, and medication effects, and closer interdisciplinary coordination.

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Conflicts of interests

Authors do not declare conflicts of interests.

Author contribution

Greidys Montano Águila: Conceptualization, research, supervision, validation, administration of the project and writing– original draft.

Félix Rafael Wert Téllez: data curation, Methodology and formal analysis

Adrian González Méndez: Software, visualization and writing - revision and edition.

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