

REVIEW ARTICLE

Education and self-management support in patients with multiple sclerosis: A review of structured programs

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Abstract

Introduction: Multiple sclerosis (MS) is a chronic autoimmune-mediated neurodegenerative disease of the central nervous system that substantially affects the quality of life of young adults and requires a comprehensive, long-term management approach. Patient education is a key component of MS care, supporting disease understanding, active participation in treatment, and the development of self-management skills.

Objectives: This scoping review analyzed and compared available educational programs for people with MS with respect to their objectives, methodologies, patient outcomes, and levels of scientific evidence.

Methods: A targeted literature search was conducted in the PubMed, Scopus, Web of Science, and Cochrane Library databases covering the period from 2010 to 2025. Studies evaluating structured educational programs for adult individuals with MS were included. Individual, group-based, online, and hybrid interventions were considered. Data were extracted and synthesized descriptively.

Results: Five main types of educational programs were identified and analyzed: Overcoming MS, MS: Take Control, Ready for MS, E-Ready for MS, and the MS Online Course. The reviewed programs demonstrated positive effects on quality of life, psychological well-being, fatigue management, reduction of depressive symptoms, and improvement of self-management skills. Among the programs, Overcoming MS demonstrated the strongest level of scientific evidence, combining lifestyle modification, psychological support, and structured education.

Conclusion: Educational programs are an important tool for supporting self-management, treatment adherence, and quality of life in people with MS. Further development in clinical practice is recommended through the standardization of outcome measures, integration of lifestyle-based interventions, and expansion of research on hybrid educational approaches with long-term outcome monitoring.

Keywords: Multiple sclerosis; Educational programs; Patient education; Self-management; Quality of life; Scoping review

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1. Introduction

Multiple sclerosis (MS) is a chronic immune-mediated neurodegenerative disease of the central nervous system that leads to progressive loss of neurological function and significantly affects people's quality of life.^{1,2} The disease is commonly associated with

physical, cognitive, and psychological difficulties, requiring a comprehensive and multidisciplinary approach to treatment.³ Patient education in MS, therefore, represents a key component of long-term care, enabling individuals to better understand their condition, actively participate in symptom management, and develop self-management skills.⁴

Educational interventions for individuals with MS constitute an essential element of nursing and rehabilitative care. Their primary aim is to provide individuals with adequate knowledge about the disease, treatment options, symptom control, and prevention of complications, while also promoting active participation in the therapeutic process.⁵ Evidence suggests that structured, patient-centered, and family-oriented educational programs can significantly improve quality of life and enhance self-sufficiency among people with MS.⁶

The role of healthcare professionals extends beyond providing information—they are also responsible for guiding patients toward a deeper understanding of their disease, fostering self-regulation skills, and supporting a positive attitude toward living with MS.⁷ As emphasized by Nazari *et al.*,⁸ education aims at enhancing self-care competencies, and patient resilience contributes to improved treatment adherence and overall life satisfaction. The educational process should therefore be tailored to the patient's degree of disability, cognitive capacity, and psychosocial needs.⁹

Family and caregiver involvement plays a vital role in patient education, as social support has been shown to improve self-confidence and coping with disease-related symptoms.¹⁰ Effective education should thus be viewed as a continuous, interactive process between the patient, family, and healthcare team rather than a one-time intervention.^{9,10}

Patient education in MS plays a crucial role in developing self-management skills—defined as the active management of one's condition.^{11,12} Through educational programs, patients acquire knowledge about disease progression, symptom recognition, and coping strategies, which enable faster and more effective responses to changes in health status.^{13,14} This knowledge enhances collaboration with healthcare providers, supports treatment adherence, and reduces the risk of complications.^{13,15} Education also strengthens psychological resilience and the patient's sense of control over the disease, thereby improving their ability to manage everyday challenges.¹³⁻¹⁵ The interconnection between education and self-management thus forms the foundation of comprehensive MS care.⁹⁻¹⁵ Self-management should encompass maintaining a healthy lifestyle, including proper nutrition, physical activity, medication adherence, psychological well-being, symptom

monitoring, and timely recognition of disease exacerbation requiring professional intervention.¹¹⁻¹⁵

Effective self-management enables patients to adapt to living with a chronic condition such as MS. It represents a skill that allows for an active and meaningful life despite illness^{10,11} and provides a sense of control over one's health.^{11,16} The concept involves several dimensions: self-monitoring, symptom control, navigation of healthcare systems, maintenance of social and professional functioning, and emotional regulation.^{15,17-22} Additionally, participation in peer-support or self-help groups is recognized as an important component of self-management, offering not only information on disease management and coping strategies but also reducing the risk of social isolation.²³

Self-management in MS thus entails active participation in one's own care and adaptation to disease-related challenges. It is a continuous process that requires informed decision-making and engagement in treatment and lifestyle modification.^{24,25} Key educational components supporting MS self-management are summarized in [Table 1](#). Previous research has identified several variables influencing self-management in chronic diseases, including personal and life characteristics (knowledge, beliefs, stress), health status, resource availability (financial and psychological), environmental context, and features of the healthcare system such as accessibility and the quality of patient-provider relationships.^{26,27}

2. Structured educational programs for patients with multiple sclerosis

In recent years, several structured educational programs for people with MS have been developed, integrating medical, psychological, and behavioral approaches. These programs address various aspects of care—from lifestyle modification and symptom management to the strengthening of psychological resilience and quality of life.²⁸ Therefore, the aim of this scoping review study is to analyze and compare available educational programs for individuals with MS in terms of their objectives, methodology, patient outcomes, and level of scientific evidence.

2.1. Methods

2.1.1. Search strategy

A targeted literature search was conducted in international databases, including PubMed, Scopus, Web of Science, and the Cochrane Library. The search was complemented by grey literature, including recommendations and practice guidelines from professional organizations such as the National MS Society, MS Society UK, and Can Do MS, which provide practical educational tools and methodological guidance for working with patients.

Table 1. Areas of education for improving self-management in people with MS

Areas of self-management in patients with MS	Description
Therapy	Treatment adherence. Regular and correct use of prescribed medications to manage symptoms and reduce disease progression.
Disease symptomatology	Symptom monitoring. Observing new or worsening symptoms and reporting them to healthcare professionals.
Lifestyle	Lifestyle modification. Adopting a healthy lifestyle, including balanced nutrition, regular physical activity, adequate sleep, and stress management, can help control MS symptoms and improve overall well-being.
Physical therapy	Physical therapy and exercise. Participation in physical therapy and exercise to maintain mobility, strength, and flexibility.
Education	Education and awareness. Acquiring knowledge about the disease, treatment options, and effective symptom management through reliable sources and healthcare providers.
Psychological symptomatology	Emotional and mental health. Seeking support for mental and emotional well-being, including counseling and support groups when needed.
Daily routine	Planning daily activities to manage fatigue and conserve energy, avoiding overexertion.
Follow-up care	Regular medical check-ups. Attending regular appointments with physicians and healthcare providers to monitor disease progression and adjust treatment (pharmacological and non-pharmacological) as necessary.

Abbreviation: MS: Multiple sclerosis; Source: Modified according to Giovannoni *et al.*²⁴

The following key terms were used with Boolean operators:

- PubMed: (“multiple sclerosis”) AND (“patient education” OR “educational intervention” OR “structured program”) AND (“self-management”)
- Scopus: TITLE-ABS-KEY (“multiple sclerosis”) AND TITLE-ABS-KEY (“patient education” OR “educational intervention” OR “structured program”) AND TITLE-ABS-KEY (“self-management”)
- Web of Science: TS= (“multiple sclerosis”) AND TS= (“patient education” OR “educational intervention” OR “structured program”) AND TS= (“self-management”)
- Cochrane Library: (“multiple sclerosis”) AND (“patient education” OR “educational intervention” OR “structured program”) AND (“self-management”)

2.1.2. Scoping review design and study selection

This review was conducted as a scoping review to map the existing structured educational programs for adults with MS, describe their characteristics, types of evidence, and provide an overview of current clinical recommendations, without restricting the inclusion to specific study methodologies.

The review design and reporting were guided by the Joanna Briggs Institute methodology for scoping reviews, which provides systematic guidance for identifying, charting, and summarizing evidence.²⁹ To enhance

transparency and ensure adherence to best practices, the review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for Scoping Reviews (ScR) checklist, which is provided as Supplementary File and Figure 1 PRISMA-ScR flow diagram.³⁰ Clearly defined inclusion and exclusion criteria were applied to enhance reproducibility and transparency. The selection of educational programs was exhaustive within the predefined criteria and included all identified structured interventions for adults with MS supported by empirical evidence.

(i) Studies were included if they met the following inclusion criteria:

- Published in peer-reviewed journals between 2010 and 2025
- Described formal or structured educational programs (individual, group-based, online, or hybrid)
- Focused on adults with MS (≥18 years)
- Evaluated the effectiveness of the program using standardized outcome measures

(ii) The following studies were excluded:

- Non-peer-reviewed publications
- Studies conducted outside the selected timeframe (2010–2025)
- Research not focused on formal or structured educational interventions

- Studies involving non-adult populations
- Studies lacking standardized outcome evaluation of program effectiveness

2.1.3. Data extraction and synthesis

Data were systematically extracted from each included study, focusing on the following elements:

- Type of educational program
- Target population
- Study design
- Outcome measures
- Main findings

The PRISMA diagram (Figure 1) illustrates the process of study identification, screening, eligibility assessment, and inclusion in the scoping review. A total of 4,625 records were identified from databases (PubMed, Web of Science, Scopus, and the Cochrane Library) and grey literature. After removing duplicates, 4,202 records remained for screening. Following screening and full-text assessment (98 articles), 91 studies were excluded for failing to meet the inclusion criteria. Ultimately, seven studies were included in the scoping review.

The extracted information was compiled into summary tables (Table 2) to provide a structured overview of the programs. Findings were then synthesized using a descriptive scoping review approach, highlighting similarities and differences among programs and the characteristics of the available evidence.

To enhance reliability, data extraction and synthesis were conducted independently by two reviewers, with any discrepancies resolved through discussion and consensus. The included studies were categorized according to study design (randomized controlled trials, non-randomized controlled trials, and pilot or observational studies) to describe the nature of the existing evidence base. No formal assessment of evidence quality or strength was undertaken, in accordance with scoping review methodology.

3. Results and characteristics of educational programs

Based on the targeted literature search, relevant scientific publications evaluating the effectiveness of educational programs for patients with MS were identified. The analysis

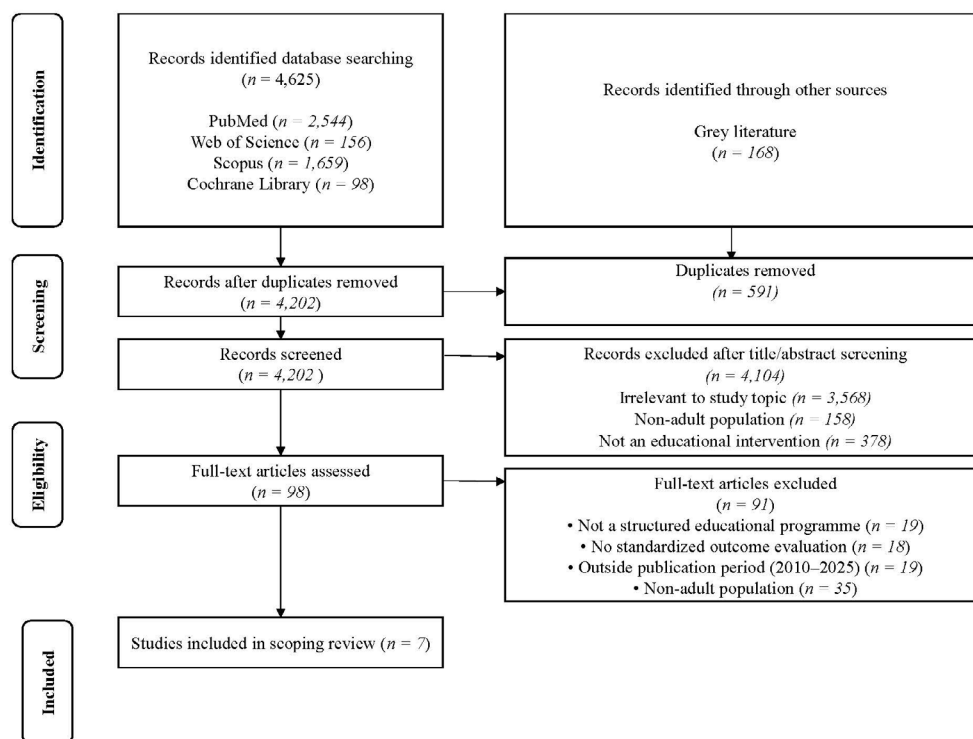


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews flow diagram
Abbreviation: MS: Multiple sclerosis.

included studies examining five main types of structured educational interventions:

- Overcoming MS (OMS)
- MS: Take Control (MSCT)
- Ready for MS
- E-Ready for MS
- MS Online Course (MSOC)

These programs represent diverse educational approaches but share common goals—to enhance quality of life, strengthen psychological resilience, and promote active self-management of the disease (Table 2).

4. Overview of structured educational programs for patients with multiple sclerosis

The OMS program is a comprehensive lifestyle intervention designed to promote healthy nutrition, regular physical activity, stress management, a positive mindset, and adequate vitamin D intake. Large multicenter studies, including the Health Outcomes and Lifestyle in a Sample of People with MS Study (2012–2015) and the STOP MS Study (2016–2021), evaluated the program using randomized controlled trials and observational designs, reporting improvements in quality of life, reductions in depression and fatigue, and slower disease progression.^{28,31}

The MSCT program focuses on providing patients with information about the disease, its course, treatment options, and symptom management strategies. It is designed for individuals seeking a better understanding of their condition and practical approaches to managing fatigue, depression, and anxiety. Findings from a

multicentered randomized controlled trial by Hugos *et al.*³² demonstrated that MSCT significantly improved quality of life and reduced anxiety, depression, and fatigue levels among participants.

The Ready for MS program was developed as a psychologically oriented intervention aimed at improving quality of life and psychological resilience through techniques of positive psychology, cognitive-behavioral strategies, and coping skill development. According to Giovannetti *et al.*,³³ participation in this program led to significant reductions in stress, anxiety, and depressive symptoms.

The E-Ready for MS program, an online adaptation of Ready for MS, was designed to enhance accessibility of educational interventions and allow patients to participate remotely.³⁴ Findings by Pakenham *et al.*³⁵ indicated that the online format also improves quality of life and psychological well-being, offering the advantages of flexibility and broader reach.

The MSOC provides patients with online access to educational content on healthy lifestyle, nutrition, physical activity, and stress management. The program is theoretically based on the structured OMS framework and incorporates behavioral change principles supported by interactive online tools. According to Hadgkiss *et al.*³⁶ and Bevens *et al.*,³⁷ the program contributes to improved quality of life and reduced depressive symptoms. Although current evidence remains preliminary due to ongoing pilot evaluations, the MSOC program represents a promising form of digital education for patients with MS.

Overall, structured educational programs for

Table 2. Overview of educational program formats

Program	Type/format/number of sessions	Duration	Notes (type of evidence)
Overcoming MS Program	7–8 group sessions (workshops) + online support	6–12 weeks (main program), followed by long-term online support	Randomized controlled trials, multicenter studies (HOLISM, STOP MS) ^{28,31}
MS: Take Control	6–8 individual or group sessions	6–8 weeks	Randomized controlled trial, multicenter ³²
Ready for MS	6–8 group sessions	6 weeks	Psychological and behavioral program, observational or pilot studies ³³
E-Ready for MS	Online, 6 modules	6 weeks	Fully online version of the Ready for MS program, pilot or observational studies ^{34,35}
MS Online Course	Online, self-paced modules	Flexible duration (typically 6–12 weeks)	Fully online version of the Ready for MS program, pilot or observational studies ^{36,37}

Abbreviations: HOLISM: Health Outcomes and Lifestyle in a Sample of People with Multiple Sclerosis; MS: Multiple sclerosis.

individuals with MS demonstrate consistent positive effects on quality of life, psychological well-being, and symptom management. Differences among programs primarily lie in their complexity and delivery format (in-person vs. online). For both clinical and nursing practice, these interventions represent an important tool to promote self-management, long-term treatment adherence, and improved patient empowerment.

5. Discussion

5.1. Application of educational programs in clinical practice

The analysis of available educational interventions highlights a variety of structured programs designed to support people living with MS in self-management, psychological well-being, and disease-related knowledge. The five main programs included in this review—OMS, MSCT, Ready for MS, E-Ready for MS, and the MSOC—differ in session format, duration, and accessibility (Table 3).

- OMS is a lifestyle-focused program that addresses nutrition, physical activity, stress management, and promotion of positive health behaviors. It has been evaluated in multicenter studies and randomized controlled trials.^{28,31}
- MSCT provides information on disease management, treatment options, and strategies for coping with symptoms such as fatigue, depression, and anxiety. Evidence comes from multicenter randomized controlled trials.³²
- Ready for MS is a psychologically oriented program aimed at enhancing resilience and quality of life through cognitive-behavioral and positive psychology techniques. Evaluations to date include pilot and observational studies.³³
- E-Ready for MS is the online adaptation of READY for MS, developed to increase accessibility and allow remote participation. Pilot and observational studies have examined its feasibility and potential benefits.^{32,34,35}
- MSOC provides online educational content on healthy lifestyle, physical activity, and stress management, based on the OMS framework. Preliminary pilot evaluations indicate potential benefits for participants.^{36,37}

These programs vary in complexity and delivery mode (in-person versus online) and have been studied using diverse designs, including randomized controlled trials, non-randomized controlled studies, and pilot or observational studies. Common features include personalizing content to patient needs, focusing on self-

management, and integrating psychological support and coping strategies. Online and digital formats offer flexibility and accessibility, though considerations may be needed for individuals with advanced disabilities or limitations in visual, cognitive, or motor functions.

Table 3 summarizes the characteristics of the programs, including session format, duration, target population, and type of evidence reported in the original studies. The table presents a descriptive overview of the programs and their intended applications, without evaluating comparative effectiveness or assigning levels of evidence.

5.2. Educational trends and future directions in multiple sclerosis care

Based on the analysis of available studies, it can be concluded that educational programs for individuals with MS play a key role in supporting self-management, improving quality of life, and facilitating adaptation to a chronic condition.^{33,36} A major trend observed in recent years is the shift from traditional group-based education to web-based and digital platforms, which enable a more personalized, flexible, and sustainable approach to patient education.^{35,38,39}

Web-based and digital programs are modern tools for supporting self-management. Their advantages include interactivity, accessibility, and the ability to tailor content to individual patient needs. These programs typically include modules focused on treatment adherence, stress management, rehabilitation, nutrition, and symptom tracking, enabling patients to better understand their disease trajectory and actively participate in their own care.^{40,41} Evidence suggests that eHealth interventions significantly improve fatigue management, emotional well-being, and treatment adherence in MS populations.⁴² While online programs such as E-Ready and MSOC improve accessibility for many patients, they may not be suitable for sub-populations with advanced disability, including older adults or those with significant visual, cognitive, or motor impairments (e.g., Expanded Disability Status Scale [EDSS] > 6.0). This highlights the need for alternative delivery formats or additional support to ensure equitable access to educational interventions for all people living with MS.^{15,43,44}

Group therapeutic sessions, facilitated by professionals such as nurses, psychologists, or physiotherapists, continue to play an essential role in the educational process.²⁷ They provide a space for experience sharing, problem-solving, and social adaptation, which are particularly valuable for people with MS, especially in the context of chronic fatigue and psychosocial challenges.^{27,45}

Mobile applications complement these approaches as

Table 3. Clinical application of structured educational programs for people with MS

Program	Target population	Mode of delivery	Focus	Study designs/evidence sources
Overcoming MS ^{28,31}	Patients in the early stages of MS	In-person/online	Lifestyle modification, nutrition, physical activity, stress management	Randomized controlled trials, multicenter observational studies
MS: Take Control ³²	Patients across all stages of MS	In-person/group-based	Fatigue, depression, anxiety, and treatment management	Randomized controlled trials, multicenter studies
Ready for MS/E-Ready for MS ³³⁻³⁵	Patients experiencing psychological challenges or difficulties adapting to disease progression	In-person/online	Psychological resilience, stress management, and positive psychology	Pilot studies, smaller observational studies
MS Online Course ³⁶	Patients preferring digital learning formats	Online	Lifestyle, nutrition, physical activity, stress management	Pilot studies, preliminary evaluations

Abbreviations: MS: Multiple sclerosis.

practical tools for everyday disease management. They allow patients to monitor symptoms, treatment adherence, hydration, diet, and physical activity. Some apps also include educational materials and reminders, thereby supporting long-term adherence and motivation.^{40,41} These tools also facilitate communication between patients and healthcare providers, enhancing continuity of care.

Another important component of modern educational approaches involves cognitive-behavioral techniques (CBT), which have proven effective in managing stress, anxiety, and depression.^{46,47} These techniques include relaxation exercises, positive self-assessment, and activity planning, helping patients strengthen psychological resilience and cope with daily challenges. The integration of CBT principles into digital education modules has shown promising results in improving psychological well-being and reducing fatigue.³⁵

Community-based programs and peer support extend the educational process by incorporating a social dimension. They rely on the principle of experiential learning through interaction with other individuals living with MS, thereby enhancing motivation, treatment adherence, and social inclusion. Peer-led interventions have also been shown to foster empowerment and self-efficacy among participants.^{15,27,35}

A common feature of all identified interventions is personalization according to patient needs, with a strong emphasis on enhancing self-management, improving quality of life, and effectively managing disease symptoms. For future development, further comparative studies on the effectiveness of digital and hybrid programs, their integration into clinical practice, and the involvement

of multidisciplinary teams in patient education are recommended.⁴⁸⁻⁵⁰

In addition to the interventions analyzed, other educational programs focusing on the specific nutritional needs of people with MS,^{51,52} as well as programs aimed at general education and the management of selected disease-related symptoms,⁵³ such as fatigue or spasticity, have also been described.^{32,54} Although these programs did not meet the inclusion criteria of our study, available evidence suggests that they are beneficial for improving knowledge, self-management, and overall education in this patient population.

5.3. Methodological and conceptual limitations of the review

The analysis of available studies reveals several methodological and conceptual limitations that influence the interpretation of results and their transferability into clinical practice. One of the main issues is the heterogeneity of interventions—individual programs differ not only in content, format, and duration but also in their methods of evaluating effectiveness. This variability makes it difficult to compare findings across studies and prevents the development of a unified model of effective educational intervention for people with MS.

Another limitation is the predominant focus on short-term outcomes, as few studies assess the long-term effects of educational interventions. Most available research evaluates changes in quality of life, anxiety, depression, or fatigue over a period of several months, which provides only a partial view of the sustained impact of education on patient behavior, treatment adherence, and long-term

disease prognosis.

A substantial gap is also evident in the lack of linkage between education and clinical outcomes. Only a limited number of studies assess the impact of education on objective parameters such as disability progression (e.g., EDSS), relapse rate, or inflammatory biomarkers. Most programs focus primarily on subjective self-assessment, which reduces the robustness of the evidence and limits the demonstration of clear clinical benefits.

Future research should therefore emphasize multicentered, longitudinal, and interdisciplinary studies that systematically evaluate the effect of educational interventions in combination with standard medical treatment and their impact on long-term clinical and psychosocial outcomes. The integration of digital tools, behavioral techniques, and personalized strategies into clinical practice could represent a step toward a more effective and sustainable model of MS patient care.

5.4. Recommendations for future development of education and research in multiple sclerosis care

5.4.1. Lifestyle intervention components

Patient education should systematically incorporate elements focused on lifestyle modification—particularly nutrition, physical activity, sleep hygiene, and stress management. Evidence indicates that these factors significantly influence quality of life, psychological well-being, and disease course. Programs such as OMS demonstrate strong potential for promoting behavioral change; therefore, their principles should be integrated into clinical practice as part of long-term MS management.

5.4.2. Standardization of outcome measures

To effectively evaluate intervention outcomes, it is essential to use standardized indicators that combine subjective and objective parameters. These include patient-reported measures such as the MS Quality of Life-54, Hospital Anxiety and Depression Scale, and Modified Fatigue Impact Scale, as well as objective clinical markers such as the EDSS and relapse rate. Standardization will improve cross-study comparability and support the development of evidence-based clinical recommendations. Furthermore, long-term assessments should include behavioral changes, treatment adherence, and disease progression.

5.4.3. Research on combined (hybrid) educational models

Future research should promote hybrid models of education that integrate individual, group-based, and digital interventions. Such models enable tailored education according to patient needs and increase

accessibility. Combining digital platforms, peer support, and professional guidance can maximize the effects of self-management and adherence.

Longitudinal research focusing on the sustained impact of educational programs on clinical, psychosocial, and behavioral outcomes is needed. The involvement of multidisciplinary teams—including neurologists, nurses, psychologists, physiotherapists, and dietitians—is crucial for a comprehensive assessment of the effectiveness of these interventions.

6. Conclusion

Patient education in MS represents an integral component of comprehensive care and plays a crucial role in developing self-management skills, enhancing treatment adherence, and improving overall quality of life. This review highlights the growing importance of structured, multidisciplinary, and increasingly digital education programs that enable a personalized approach tailored to patients' individual needs.

Available evidence suggests that the most effective interventions combine education, psychological support, and behavioral lifestyle modification. Despite promising results, several methodological limitations remain—particularly the heterogeneity of programs, short-term follow-up, and insufficient linkage to clinical outcome measures.

Future efforts should focus on standardizing evaluation tools, long-term monitoring of intervention effects, and developing hybrid education models that integrate in-person, group-based, and online components. Strengthening the research evidence base and implementing validated programs into clinical practice may significantly improve the quality of care for patients with MS and promote their active engagement in disease management.

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Conflict of interest

The authors declare that there are no conflicts of interest

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Ethics approval and consent to participate

Not applicable.

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Availability of data

Data are available from the corresponding author upon reasonable request.

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