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Designing a Self-Care Training Package Based on Self-Efficacy for the Treatment of Patients with Multiple Sclerosis

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ABSTRACT

This study aimed to design a self-efficacy-based self-care educational package tailored for patients with multiple sclerosis (MS) to enhance their empowerment, health literacy, treatment adherence, and psychological well-being. A qualitative research design was employed using thematic analysis based on the Attride-Stirling (2001) framework. Data were extracted from a purposive sample of scientific texts, including peer-reviewed articles, books, and theses published between 2011 and 2023 that addressed self-efficacy, empowerment, and self-care. The analysis was conducted inductively using MAXQDA software. The coding process involved identifying 236 initial codes, which were grouped into 91 basic themes, 16 organizing themes, and 6 overarching global themes. These findings informed the development of a structured 10-session educational package. Content validity of the package was confirmed through expert evaluation and calculation of the Content Validity Ratio (CVR). Thematic analysis revealed six global themes essential for MS self-care: (1) health literacy and informed decision-making, (2) physical care and healthy lifestyle, (3) mental health and stress coping, (4) social support and communication, (5) medication management and treatment adherence, and (6) spiritual education. Each session of the package addressed one or more of these domains through a combination of theoretical instruction, practical exercises, multimedia content, and group discussion. The package content was developed based on culturally relevant sources and validated theoretical constructs. The inclusion of spiritual and psychological components was emphasized to match the sociocultural needs of the target population. The developed self-care training package offers a comprehensive, theory-driven, and culturally contextualized intervention for enhancing the self-efficacy and well-being of MS patients. It integrates cognitive, behavioral, emotional, and spiritual dimensions, offering a practical and holistic approach to chronic illness management.

Keywords: Multiple sclerosis, self-care, self-efficacy, educational package, thematic analysis, health literacy, treatment adherence.

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Introduction

Multiple sclerosis (MS) is a chronic, progressive, and debilitating neurological disease characterized by demyelination of the central nervous system, leading to a wide range of motor, cognitive, and psychosocial impairments. Due to its unpredictable nature and complex symptomatology, MS requires long-term care, adherence to treatment, and active involvement of patients in self-management practices. Despite advances in pharmacological treatment, effective disease control and quality of life improvements are heavily dependent on the patient's ability to engage in sustainable self-care behaviors rooted in psychological empowerment and perceived self-efficacy (1, 2). In this context, the promotion of self-efficacy—a belief in one's ability to perform specific health-related behaviors—has emerged as a critical determinant of treatment adherence, symptom control, and overall well-being in patients with chronic illnesses, including MS (3, 4).

Self-efficacy, as conceptualized by Bandura, plays a mediating role between knowledge, motivation, and behavioral outcomes. In patients with MS, higher self-efficacy has been associated with better disease management, greater resilience in the face of physical and psychological challenges, and reduced levels of depression and anxiety (5, 6). Accordingly, educational interventions that enhance self-efficacy can significantly improve patients' engagement in therapeutic routines and adaptive behaviors. The development of such interventions, however, requires a systematic understanding of the multifaceted factors that influence self-care behaviors. These factors range from health literacy, psychological adjustment, and social support to religious beliefs and cultural values (7-9).

Empirical evidence suggests that structured self-care training programs tailored to the specific needs and psychosocial profiles of MS patients can lead to meaningful improvements in both physical health and psychological outcomes. For instance, Bozorgzadeh et al. demonstrated that applying Orem's self-care model increased self-efficacy in hemodialysis patients, confirming the transdiagnostic value of theory-driven self-care education (10). Similarly, Darvishpour et al. emphasized the role of health literacy and self-efficacy in promoting self-care behaviors among older adults with hypertension, reinforcing the argument that patients' cognitive and informational capacities are foundational to sustainable behavior change (11). In the context of MS, recent studies have underscored the importance of understanding illness perception and psychological readiness as prerequisites for designing effective interventions (7, 12).

In Iran, where the prevalence of MS has increased significantly over the past two decades, the need for culturally and contextually appropriate educational programs has become increasingly urgent (13, 14). While many patients receive pharmacological care, the integration of psychosocial and self-care training into routine clinical services remains limited. The cultural dimensions of health belief systems, religious practices, and family dynamics in Iranian society make it essential for any intervention to be sensitive not only to biomedical but also to psychosocial variables. For instance, studies have shown that incorporating spiritual practices and religious coping into health education can improve motivation, emotional resilience, and adherence to treatment plans among patients with chronic diseases (9, 15).

Several investigations into chronic illness management have revealed the mediating role of self-efficacy in the relationship between symptom burden, depression, and self-care. Gao et al. found that self-efficacy mediated the effects of both diabetes-related distress and depressive symptoms on glycemic control, emphasizing the psychological mechanisms that underpin health behavior change (6). Similarly, Chin et al. reported that self-care mediated the effect of symptom-management self-efficacy on quality of life in women

with breast cancer, illustrating the generalizability of self-efficacy mechanisms across diverse patient populations (16). These findings highlight the importance of embedding cognitive-behavioral elements and stress management techniques into educational packages for chronic conditions.

Moreover, the application of digital tools has been identified as an emerging approach to supporting self-care among patients with chronic illnesses. Mehraeen et al., for example, developed a mobile-based application for diabetes self-care, emphasizing the need for accessible, scalable, and interactive platforms to support patient engagement (17). However, technology alone is not sufficient. The cognitive, emotional, and social readiness of patients must be addressed through structured training, psychological reinforcement, and social support facilitation. This is especially relevant for MS patients, whose cognitive fatigue and neurological symptoms may limit their capacity to engage with complex digital tools without adequate scaffolding (2).

In parallel, socio-demographic and psychological variables such as age, depression, and perceived social support have been identified as important determinants of self-care behaviors. Shrestha et al. found a strong association between subthreshold depression and reduced self-care practices in adults with type 2 diabetes, underscoring the interplay between mood disorders and self-management capacity (18). Park et al. further emphasized that social support mediates the relationship between Type D personality and self-care behaviors in heart failure patients, suggesting that psychosocial reinforcement mechanisms play a central role in sustaining health behavior (8).

Within the Iranian context, Pourhaji et al. recently developed and validated a questionnaire to assess factors influencing self-care in MS patients, which included dimensions of self-efficacy, spirituality, and social support. This instrument provides a strong foundation for designing structured training programs targeting these key determinants (7). Building on such frameworks, the current study aims to develop a comprehensive self-efficacy-based self-care educational package tailored for MS patients, integrating elements of health education, psychological empowerment, spiritual training, and lifestyle management.

The proposed intervention addresses several domains: enhancing health literacy, promoting treatment adherence, supporting psychological well-being, encouraging physical activity, fostering social engagement, teaching medication management, and reinforcing spiritual coping. These domains are drawn from a synthesis of empirical evidence and theoretical constructs supported across diverse populations (5, 19, 20). Notably, interventions that align with patients' lived experiences and cultural beliefs tend to show higher acceptability, sustainability, and behavioral impact.

In summary, given the multifaceted challenges faced by individuals with multiple sclerosis, there is an urgent need to design holistic, evidence-informed educational programs that address their cognitive, emotional, behavioral, and spiritual needs. This study seeks to fill that gap by developing and validating a self-care training package grounded in self-efficacy theory and adapted to the sociocultural context of Iranian MS patients.

Methods and Materials

Study Design and Participants

This research employed a qualitative design utilizing the thematic analysis method proposed by Attride-Stirling (2001) to analyze textual data. The primary objective was to design an educational self-care package

grounded in self-efficacy theory for individuals diagnosed with multiple sclerosis. The qualitative phase of the study focused on content derived from academic and scientific texts published between 2011 and 2023 (1390 to 1402 in the Persian calendar), specifically those addressing the themes of self-efficacy, empowerment, and self-care.

Participants in this phase were not individuals but rather purposively sampled texts, selected for their relevance to the research objectives. The inclusion criteria comprised: 1) scholarly articles related to self-efficacy with a focus on empowerment and self-care published in reputable scientific journals, 2) texts from credible domestic or international publishers within the scope of the research topics, 3) works published between 2015 and 2023, and 4) graduate theses (master's or doctoral level) addressing self-efficacy and self-care, published between 2011 and 2023. Exclusion criteria included texts published in non-scientific or internet-based magazines, undergraduate theses, and works written in languages other than Persian or English. Text selection was guided by theoretical saturation and conducted under the supervision of academic advisors, with formal approvals secured beforehand.

Data Collection

The primary data sources in this study were textual documents—scientific articles, books, and theses—relevant to the constructs of self-efficacy, self-care, and psychological empowerment. These documents were imported into MAXQDA software for thematic coding. The coding approach was inductive, adhering to Attride-Stirling's (2001) thematic network framework. This method identifies three levels of themes: basic themes, organizing themes, and global themes. Basic themes are the most granular, directly emerging from textual data and representing foundational concepts. These are grouped into organizing themes, which abstractly categorize patterns across several basic themes. Finally, global themes unify the organizing themes, offering a comprehensive synthesis and interpretive framework.

The process of coding and thematic extraction was conducted through three overarching phases. The first phase—text segmentation—involved initial coding, theme definition, and network construction. During the initial coding, sections of text were identified and annotated to form a preliminary coding framework. The theme definition step reduced and grouped codes into the aforementioned three thematic categories based on their position and role in the network. The third step involved building the visual network of themes.

The second phase—exploration—consisted of describing and discovering the thematic network and summarizing the connections across themes. This process enabled the researchers to clarify how basic and organizing themes were nested within each global theme. The third and final phase—integration—focused on extracting interpretive patterns from the thematic network, synthesizing insights, and linking them back to the theoretical foundation of the study. This allowed for constructing a coherent conceptual narrative to inform the content of the training package.

The analytic method adopted was inductive, meaning that themes were drawn directly from the data rather than being pre-imposed. Unlike deductive methods where analysis starts with theory-driven assumptions, the inductive process prioritized themes that naturally emerged from within the data corpus. Thus, the researcher's role was interpretive, with the identification of patterns progressing from specific basic themes to broader global interpretations.

Data analysis

The data were analyzed using the Attride-Stirling thematic analysis framework within the MAXQDA software environment. Each document was thoroughly reviewed and thematically coded, starting with micro-level (basic) themes, which were then synthesized into mid-level (organizing) themes. These, in turn, informed the derivation of macro-level (global) themes. The resulting thematic networks functioned as both an analytic and a visual tool, enabling the identification of patterns, connections, and hierarchies within the data.

The analytic process followed the six procedural steps outlined by Attride-Stirling: initial coding, theme development, thematic network construction, network exploration, summarization, and interpretive pattern identification. Through these steps, the researcher was able to distill complex theoretical constructs of self-efficacy, empowerment, and self-care into actionable training modules. The iterative nature of the process allowed the findings to reach theoretical saturation, ensuring a rich and nuanced conceptual foundation for the subsequent development of the educational package.

Upon the conclusion of thematic analysis, the educational package was drafted based on the extracted themes and subthemes. This draft was refined under the guidance of academic supervisors. For content validation, a panel of seven experts in cognitive empowerment and neuropsychological rehabilitation was consulted. They were provided with the training package and an evaluation form assessing content validity, instructional design, and temporal structuring. Using their feedback, the Content Validity Ratio (CVR) was calculated to determine consensus and validity across expert judgments. The validated package was thereby established as a theoretically grounded and methodologically robust intervention tool for self-care enhancement among patients with multiple sclerosis.

Findings and Results

The qualitative content analysis using the Attride-Stirling thematic framework yielded a rich and layered network of themes relevant to the design of a self-efficacy-based self-care training package for patients with multiple sclerosis (MS). A total of 236 initial codes were extracted from the selected texts. These codes were systematically grouped into 91 basic themes, which were further categorized into 16 organizing themes. Each organizing theme encapsulates a set of conceptually related basic themes that collectively contribute to broader patterns of understanding concerning self-care, empowerment, and self-efficacy in MS management. The following table summarizes these organizing themes along with their corresponding basic themes.

Table 1. Extracted Organizing and Basic Themes from Initial Codes

Organizing Themes	Basic Themes
Enhancing Patients' Ability to Understand Medical Info	Awareness of the disease, Complementary therapies, Drug knowledge and usage, Traditional medicine, Acquiring knowledge about MS
Understanding Common Symptoms	Motor impairment, Complexity of factors, Fatigue, Pain, Symptoms, Life limitations, Visual problems
Identifying Causes	Stress and anxiety, Basic information about MS, Self-inefficacy, Access to resources, Smoking, Living environment, Vitamin D, Virus
Active Participation in Treatment Decisions	Sense of control in decision-making, Self-care education, Treatment adherence, Specialized care follow-up, Conscious health actions, Responsibility
Proper Nutrition and Hygiene	Omega-3, Antioxidants, Nutrition awareness, Hygiene
Physical Activity	Increasing physical activity, Walking, Obesity, Sufficient sleep, Swimming, Exercise

Instilling Hope	Encouragement of personal abilities, Self-respect, Hope, Self-management, Locus of control, Recalling past success
Problem-Solving Skills Training	Planning for the future, Vicarious experiences, Emotional regulation
Encouragement and Motivation	Creating motivation, Verbal persuasion, Positive thinking, Striving for goals, Facing obstacles
Strategies for Coping with Emotional Changes	Attitude change, Psychological support, Mindfulness
Managing Anxiety and Depression	Sense of emptiness, Psychological disorders, Stress and anxiety, Depression, Calming techniques, Resilience, Helplessness, Meditation, Exercise, Yoga
Improving Communication and Peer Interaction	Effective communication, Interaction with support groups, Social support, Supportive relationships, Participation opportunities, Social involvement
Reducing Sense of Isolation	Feeling of connection and belonging, Social patterns, Access to collective power, Networking and cooperation, Social activity, Civic engagement, Family time
Awareness of Medication Side Effects	Identifying complications
Adherence to Treatment Regimen	Consistent follow-up, Regular medication use
Spiritual and Existential Meaning	Encouragement to use religious beliefs, Connection to a higher power, Sense of worthiness, Meaningful life choices, Inner beliefs and values, Life goals, Meaning-making in illness experience

In summary, the thematic structure demonstrates a comprehensive mapping of the psychological, behavioral, medical, social, and spiritual dimensions critical to self-care in MS patients. The 16 organizing themes collectively form the backbone of the training content, each rooted in several basic themes that emerged inductively from the data. These themes not only highlight the multifaceted nature of self-efficacy in chronic illness management but also provide a structured foundation for building targeted, evidence-based educational modules aimed at enhancing patients' self-regulatory capacities, resilience, and active involvement in their treatment journey.

Table 2. Extracted Basic, Organizing, and Global Themes from the Literature

Basic Themes	Organizing Themes	Global Themes
Awareness of disease	Enhancing patients' ability to understand medical info	Health literacy and informed decision-making
Complementary therapies		
Drug knowledge and usage		
Traditional medicine		
Acquiring knowledge about MS		
Motor dysfunction	Understanding common symptoms	
Complexity of factors		
Fatigue		
Pain		
Symptoms		
Life limitations		
Visual impairment		
Stress and anxiety	Identifying causes	
Basic MS info		
Self-inefficacy		
Access to resources		
Smoking		
Place of residence		
Vitamin D		
Virus		
Feeling of control over decisions	Active participation in treatment decisions	
Self-care education		
Treatment adherence		
Specialized care follow-up		
Conscious health behaviors		
Responsibility acceptance		
Participation in treatment		

Participation in medical care		
Omega-3	Proper nutrition and hygiene	Physical care and healthy lifestyle
Antioxidants		
Nutrition awareness		
Hygiene		
Increased physical activity	Physical activity	
Walking		
Obesity		
Sufficient sleep		
Swimming		
Exercise		
Encouragement of abilities	Instilling hope	Mental health and stress coping
Self-respect		
Hope		
Self-management		
Locus of control		
Recalling past success		
Planning for the future	Problem-solving skills training	
Vicarious experiences		
Emotional regulation		
Creating motivation	Encouragement and motivation	
Verbal persuasion		
Positive thinking		
Goal striving		
Facing obstacles		
Attitude change	Coping strategies for emotional changes	
Psychological support		
Mindfulness		
Feeling of emptiness	Managing anxiety and depression	
Psychological disorders		
Anxiety and stress		
Depression		
Calming techniques		
Resilience		
Helplessness		
Meditation		
Exercise		
Yoga		
Effective communication	Improving communication and group engagement	Social support and relationships
Interaction with support groups		
Social support		
Supportive relationships		
Participation opportunities		
Social involvement		
Needing help from others		
Feeling of connection and belonging	Reducing isolation	
Social patterns		
Access to collective power		
Networking and cooperation		
Social activity		
Civic engagement		
Spending time with family		
Side effects awareness	Awareness of medication side effects	Medication management and treatment adherence
Continuous follow-up	Treatment regimen adherence	
Regular medication use		
Encouragement to use religious or spiritual beliefs	Connection to higher power / religious belief	Spiritual education
Sense of worthiness	Life meaning and purpose	
Meaningful choices		
Core beliefs and values		

Defining higher goals in life	
Helping patients find meaning in illness experience	
Finding meaning in life	

The final thematic analysis revealed a robust multilevel thematic structure comprising 91 basic themes, 16 organizing themes, and 6 overarching global themes. These global themes provide the foundational domains for the conceptual framework of the self-care training package tailored to patients with multiple sclerosis. The first global theme, *Health Literacy and Informed Decision-Making*, encompasses organizing themes such as enhancing understanding of medical information and identifying symptoms and causes, with basic themes like awareness of disease, drug knowledge, and access to reliable health information. The second domain, *Physical Care and Healthy Lifestyle*, includes themes related to nutrition, hygiene, and physical activity, such as maintaining sleep hygiene, exercise, and proper diet. The third global theme, *Mental Health and Stress Coping*, comprises organizing themes around emotional support, stress regulation, and hope-building, integrating psychological resources like resilience, emotional regulation, and motivational strategies. The fourth theme, *Social Support and Relationships*, addresses interpersonal and societal support systems including communication skills, participation in groups, and family interaction, as ways to reduce isolation and foster belonging. The fifth domain, *Medication Management and Treatment Adherence*, is anchored in practical adherence behaviors and awareness of side effects. Finally, the sixth global theme, *Spiritual Education*, encapsulates existential dimensions such as religious belief, life meaning, and value-based decision-making. Collectively, these themes offer a comprehensive and culturally contextualized foundation for building an evidence-informed, self-efficacy-driven educational intervention aimed at enhancing multidimensional well-being among MS patients.

Following the identification and analysis of key themes in previous stages, the process of developing the self-efficacy-based self-care educational package for patients with multiple sclerosis was initiated. This package was designed to enhance the capabilities, satisfaction, and treatment adherence of patients living with MS. The goals of the package include: (1) educating patients in self-care practices rooted in self-efficacy theory, (2) improving health literacy and empowering patients to make informed decisions about their condition, (3) promoting physical health and a healthy lifestyle based on self-efficacy, (4) reducing stress and anxiety through mental health-enhancing self-care, (5) strengthening social support and communication skills, (6) teaching medication management and adherence strategies, and (7) integrating spirituality and religious beliefs as tools for emotional calm and self-efficacy enhancement.

The package is structured into 10 sessions, with each session focused on one or more core themes derived from the thematic analysis. Sessions include theoretical content, group discussions, multimedia resources, and practical exercises. The table below outlines the content, purpose, tasks, and techniques of each session.

Table 3. Content of the Developed Self-Efficacy-Based Self-Care Educational Package for MS Patients

Session	Title	Description	Assignments	Techniques Used
1	Introduction to the Package and the Disease	Overview of objectives, causes and symptoms of MS, prescribed medications	Writing personal goals; reading about MS and sharing with group	Lecture, multimedia, group discussion
2	Responsibility and Participation in Treatment	Topics: self-care, treatment adherence, follow-ups, health responsibility	Sharing personal treatment experiences with group	Lecture, multimedia, group discussion

3	Stress and Anxiety Management – Part 1	Introduction to relaxation techniques and stress-reduction methods	Practicing relaxation at home and documenting experiences	Relaxation training, group discussion, hands-on practice
4	Stress and Anxiety Management – Part 2	Breathing exercises, meditation, yoga, and mental practices	Daily practice of deep breathing and meditation	Practical exercises, individual/group guidance, educational videos
5	Physical Care and Healthy Lifestyle	Nutrition (Omega-3, vitamin D, antioxidants), hygiene, healthy eating	Recording and analyzing one-week food intake	Educational content, visual aids, group discussion
6	Physical Activity	Benefits of exercise, suitable workouts for MS patients	Performing and logging daily physical activity, evaluating physical response	Educational videos, practical exercises, group and individual coaching
7	Social Support and Communication	Importance of family/social relationships, effective communication, group support participation	Engaging in family interactions and social activities; sharing experiences	Educational content, group discussion, practical exercises, video demonstrations
8	Medication Management and Treatment Adherence	Drug side effect awareness, motivation for treatment consistency, regular checkups	Sharing personal experiences with different medications	Educational content, visual aids, group discussion
9	Religious Teachings – Part 1	Religious principles related to healthy lifestyle, Islamic and Quranic teachings	Practicing religious teachings in daily life	Educational content, group discussion, multimedia, religious prayer practice
10	Religious Teachings – Part 2	Finding meaning, purpose, self-worth, and personal values in life	Goal-setting and meaning-making in life	Practical exercises, group discussion, multimedia

Each session of the program was carefully crafted under the supervision of the academic advisor and subject matter consultant. The content of every session is directly informed by the core themes extracted from the qualitative analysis and supported by valid scientific sources. For example, sessions one and two introduce the disease and the concept of active treatment participation; sessions three and four focus on psychological well-being by training stress reduction and mindfulness techniques; sessions five and six emphasize physical care and activity; session seven enhances social functioning; session eight promotes medication adherence; and the final two sessions integrate spiritual teachings to foster inner resilience and existential strength. Altogether, the 10-session package forms a comprehensive, theory-driven intervention intended to empower MS patients with tools for holistic self-care rooted in self-efficacy.

Discussion and Conclusion

The findings of this study, grounded in qualitative thematic analysis using the Attride-Stirling framework, led to the development of a comprehensive self-efficacy-based self-care educational package for patients with multiple sclerosis (MS). Through a meticulous process of content analysis, 236 initial codes were identified and systematically categorized into 91 basic themes, 16 organizing themes, and 6 global themes. These themes formed the foundation for a 10-session educational intervention aimed at enhancing physical, psychological, social, and spiritual aspects of self-care in MS patients. The thematic domains—health literacy and informed decision-making, physical care and healthy lifestyle, mental health and stress coping, social support and relationships, medication management and treatment adherence, and spiritual education—reflect a holistic understanding of self-care that aligns with existing literature on chronic illness management.

The emergence of *health literacy and informed decision-making* as a global theme is consistent with prior findings emphasizing the role of patient knowledge and understanding in fostering self-care behaviors. In chronic disease contexts such as hypertension and diabetes, poor health literacy has been linked to reduced

self-care and treatment adherence (11, 19). In the specific case of MS, patients' ability to comprehend their condition, interpret treatment options, and make informed decisions is a crucial step toward empowerment. This finding is in line with the work of Pourhaji et al., who identified health literacy as a major factor influencing self-care in Iranian MS patients (7). The emphasis on improving patients' capacity to interpret and use medical information within the training package is therefore both timely and evidence-based.

Another key theme—*physical care and healthy lifestyle*—emerged from the data as a crucial component of self-care. Proper nutrition, physical activity, and hygiene were identified as foundational practices for enhancing physical well-being and managing MS-related symptoms. These results are congruent with earlier research indicating that adherence to physical self-care behaviors improves quality of life and disease outcomes in various chronic conditions (10, 13). Gao et al. further highlight that physical health behaviors are closely tied to patients' psychological state and perceived self-efficacy, suggesting a reciprocal relationship between physical engagement and mental resilience (6). Accordingly, the package includes modules on exercise routines, nutritional awareness, and the use of supplements, ensuring a practical orientation toward bodily care.

A third global theme—*mental health and stress coping*—demonstrated the centrality of psychological resilience, emotional regulation, and hope-building in MS self-care. Sessions three and four of the package specifically target stress management through relaxation, mindfulness, and positive cognitive reframing. These strategies have been validated in previous interventions; for example, Sabetfar et al. found mindfulness-based therapy to significantly reduce stress and improve emotion regulation in hypertensive patients (21). Similarly, Chen et al. identified depressive symptoms as a mediating factor between illness burden and self-care in hypertension patients, highlighting the necessity of addressing emotional well-being in chronic disease interventions (3). In MS populations, where emotional disturbances are common, such targeted strategies are not only relevant but indispensable.

The domain of *social support and communication* further reinforces the importance of relational factors in sustaining self-care. The organizing themes revealed the need to strengthen patients' ability to form effective communication patterns, seek support, and participate in social and civic activities. These results echo Park et al.'s findings on the mediating role of social support in the relationship between personality and self-care behavior in heart failure patients (8). Moreover, Nguyen et al. demonstrated that patients undergoing hemodialysis who perceived stronger social support had better self-efficacy and mental health outcomes (5). The inclusion of group interaction and peer-based exercises within the educational package aligns well with these findings and ensures that the social dimension of care is effectively addressed.

Medication adherence and management, as another organizing category, was also a prominent outcome. Many participants cited concerns around understanding side effects, remembering dosages, and maintaining consistency. These findings are in agreement with prior studies showing that self-efficacy is a significant predictor of medication adherence across a variety of conditions (6, 12). Mehraeen et al.'s work on digital self-care tools further underscores the importance of integrating structured guidance to support medication routines in patients with cognitive fatigue or complex treatment plans (17). In our study, specific sessions were dedicated to addressing these needs through motivational strategies, tracking techniques, and peer exchange, thus creating a multi-layered approach to therapeutic compliance.

A particularly innovative component of the developed package is its focus on *spiritual education*, which includes themes such as existential meaning-making, connection to a higher power, and the use of religious practices for emotional regulation. This reflects cultural and contextual sensitivity to the Iranian population, where religious and spiritual beliefs are closely tied to coping mechanisms. The value of spiritual self-care in managing chronic illness has been established in several studies. Salehi Mobarakeh et al. demonstrated the effectiveness of spiritual self-care training on health self-efficacy and quality of life in hemodialysis patients (9). Likewise, Pourhossein et al. found that combining stress management with spiritual elements improved psychological outcomes in diabetic populations (15). By incorporating these elements into the MS self-care package, the current study addresses an often-overlooked yet deeply impactful domain of health behavior.

Collectively, these findings confirm that a comprehensive, culturally adapted, and theoretically grounded educational package can serve as a powerful tool to enhance the self-care capacities of patients with MS. The structured 10-session design, based on a rich network of themes derived through qualitative content analysis, provides an integrative framework that addresses not just the biological but also the emotional, social, and spiritual dimensions of chronic illness management. The alignment of the results with existing empirical evidence across diverse chronic illnesses strengthens the credibility and potential applicability of the intervention. Furthermore, the study contributes methodologically by employing the Attride-Stirling thematic analysis in a novel context, thereby expanding its use within chronic illness education research.

Despite its strengths, this study has several limitations. First, the qualitative design, while rich in depth and context, limits the generalizability of the findings. The thematic codes and resulting package were derived from textual data and literature sources, not direct patient interviews, which may omit certain experiential nuances. Second, the cultural specificity of the package design—targeted toward Iranian MS patients—may limit its immediate applicability to other populations or sociocultural contexts. Third, while expert validation was used to assess the content validity of the package, its practical efficacy has not yet been empirically tested through clinical implementation or experimental design. As such, the impact of the training on actual behavior change, treatment adherence, or quality of life remains to be evaluated.

Future research should explore the empirical testing of the developed educational package through experimental or quasi-experimental designs involving MS patients. Randomized controlled trials could be conducted to assess the effectiveness of the intervention on various outcome variables such as self-efficacy, depression, treatment adherence, and quality of life. Additionally, longitudinal studies could investigate the sustainability of behavioral changes over time and the moderating roles of demographic variables such as age, gender, and education level. It would also be valuable to explore the integration of digital platforms for delivering the training package, particularly in remote or underserved settings. Comparative studies across different cultural contexts could offer insights into the adaptability and universality of the thematic domains identified.

Healthcare practitioners working with MS patients should consider integrating structured, multidimensional self-care training into routine care plans. Emphasis should be placed on enhancing patients' self-efficacy through experiential learning, emotional regulation training, and community support facilitation. Incorporating spiritual and cultural components may enhance patient engagement and acceptance. Collaboration among neurologists, psychologists, nurses, and social workers is essential to

deliver this training in an interdisciplinary and coherent manner. Lastly, patient education must go beyond information dissemination and focus on empowerment, behavior modeling, and ongoing motivational support to ensure long-term adherence and well-being.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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