

Behavioral Interventions in Multiple Sclerosis

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Importance: Multiple sclerosis (MS) is a complex and unpredictable neurologic disease affecting nearly 1 million people in the US. People with MS commonly experience multiple physical and psychological symptoms such as depression, anxiety, stress, fatigue, and pain that impact functioning and quality of life. Subsequently, living with MS requires routine management of MS symptoms, adaptation to challenges, and engagement in health behaviors to promote well-being over time.

Observations: There is considerable evidence that behavioral interventions that increase cognitive and/or behavioral skills to address the challenges of day-to-day life with MS can promote resilience and reduce overall distress associated with this chronic and unpredictable disease. Brief group-based cognitive-behavioral

therapy (CBT) and CBT-based interventions (eg, self-management) have been shown to reduce symptoms of depression, anxiety, stress, fatigue, and pain in people with MS, including via telehealth delivery. Likewise, mindfulness-based interventions have been shown to improve depression, anxiety, stress, fatigue, and quality of life in people with MS. Behavioral interventions also have been shown to improve health behaviors such as physical activity and adherence to disease modifying therapies in MS. Unlike other treatment options, behavioral interventions can be delivered in various formats (eg, in-person, telehealth), are time-limited, and cause few (if any) undesirable systemic side effects.

Conclusions: Behavioral intervention is an integral component of interprofessional care and key aspect of living well with MS.

Multiple Sclerosis (MS) is a chronic demyelinating disease of the central nervous system that affects nearly 1 million people in the US.¹ In addition to the accumulation of functional limitations, patients with MS commonly experience mental health and physical symptoms such as depression, anxiety, stress, fatigue, and pain. Day-to-day life with MS requires adaptation to challenges and active maintenance of health and well-being over time. Behavioral intervention and treatment, whether in the form of psychotherapy, health behavior coaching, or the promotion of active self-management, is an integral component of interprofessional care and key aspect of living well with MS.

BEHAVIORAL COMORBIDITIES

Depression

Depression is a common concern among individuals with MS. Population-based studies suggest that individuals with MS have a roughly 1 in 4 chance of developing major depressive disorder over their lifetime.² However, at any given time, between 40% and 60% of individuals with MS report clinically meaningful levels of depressive symptoms.³ Although the relationship between MS disease characteristics and depression is unclear, some evidence suggests that depressive symptoms are more common at certain points in illness, such as early in the disease process as individuals grapple with the onset of new symptoms, late in the disease process as they accumulate greater disability, and during active clinical relapses.³⁻⁵

Depression often is comorbid with, and adds to the symptom burden of, other common con-

ditions in MS such as fatigue and cognitive dysfunction.⁶⁻⁸ Thus, it is not surprising that it is associated with poorer overall quality of life (QOL).⁹ Depression also is a risk factor for suicidal ideation and suicide for patients with MS.^{10,11}

Fortunately, several behavioral interventions show promise in treating depression in patients with MS. Both individual and group formats of cognitive behavioral therapy (CBT), a treatment focused on challenging maladaptive patterns of thought and behavior, have been shown to improve depressive symptoms for people with MS.^{12,13} Several brief and efficient group-based programs grounded in CBT and focused on the development of specific skills, including problem solving, goal setting, relationship management, and managing emotions, have been shown to reduce depressive symptoms.^{13,14} CBT for depression in MS has been shown to be effective when delivered via telephone.^{15,16}

Anxiety

Anxiety is common among individuals with MS. Existing data suggest more than one-third of individuals with MS will qualify for a diagnosis of anxiety disorder during their lifetime.¹⁷ The characteristics of anxiety disorders are broad and heterogenous, including generalized anxiety disorder, panic disorder, obsessive compulsive disorders, and health-specific phobias such as needle/injection anxiety. Some estimates suggest a point prevalence of 34% for the presence of clinically meaningful symptoms.¹⁸ Similar to depression, anxiety symptoms can be more common during periods of stress, threat, and transition including early in the disease course while adapting to new

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diagnosis, late in the disease course with increasing disability, and during clinical relapses.¹⁹⁻²¹

The efficacy of behavioral interventions for anxiety in MS is less well established than it is for depression, but some preliminary evidence suggests that individual CBT may be effective for reducing general symptoms of anxiety as well as health-related anxiety.^{22,23} Brief, targeted CBT also has been shown to improve injection anxiety, removing a barrier to self-care including the administration of MS disease modifying therapies (DMTs).²⁴

Stress

Stress is commonly conceptualized as a person's perception that efforts to manage internal and external demands exceed available coping resources.²⁵ Such demands involve both psychological and physiological processes and come in many forms for people with MS and can include daily hassles, major life events, traumatic stress, and perceptions of global nonspecific stress. The relationship between stress and MS remains complex and poorly understood. Nonetheless, individuals with MS frequently report that stress exacerbates their symptoms.²⁶

Some evidence also suggests stress may exacerbate the MS disease process, resulting in more frequent relapses and increased lesion activity visible on MRI.^{27,28} In addition to mindfulness (described below), stress inoculation training (CBT and relaxation training), and stress-focused group-based self-management have been shown to be beneficial.^{29,30} In an intriguing and rigorous trial, a 24-week stress management therapy based on CBT was associated with the development of fewer new MS lesions visible on MRI.³¹

ADAPTATION TO ILLNESS

MS presents challenges that vary between patients and over time. Individuals may confront new physical and cognitive limitations that inhibit the completion of daily tasks, reduce independence, and limit participation in valued and meaningful activities. In addition, the unpredictability of the disease contributes to perceptions of uncertainty and uncontrollability, which in turn result in higher illness impact and poorer psychological outcomes.³² Building cognitive and behavioral skills to address these challenges can promote adaptation to illness and reduce overall distress associated with chronic illness.³³ Psychosocial intervention also can

address the uncertainty commonly experienced by individuals with MS.³⁴

Self-management

As with any chronic illness, living well with MS requires ongoing commitment and active engagement with health and personal care over time. The process of building knowledge and skills to manage the day-to-day physical, emotional, and social aspects of living with illness often is referred to as self-management.³⁵ For individuals with MS, this may take the form of participation in programs that address adaptation and psychological distress like those described above, but it also may include improving health behavior (eg, physical activity, DMT adherence, modification of maladaptive habits like smoking or hazardous alcohol use) and symptom management (eg, fatigue, pain). Self-management programs typically include education, the practice of identifying, problem solving, and following through with specific and realistic health and wellness goals, as well as the bolstering of self-efficacy.

Physical Activity

Once discouraged for patients with MS, physical activity is now considered a cornerstone of health and wellness. Physical activity and interventions that target various forms of exercise have been shown to improve strength and endurance, reduce functional decline, enhance QOL, and likely reduce mortality.³⁵⁻³⁹ A variety of brief behavioral interventions have been shown to improve physical activity in MS. Structured group-based exercise classes focusing on various activities such as aerobic training (eg, cycling) or resistance training (eg, lower extremity strengthening) have demonstrated improvements in various measures of fitness and mood states such as depression and QOL. Brief home-based telephone counseling interventions based in social cognitive theory (eg, goal setting, navigating obstacles) and motivational interviewing strategies (eg, open-ended questions, affirmation, reflective listening, summarizing) also have been shown to be effective not only at increasing physical activity and improving depression and fatigue.^{40,41}

Adherence to Treatment

One primary focus of adherence to treatment is medication management. For individuals with MS, DMTs represent a primary means of

reducing disease burden and delaying functional decline. Many DMTs require consistent self-administration over time. Some evidence suggests that poorer adherence is associated with a greater risk of relapse and more rapid disease progression.^{42,43} Brief telephone counseling, again based on social cognitive theory, and principles of motivational interviewing combined with home telehealth monitoring by a care coordinator has been shown to improve adherence to DMTs.⁴⁴

Mindfulness

In recent years, mindfulness training has emerged as a popular and common behavioral intervention among individuals with MS. Programs like Mindfulness-Based Stress Reduction (MBSR) provide training in meditation techniques designed to promote mindfulness, which is defined as paying attention to present moment experience, including sensations, thoughts, and emotions, without judgment or attachment.⁴⁵ Cultivating mindfulness helps people with MS cope with and adapt to symptoms and stressors.⁴⁶ Mindfulness interventions typically are delivered in a group format. For example, MBSR consists of 8 in-person group sessions with daily meditation practice homework. Mindfulness interventions also have been delivered effectively with smartphone apps.⁴⁷ Mindfulness programs have been shown to improve depression, anxiety, fatigue, stress, and QOL for patients with MS.⁴⁸⁻⁵⁰

Fatigue

More than 90% of individuals with MS report fatigue, and many identify it as their most disabling symptom.⁵¹ Often defined as “a subjective lack of physical and/or mental energy that is perceived by the individual or caregiver to interfere with usual and desired activities,” fatigue has been shown to be associated with longer disease duration, greater physical disability, progressive subtype, and depressive symptoms, although the relative and possibly overlapping impact of these issues is only partially understood.^{52,53} Fatigue is associated with poorer overall mental health and negatively impacts work and social roles.⁵⁴

Several behavioral interventions have been developed to address fatigue in MS. Using both individual and group based formats and across several modalities (eg, in-person, telephone, online modules, or a combination), behavioral fatigue interventions most commonly combine

traditional general CBT skills (eg, addressing maladaptive thoughts and behaviors) with a variety of fatigue-specific skill building exercises that may include fatigue education, energy conservation strategies, improving sleep, enlisting social support, and self-management goal setting strategies.^{35,55-57}

PAIN

Chronic pain is common and disabling in people with MS.^{58,59} Nearly 50% report experiencing moderate to severe chronic pain.^{59,60} Individuals with MS reporting pain often are older, more disabled (higher Expanded Disability Status Scale score), and have longer disease duration than those who are not experiencing chronic pain.⁶¹ Patients report various types of pain in the following order of frequency: dysesthetic pain (18.1%), back pain (16.4%), painful tonic spasms (11.0%), Lhermitte sign (9.0%), visceral pain (2.9%), and trigeminal neuralgia (2.0%).⁶¹ Chronic pain has a negative impact on QOL in the areas of sleep, work, maintaining relationships, recreational activities, and overall life enjoyment.⁵⁹ Additionally, research has shown that greater pain intensity and pain-related interference with activities of daily living are both associated with greater depression severity.^{62,63}

The literature supports the use of behavioral interventions for pain in people with MS.⁶¹ Behavioral interventions include in-person exercise interventions (eg, water aerobics, cycling, rowing ergometer, treadmill walking, and resistance training), self-hypnosis, and telephone-based self-management programs based on CBT.^{35,64,65} As described above, CBT-based self-management programs combine learning CBT skills (eg, modifying maladaptive thoughts) with pain-specific skill building such as pain education, pacing activities, and improving sleep. Of note, MS education including, but not limited to, pain was as effective as a CBT-based self-management program in reducing pain intensity and interference.³⁵ In addition, there is evidence to support acceptance- and mindfulness-based interventions for chronic pain, and online mindfulness-based cognitive therapy for MS related pain is currently being tested in a randomized controlled trial.^{35,66}

CONCLUSION

People with MS face significant challenges in coping with and adapting to a chronic and unpredictable disease. However, there is

considerable evidence that behavioral interventions can improve many of the most common and disabling symptoms in MS including depression, anxiety, stress, fatigue, and pain as well as health behavior and self-care. Research also suggests that improvements in one of these problems (eg, physical inactivity) can influence improvement in other symptoms (eg, depression and fatigue). Unlike other treatment options, behavioral interventions can be delivered in various formats (eg, in-person and electronic health), are time-limited, and cause few (if any) undesirable systemic adverse effects. Behavioral interventions are therefore, an essential part of interprofessional care and rehabilitation for patients with MS.

Author disclosures

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Disclaimer

The opinions expressed herein are those of the authors and do not necessarily reflect those of *Federal Practitioner*, Frontline Medical Communications Inc., the US Government, or any of its agencies.

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