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Why We Need Nonpharmacologic Approaches to Manage Chronic Low Back Pain in Older Adults

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Chronic pain is one of the most common conditions encountered by health care professionals, particularly among patients 65 years and older, and is associated with substantial disability and costs.^{1,2} Management of chronic pain in older adults is complicated by age-related physiologic changes, competing comorbidities that limit treatment choices, and numerous patient (eg, fear of deleterious effects of medications) and physician (eg, lack of training) barriers. One of the most significant barriers to effective management, however, is a limited evidence base to guide treatment decisions. Recent reviews have documented the paucity of high-quality randomized clinical trials in the field.^{1,2} Shortcomings include study durations of 12 weeks or less, a lack of study population diversity, and enrollment of young-old study populations without major comorbidities. Studies focused on nonpharmacologic interventions are particularly needed, given that many barriers exist regarding the use of pharmacologic treatments in this target population. Studies further document that older adults with chronic pain are receptive to nonpharmacologic therapies^{3,4}; many already use nondrug treatments and cite concerns about adverse drug effects and the use of too many medications as reasons.⁴ In this issue of *JAMA Internal Medicine*, Morone and colleagues⁵ begin to address this important knowledge gap by presenting data from a well-conducted randomized clinical trial that evaluated the effects of a mindfulness meditation intervention among older adults with chronic low back pain.

The investigators enrolled community-dwelling, cognitively intact older adults whose back pain had been present for a mean of approximately 12 years. The investigators addressed previously noted shortcomings in study design by recruiting a broad distribution of older adults with moderate levels of comorbidity, enrolled sizable numbers of older African American participants, and measured outcomes at baseline, 8 weeks, and 6 months after treatment completion. Additional methodologic strengths included adequate power to detect clinically meaningful treatment effects and excellent participant retention.

Participants randomized to the active treatment arm received weekly group-based training sessions in mindfulness meditation designed to help them redirect and focus their attention

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on various activities or objects with acceptance and to observe thoughts, feelings, and sensations in nonjudgmental ways.⁶ This type of approach appears appropriate for the target population, given that negative emotions (eg, irritability, anger) are often present. Use of mindfulness meditation may help to reduce negative emotions and improve the individual's emotional regulatory abilities. Successfully incorporating these techniques requires regular practice. Weekly homework exercises (ie, participants were asked to practice the meditation techniques 6 days a week for at least 45 minutes during the 8-week program) and monthly booster sessions were used in an effort to promote their routine use.⁶ The outcomes assessed were appropriate and included perceived disability due to back pain (Roland Morris Disability Questionnaire score) and measures of pain intensity, pain self-efficacy, and a global impression of change.

The results reveal that the strongest treatment effects were observed with the global impression of change measure, in which 45% of participants randomized to active treatment (vs 8% in the control arm) reported much or very much improved back symptoms at 6 months after completion of the program (eFigure 1 in Supplement 2). Positive treatment effects were also demonstrated for current and most severe pain intensity ratings at 8 weeks and were maintained at the 6-month assessment. With respect to the primary outcome (Roland Morris Disability Questionnaire score), intervention participants evidenced clinically meaningful reductions in disability scores at 8 weeks and at 6 months; however, controls eventually reported improved scores, resulting in a treatment effect only at 8 weeks. By 6 months, 58 of 117 intervention participants (49.2%) and 66 of 135 controls (48.9%) reported an improvement of 2.5 points or greater in the disability score. Whether the absence of treatment effects at 6 months reflects random variation in the natural course of pain-related disability in the target population (eg, the lack of treatment effect at the later time point could occur by enrolling sizable numbers of participants with acute or chronic pain flares that improved over time), use of an active control program, or differential use of beneficial cotherapies among the controls remains unclear. The investigators did not find clinically meaningful group differences in secondary outcomes of global perceived health or quality of life. The authors also did not find any improvements in mindful attention awareness, a variable hypothesized to mediate treatment effects.

Like most studies, the results reported by Morone et al⁵ raise multiple questions. Although treatment fidelity and adherence were assessed,⁶ these data were not reported. Documentation that treatment was delivered as intended and evaluation of the effects of participant adherence regarding the use of the various mindfulness techniques on treatment outcomes will be important. Although treatment effects did not vary by age, sex, race, or educational level, other possible treatment moderators (ie, variables on which the effectiveness of a given treatment may depend) could include pain duration, baseline treatment expectancy and self-efficacy score, level of social support at home for incorporating the techniques into one's daily routine, and various process measures such as the number of sessions attended. Interactions of treatment, time, and these additional variables require examination. In addition, whether the treatment led to any meaningful reductions in the number or the type of pharmacotherapies that intervention participants used to help manage their pain or in the number of office visits made on account of their pain is important to ascertain. Finally, given that many older adults with chronic low back

pain experience impaired physical functioning,⁷ the extent to which the intervention had any measurable effect on participants' physical functioning, evidenced by performance-based measures that were administered at the baseline and follow-up assessments, need to be learned.⁶

We believe that the results reported by Morone et al⁵ in concert with other evidence^{1,2,8} provide support for additional investigations of nonpharmacologic approaches in older adults with chronic pain. Attention to underlying mechanisms of behavioral change (ie, how or why the treatment leads to change) will be key, as will efforts directed at identifying what treatment components and/or specific combinations might be particularly influential in treatment outcomes. Given the dearth of health care professionals currently trained to deliver nonpharmacologic interventions, attention should also be placed on effectiveness studies that identify groups of health care professionals (eg, social workers, physical therapists, and nurses) who are willing and able (with appropriate training) to extend treatment trials to diverse clinical settings. Various collaborative care models have shown promise in primary care and highlight the possibilities of developing and optimizing treatments that foster therapeutic change and maximize improvements in adjustment and adaptive functioning in patients with chronic pain.^{1,2}

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