



Mindfulness meditation for the treatment of chronic low back pain in older adults: A randomized controlled pilot study [☆]

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Abstract

The objectives of this pilot study were to assess the feasibility of recruitment and adherence to an eight-session mindfulness meditation program for community-dwelling older adults with chronic low back pain (CLBP) and to develop initial estimates of treatment effects. It was designed as a randomized, controlled clinical trial. Participants were 37 community-dwelling older adults aged 65 years and older with CLBP of moderate intensity occurring daily or almost every day. Participants were randomized to an 8-week mindfulness-based meditation program or to a wait-list control group. Baseline, 8-week and 3-month follow-up measures of pain, physical function, and quality of life were assessed. Eighty-nine older adults were screened and 37 found to be eligible and randomized within a 6-month period. The mean age of the sample was 74.9 years, 21/37 (57%) of participants were female and 33/37 (89%) were white. At the end of the intervention 30/37 (81%) participants completed 8-week assessments. Average class attendance of the intervention arm was 6.7 out of 8. They meditated an average of 4.3 days a week and the average minutes per day was 31.6. Compared to the control group, the intervention group displayed significant improvement in the Chronic Pain Acceptance Questionnaire Total Score and Activities Engagement subscale ($P = .008$, $P = .004$) and SF-36 Physical Function ($P = .03$). An 8-week mindfulness-based meditation program is feasible for older adults with CLBP. The program may lead to improvement in pain acceptance and physical function.

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1. Introduction

Among older adults, chronic pain is a common condition that can have devastating consequences. Chronic

pain is associated with depression (Fishbain et al., 1997; Bair et al., 2003), decreased appetite (Bosley et al., 2004), impaired sleep (Benca et al., 2004) and overall decreased quality of life (Cooper and Kohlmann, 2001). Not surprisingly, approximately 1/4–1/3 of older adults suffer from low back pain (Urwin et al., 1998; Thomas et al., 2004). Many older adults' chronic pain is inadequately treated (Roy and Thomas, 1987; Woo et al., 1994). This may be due to older adults' increased susceptibility to medication side effects and increased number of co-morbidities that prohibit surgical interventions (Gagliese and Melzack, 1997).

Approximately 1/3 of older adults have used complementary and alternative medicine (CAM) in the previous

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year (Foster et al., 2000). Chronic pain is one of the top medical conditions for which they seek CAM modalities (Foster et al., 2000; Astin, 2004). The growing use of CAM presents researchers with the responsibility of studying it scientifically. We were interested in studying a mind–body technique called mindfulness meditation for the treatment of chronic pain in older adults.

Mindfulness meditation was introduced as a clinical intervention for conditions such as chronic pain and anxiety in 1979 (Kabat-Zinn, 1982; Kabat-Zinn et al., 1992). It is currently taught and studied in many clinical trials as the Mindfulness-Based Stress Reduction Program (MBSR) (Kabat-Zinn, 1990; Kabat-Zinn, 2003). Previous research of Kabat-Zinn showed a significant reduction of chronic pain among 90 patients with a variety of chronic pain conditions (Kabat-Zinn et al., 1985). He then published 4-year follow-up data showing maintenance of pain improvement among 60–72% of 225 chronic pain patients (Kabat-Zinn et al., 1986). The studies did not include a comparison group. Sustained pain reduction up to 4 months after the MBSR intervention was noted in 28 fibromyalgia patients (Creamer et al., 2000). In a different study, fibromyalgia patients were randomized to an MBSR or an education program, both groups showed improvement in pain self-report, but the differences between the two groups did not reach statistical significance (Astin et al., 2003). None of these studies targeted older adults or chronic low back pain (CLBP). It is not known if older adults would differ from a younger population in terms of program adherence and effects. Recent reviews support the use of meditation training in the older adult (Lindberg, 2005; Morone and Greco, 2007).

Kabat-Zinn states mindfulness is: “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003).

The primary aim of this pilot study was to assess the feasibility of recruitment and adherence to an eight-session mindfulness meditation program for community-dwelling older adults \geq age 65 with CLBP. The secondary aim was to develop initial estimates of treatment effects on measures of pain, physical function and quality of life.

2. Methods

2.1. Overview

This pilot feasibility study was designed as a randomized wait-list controlled trial of mindfulness meditation for CLBP. Eligibility was determined by self-report from a checklist reviewed with potential participants over the telephone. Prior to the intervention study participants completed informed consent procedures and baseline study measures were obtained. After consent and baseline measures, eligible participants were randomized to the intervention or to the control group. Partic-

ipants in the intervention group received eight weekly 90-minute mindfulness meditation sessions and meditation homework assignments. Attendance was taken at every session. Controls did not receive any intervention during this time. Once the intervention was completed and participants and wait-list controls completed all post-intervention measures the mindfulness meditation program was offered to the wait-list controls. The controls were crossed over into the meditation program immediately after the intervention group finished the 8-week program. The reason for the immediate cross-over design was to minimize dropouts from the control group. Three months after all participants had undergone the 8-week program, they were asked to complete all of the measures a third time and any mindfulness meditation they continued to do at home was quantified. The study was approved by the University of Pittsburgh Institutional Review Board.

2.2. Subjects

Community-dwelling older adults were recruited from an adult pain clinic, flyers posted around the University of Pittsburgh Medical Center and newspaper advertisements. All participants were included if they (1) were 65 years of age or older, (2) had intact cognition (Mini-Mental Status Exam (MMSE) \geq 23), (3) had CLBP, defined as moderate pain occurring daily or almost every day for at least the previous three months, and (4) spoke English. They were excluded if they (1) had previously participated in a mindfulness meditation program, and 2 had “red flags” suggestive of serious underlying illness (e.g. malignancy, infection, unexplained fever, weight loss or recent trauma) causing their pain.

A broad age range (\geq 65) and few exclusion criteria of participants with CLBP were selected to permit study of the effect of the intervention on a representative sample of community-dwelling older adults, increasing the generalizability of the study findings.

2.3. Intervention

2.3.1. Frequency and setting

Participants were seen in a group format once a week for 90 min for 8 weeks. Two of the investigators (NM and CG) led all sessions. They had a combined experience of 30 years in mindfulness meditation and had each undergone teacher training in an MBSR program for health professionals directed by staff from the Center for Mindfulness (such as Kabat-Zinn) prior to the intervention.

2.3.2. Program techniques

The intervention was modeled on the work of Jon Kabat-Zinn and the MBSR program he pioneered at the University of Massachusetts Medical Center (Kabat-Zinn, 1990). Three techniques of mindfulness meditation were taught. These techniques take regular activities such as sitting, walking and lying down and transform them into a meditation through directed breathing and mindful awareness of thoughts and sensations.

The techniques used were: (1) the body scan, where in a lying position, the participant is guided to place their attention non-judgmentally on each area of the body from the toes to the top of the head, (2) sitting practice, which is focused attention

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