Fibromyalgia Impact and Mindfulness Characteristics in 4986 People with Fibromyalgia

Kim D. Jones, PhD, RN, FNP-BC, FAAN[1#] Scott D. Mist, PhD, MAcOM, MS, MA[2]
Marie A. Casselberry, DNP, RN, FNP-CB[3] Ather Ali, ND, MPH, MHS[4] and Michael S. Christopher, PhD[5]

Context and Objective: A growing body of literature suggests that mindfulness techniques may be beneficial in fibromyalgia. A recent systematic review and meta-analysis of six trials indicated improvement in depressive symptoms and quality of life, calling for increased rigor and use of standardized measures in future trials. The purpose of the study was to examine the relationship between mindfulness [as measured by the Five Facet Mindfulness Questionnaire (FFMQ)] and fibromyalgia impact [as measured by the Revised Fibromyalgia Impact Questionnaire (FIQR)].

Design, Setting, and Participants: A cross-sectional survey was conducted with adults diagnosed with fibromyalgia from a national fibromyalgia advocacy foundation e-mail list.

Results: A total of 4986 respondents represented all 50 states in the United States and 30 countries. FIQR scores demonstrated moderate to severe fibromyalgia with the majority of subjects (59%) scoring ≤ 60. Scores on the FFMQ subscales ranged from 20.8 to 27.3, with highest scores for the *observe* subscale. All subscale correlations were small to moderate and indicated that more severe fibromyalgia impact was associated with less mindfulness except in the *observe* scale ($r = .15$, $P > .000$). No clinical or demographics explained as much variance in the FIQR total as any of the mindfulness subscales.

Conclusions: Fibromyalgia patients experience symptoms that may be alleviated by mindfulness interventions. Baseline values for the *observe* subscale of the FFMQ were unexpectedly high. Further research is needed to know if this may be due to non-mindful observations and should be noted when the FFMQ is used in fibromyalgia clinical trials.

Key words: Fibromyalgia, mindfulness, meditation, Revised Fibromyalgia Impact Questionnaire-FIQR, Five Facet Mindfulness Scale-FFMQ

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INTRODUCTION

Fibromyalgia (FM) is a disabling chronic pain condition affecting at least five million persons in the U.S., and >200 million people worldwide, carrying an annual U.S. direct care cost of >$20 billion.[1–5] Contemporary understanding of FM is that it represents the extreme end of the chronic pain severity continuum with the average patient experiencing 30% improvement with medications.[6] There is a need to develop and test non-pharmacologic interventions to augment the effectiveness of medications, thus optimizing symptom management and physical function in this population.

A growing body of literature suggests that a wide array of mindfulness techniques may be beneficial in treating some aspects of FM.[7–12] Yet, the largest and most rigorous randomized controlled trial showed no significant effect for FM patients.[11] Moreover, a recent systematic review and meta-analysis of Mindfulness-Based Stress Reduction (MBSR)[13] for FM concluded that while promising for depression and quality of life, it gave a weak recommendation for its use based on six currently published trials.[14] Given that systematic reviews for mindfulness show benefit in other chronic pain conditions, further research is needed to examine the construct of mindfulness and its possible relationship to the clinical characteristics of FM before adapting standard "off-the-shelf" MBSR programs in this population.[15–17] The purpose of the study was to examine the relationship between mindfulness [as measured by the Five Facet Mindfulness Questionnaire (FFMQ)] and FM impact [as measured by the Revised Fibromyalgia Impact Questionnaire (FIQR)] in a large sample of patients with FM. We further sought to examine the impact of having a current meditation practice on self-reported mindfulness and FM, and to determine if selected clinical or demographic variables were associated with mindfulness.

METHODS

Potential participants included persons aged 21–89 years who were self-reporting a healthcare provider diagnosis of FM.

1 Oregon Health & Science University, Mail Code SN-ORD, 3455 SW US Veterans Hospital Road, Portland, OR 97239
2 Oregon Health & Science University, Portland, OR
3 Zoom Care, Portland, OR
4 Yale University, New Haven, CT
5 Pacific University, Forest Grove, OR

Corresponding author.
e-mail: joneskim@ohsu.edu; sjonze97@gmail.com

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Participants responded to an e-mail from a FM support and advocacy organization that described the study purpose and led them to a confidential link to an online survey with a unique identifier. The survey consisted of two standardized questionnaires assessing FM impact and mindfulness. FM impact was measured by the Revised Fibromyalgia Impact Questionnaire (FIQR). The FIQR is 21-item self-report instrument that assesses FM overall FM severity (impact) over the past seven days. The FIQR is scored as a total score calculated from three subscales: physical function, overall well-being, and symptoms. It is scored from 0 to 100 with higher scores indicating a more negative impact of FM. It has credible construct validity, reliable test–retest characteristics and good sensitivity in demonstrating therapeutic change. The original FIQ was found to correlate closely with the newer FIQR ($r = .88$, $P < .001$).[18–21] A study of 2228 FM patients demonstrated that a 14% change in the FIQ total score is clinically significant.[22]

Measures

Mindfulness was assessed by the Five Facet Mindfulness Questionnaire (FFMQ). The FFMQ conceptualizes mindfulness as a multifaceted attribute relating to one's present moment experience of thoughts, perceptions, sensations, and feelings. The scale contains 39 items that measure five different subscales of mindfulness: *observe, describe, act with awareness, non-judging of inner experience, and non-reactivity to inner experience.* The items are each rated on a five level Likert-type scale with anchors from "never or rarely true" to "very often or always true," asking respondents to answer, "What is generally true for you?" Higher scores may indicate a greater degree of mindfulness. The FFMQ subscales may indicate how present mindfulness is in one's day-to-day life.[23]

The sample was further profiled with a 16-item investigator-designed questionnaire which collected clinical and demographic information. An open-field question asked subjects for any additional comments "about your experience with meditation or mindfulness." Data were collected between November 2012 and January 2013. This study was approved by the Institutional Review Board at Oregon Health & Science University, Portland, Oregon.

Statistical Analysis

Based on previous literature implying a positive relationship between MBSR and FM symptom relief or quality of life improvement,[2,3] we hypothesized that self-identified meditators would have higher levels of mindfulness and lower levels of FM impact. We sought to determine if selected demographic or clinical characteristics (age, education, work status, prescription medication use, and little or no meditation practice) and the FFMQ subscale scores predicted FIQR scores.

All statistical analyses were conducted using Stata/MP 11.2 (College Station, TX). Correlations were calculated on relationships between demographics, FFMQ subscales, FIQR subscales, and FIQR total. Data were prepared for regression by transforming non-normal data. Standard regression analysis was conducted to explain the relationship between FIQR total score (dependent variable), FFMQ subscales, and minutes meditating (log transform). Post-regression analyses were conducted to test for homoscedasticity, the normal distribution of residuals. We assessed the relationship between minutes meditating and the FFMQ-subscales (planned a priori).

RESULTS

The survey was discontinued after reaching the predefined sample size of 5000. Of the respondents, 14 were removed from analyses due to missing or out-of-range data leaving a final sample of 4986. Respondents represented all 50 states in the United States and 30 countries (Australia, Canada, Argentina, Belgium, Brazil, Cyprus, Cayman Islands, Chile, Denmark, Ecuador, England, Finland, France, Germany, Hungary, Puerto Rico, Israel, Iceland, Jamaica, Mexico, New Zealand, Panama, Philippines, South Africa, Scotland, Singapore, Sweden, Taiwan, Uruguay, and Jamaica).

The majority of participants were married women with a mean age of 52.2 (SD = 10.6). Most (74%) were symptomatic with FM for over 10 years. 53% reported not working outside the home due to their FM, despite being highly educated (47% college graduates and post-graduate degrees). The majority (76%) used prescription medications for FM. Of the 1040 who did not use medications for FM, 84% indicated that medications were associated with too many adverse effects and 62% indicated that the medications did not alleviate symptoms. 47% endorsed using at least three non-pharmacologic methods to alleviate their FM symptoms. The most commonly selected modalities were rest, ice/heat, and "other" exercise. Less than 15% indicated that they practiced mindful movement therapies such as tai chi or yoga. One-fourth specifically reported having a regular meditation practice with an average of 118 min per week (SD = 139.3) (Table 1).

A total of 1218 people endorsed a mindfulness or meditation practice. Of those 21 were excluded as on open-field code they described their practice as "listening to music while sleeping, watching television, napping, bathing, therapy with a provider, swimming laps, playing video games, and trained but not currently practicing techniques." 131 endorsed prayer as important practice, of which 82 said that meditated and 49 said they did not meditate. Other common reasons for not meditating or practicing mindfulness were indicated that it is because "they can't make their minds stop" ($n = 57$) or pain during prolonging sitting/lying prone ($n = 13$).

FIQR scores demonstrated moderate to severe FM in the majority of subjects (59% with scores ≤ 60). Scores on the FFMQ subscales ranged from 20.8 to 27.3, with highest scores for the *observe* subscale (Table 2).

The FIQR total and subscales had small to medium correlations to the FFMQ subscales. All correlations except one were in the expected direction, meaning that as FM was more severe, mindfulness was less evident. The exception was a positive correlation between the FIQR and the FFMQ *observe* subscale ($r = .15$, $P > .000$) (Table 3).

Meditators had a small (1.6 point) but significant ($P = .006$) lower FM impact (FIQR total) compared to non-