Published in final edited form as:

Explore (NY). 2015 ; 11(4): 304–309. doi:10.1016/j.explore.2015.04.006.

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, MA², Marie A. Casselberry, DNP, RN, FNP-CB³, Ather Ali, ND, MPH, MHS⁴, and Michael S. Christopher, PhD⁵

¹Oregon Health & Science University, Mail Code SN-ORD, 3455 SW US Veterans Hospital Road, Portland, OR 97239

²Oregon Health & Science University, Portland, OR

³Zoom Care, Portland, OR

⁴Yale University, New Haven, CT

⁵Pacific University, Forest Grove, OR

Abstract

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.

[#]Corresponding author: joneskim@ohsu.edu; sjonze97@gmail.com.

Keywords

Fibromyalgia; mindfulness; meditation; Revised Fibromyalgia Impact Questionnaire-FIQR; Five Facet Mindfulness Scale-FFMQ

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. 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-meditators. However, when controlling for mindfulness (FFMQ subscales), meditation practice was no longer significant ($P = .33$) in predicting FM impact (FIQR total) (Table 4).

Older age, higher income, taking prescription medication for FM and working outside the home were associated with less FM impact (13.4% of variance explained, $P = .000$). When mindfulness subscales were added to the model 29.0% of the variance was explained ($P = .000$). Minutes meditating was not significant within the model (Table 5).

An exploratory analysis found that no single FIQR symptom differentially influenced FFMQ scores (pain, tenderness, sleep, fatigue, stiffness, anxiety, depression, memory, balance, and environmental sensitivity).

Discussion

This is the first study assessing a relationship between fibromyalgia impact and a measure of mindfulness using validated questionnaires. There is increasing attention on the role of components of mindfulness and how they can be measured in people with FM. Data from

our large sample demonstrated similar FIQR, clinical and demographic values as earlier studies.^{19,21} The exception was that our current sample was more highly educated. This is perhaps due to characteristics of persons who seek out national support and advocacy organizations and have access to the internet.

The novel findings in our study were that more severe FM impact was associated with less mindfulness in four of the five subscales of the FFMQ (*describe, act with awareness, non-judging of inner experience, and non-reactivity to inner experience*). More severe FM symptoms were associated with higher scores on the *observe* subscale. It is possible that people with FM did exhibit greater mindfulness as measured on the *observe* subscale. However, the direction of the relationship between the *observe* subscale and the FIQR total or symptom subscale suggested persons with more severe FM symptoms and impact were more mindful in their external observations. This is consistent with previous research that has found the *observe* facet positively correlated with negative affect and distress among non-meditators.^{24,25} Moreover, Van Dam et al.²⁶ found evidence of differential item functioning on the FFMQ between meditators and non-meditators for five out of the eight *observe* items, which suggests that these items may be interpreted very differently by the two groups. Collectively, these results led Christopher et al.²⁷ to suggest that meditation experience may in fact be a prerequisite to the *observe* items functioning in the way they were intended.

Six of the eight questions within the *observe* subscale that may have overlapped with symptoms in FM included the following: “When I’m walking I deliberately notice sensations of my body moving; When I take a shower or bath, I stay alert to the sensations of water on my body; I notice how foods and drinks affect my thoughts, bodily sensations, and emotions; I pay attention to sensations, such as the wind in my hair or sun on my face; I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing, and I notice the smells and aromas of things.” Literature suggests that people with FM have amplification of touch, smell, light, and noise,²⁸ which may confound how people with fibromyalgia experience and rate sensation from the *observe* subscale.

While the difference between those who meditate and those who do not was clinically small, they were all in the expected direction. Additionally, these findings suggest that the differences are specific to mindfulness rather than nonspecific effects of meditation (e.g., desire for self-care, distraction, and relaxation). It is unknown whether these differences will be clinically important. Given that this was a cross-sectional study and the majority of participants reported less than 15 min a day of meditation practice, the authors feel it is an important finding that should be followed up with a clinical study examining appropriate dosages and different types of meditation.

This study demonstrated that FM patients are willing to complete online questionnaires about their FM status and meditation practices. This sample was collected in a rapid manner and demonstrated that the FM related symptoms are related to the mindfulness practices. What is not known is the direction of the relationship. Does greater mindfulness result in less FM symptoms, or does having fewer symptoms allow these patients to be more mindful? As both the FIQR and the FFMQ have been shown to change with behavioral

interventions^{19–21,29} they should be considered when examining studying patients with FM or mindfulness practices.

We did not find that that selected demographics and clinical characteristics explained mindfulness in this sample. Yet, FFMQ subscales predict 29.0% of the variability in the FIQR symptom subscale compared to just 13.4% predicted by demographics. This finding may suggest that the FFMQ is a tool that can be used across a highly heterogeneous FM sample.

Limitations

The cross-sectional manner in which this study was conducted affords no evidence of direction or causality. Our sample reported higher levels of education compared to other FM studies. This may be associated with respondents to our online survey or unique demographic characteristics persons involved in FM advocacy organizations. As our sample was 97% female, we cannot generalize our findings to males, though they did comprise 150 subjects.

Furthermore, we did not adequately define “meditation” in our survey. This may be critical for future studies as Park et al. (2013) found that personal experience with meditation affected perceptions of the FFMQ, including the relationship between the facets. It is possible that participants' interpretation of the meaning of the FFMQ subscales may have varied.³⁰ It is notable that other activities such as prayer were referred to as meditation practices. Indeed, narrative comments from the participants indicated that they considered meditation to include a variety of activities such as prayer, formal sitting meditation, and even non-mindful activities such as reading and watching television. A clearer method to inquire about mindfulness is a potentially important area for follow-up as, in this sample, mindfulness accounted for all differences between meditators and non-meditators. Some suggest the adaptation of standard measures of meditation practices would be useful to better clarify meditation activities.³¹ One example is listed in Table 6. Lastly, although the large, diverse sample is a strength of this study, given that we had participants from many countries, it is possible that some participants may not have had a level of English fluency to correctly comprehend all items on the measures.

Conclusions and Future Directions

Fibromyalgia patients experience symptoms that may be alleviated by mindfulness interventions. Worse fibromyalgia severity/impact is related to poorer mindfulness in four of the five subscales of the FFMQ. Baseline values for the *observe* subscale of the FFMQ were unexpectedly high, perhaps reflecting non-mindful observation related in part to underlying central nervous system amplification of sensations. Further research is needed to better understand how a wider variety of contemplative practices, such as loving-kindness and compassion meditation may influence FM symptoms and physical function. Moreover, researchers need to determine optimal sequencing of learning to promote and more accurately measure mindfulness in this population. With these data scientists and clinicians may be able to know if one or more facets of mindfulness could be targeted for people with FM. It would be useful to examine mindfulness and FM symptom impact pre- and post-

intervention. Additionally, given several findings suggesting that a number of factors can influence the way in which participants interpret items on the FFMQ, including meditation experience and symptom severity, researchers should ensure that they account for these related variables in future studies. Also, it would be interesting to tailor treatment toward each of the facets of mindfulness and see what kind of effect each had on the FIQR total and subscales. Such investigation will be important for deeper understanding of how mindfulness-based interventions produce, or fail to produce, positive effects for people with FM.

Acknowledgments

The authors would like to thank Jan F. Chambers, Rae M. Gleason, the National Fibromyalgia & Chronic Pain Association for their input into the survey and access to the sample. We appreciate the 5000 people with fibromyalgia who spent their valuable energy and expertise to help us better understand the relationship between fibromyalgia impact and mindfulness.

References

1. Lachaine J, Beauchemin C, Landry PA. Clinical and economic characteristics of patients with fibromyalgia syndrome. *Clin J Pain*. 2010; 26(4):284–290. [PubMed: 20393262]
2. Lawrence RC, Felson DT, Helmick CG, et al. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Part II. *Arthritis Rheum*. 2008; 58(1):26–35. [PubMed: 18163497]
3. Leadley RM, Armstrong N, Lee YC, Allen A, Kleijnen J. Chronic diseases in the European Union: the prevalence and health cost implications of chronic pain. *J Pain Palliat Care Pharmacother*. 2012; 26(4):310–325. [PubMed: 23216170]
4. Schaefer C, Chandran A, Hufstader M, et al. The comparative burden of mild, moderate and severe fibromyalgia: results from a cross-sectional survey in the United States. *Health Qual Life Outcomes*. 2011; 9:71. [PubMed: 21859448]
5. Spaeth M. Epidemiology, costs, and the economic burden of fibromyalgia. *Arthritis Res Ther*. 2009; 11(3):117. [PubMed: 19591654]
6. Staud R. Chronic widespread pain and fibromyalgia: two sides of the same coin? *Curr Rheumatol Rep*. 2009; 11(6):433–436. [PubMed: 19922733]
7. Astin JA, Berman BM, Bausell B, Lee WL, Hochberg M, Forsys KL. The efficacy of mindfulness meditation plus Qigong movement therapy in the treatment of fibromyalgia: a randomized controlled trial. *J Rheumatol*. 2003; 30(10):2257–2262. [PubMed: 14528526]
8. Fjorback LO, Arendt M, Ornbol E, et al. Mindfulness therapy for somatization disorder and functional somatic syndromes: randomized trial with one-year follow-up. *J Psychosom Res*. 2013; 74(1):31–40. [PubMed: 23272986]
9. Goldenberg DL, Kaplan KH, Nadeau MG, Brodeur C, Smith S, Schmid CH. A controlled study of a stress-reduction, cognitive-behavioral treatment program in fibromyalgia. *J Musculoskelet Pain*. 1994; 2:53–66.
10. Grossman P, Tiefenthaler-Gilmer U, Raysz A, Kesper U. Mindfulness training as an intervention for fibromyalgia: evidence of postintervention and 3-year follow-up benefits in well-being. *Psychother Psychosom*. 2007; 76(4):226–233. [PubMed: 17570961]
11. Schmidt S, Grossman P, Schwarzer B, Jena S, Naumann J, Walach H. Treating fibromyalgia with mindfulness-based stress reduction: results from a 3-armed randomized controlled trial. *Pain*. 2011; 152(2):361–369. [PubMed: 21146930]
12. Sephton SE, Salmon P, Weissbecker I, et al. Mindfulness meditation alleviates depressive symptoms in women with fibromyalgia: results of a randomized clinical trial. *Arthritis Rheum*. 2007; 57(1):77–85. [PubMed: 17266067]
13. Kabat-Zinn, J. *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion; 1994.

14. Lauche R, Cramer H, Dobos G, Langhorst J, Schmidt S. A systematic review and meta-analysis of mindfulness-based stress reduction for the fibromyalgia syndrome. *J Psychosom Res.* 2013; 75(6): 500–510. [PubMed: 24290038]
15. Chiesa A, Serretti A. Mindfulness-based interventions for chronic pain: a systematic review of the evidence. *J Altern Complement Med.* 2011; 17(1):83–93. [PubMed: 21265650]
16. Cramer H, Haller H, Lauche R, Dobos G. Mindfulness-based stress reduction for low back pain. A systematic review. *BMC Complement Altern Med.* 2012; 12:162. [PubMed: 23009599]
17. Veehof MM, Oskam MJ, Schreurs KM, Bohlmeijer ET. Acceptance-based interventions for the treatment of chronic pain: a systematic review and meta-analysis. *Pain.* 2011; 152(3):533–542. [PubMed: 21251756]
18. Bennett RM, Friend R, Jones KD, Ward R, Han BK, Ross RL. The Revised Fibromyalgia Impact Questionnaire (FIQR): validation and psychometric properties. *Arthritis Res Ther.* 2009; 11(4):R120. [PubMed: 19664287]
19. Carson JW, Carson KM, Jones KD, Mist SD, Bennett RM. Follow-up of yoga of awareness for fibromyalgia: results at 3 months and replication in the wait-list group. *Clin J Pain.* 2012; 28(9): 804–813. [PubMed: 22751025]
20. Ferrari R. A cohort-controlled trial of the addition of customized foot orthotics to standard care in fibromyalgia. *Clin Rheumatol.* 2012; 31(7):1041–1045. [PubMed: 22426704]
21. Holton KF, Taren DL, Thomson CA, Bennett RM, Jones KD. The effect of dietary glutamate on fibromyalgia and irritable bowel symptoms. *Clin Exp Rheumatol.* 2012; 30(6 Suppl 74):10–17. [PubMed: 22766026]
22. Bennett RM, Bushmakina AG, Cappelleri JC, Zlateva G, Sadosky AB. Minimal clinically important difference in the fibromyalgia impact questionnaire. *J Rheumatol.* 2009; 36(6):1304–1311. [PubMed: 19369473]
23. Baer RA, Smith GT, Lykins E, et al. Construct validity of the five facet mindfulness questionnaire in meditating and nonmeditating samples. *Assessment.* 2008; 15(3):329–342. [PubMed: 18310597]
24. Christopher MS, Neuser NJ, Michael PG, Baitmangalkar A. Exploring the psychometric properties of the Five Facet Mindfulness Questionnaire. *Mindfulness.* 2012; 3(2):124–131.
25. de Bruin EI, Topper M, Muskens JG, Bogels SM, Kamphuis JH. Psychometric properties of the Five Facets Mindfulness Questionnaire (FFMQ) in a meditating and a non-meditating sample. *Assessment.* 2012; 19(2):187–197. [PubMed: 22589426]
26. Van Dam NT, Hobkirk AL, Danoff-Burg S, Earleywine M. Mind your words: positive and negative items create method effects on the Five Facet Mindfulness Questionnaire. *Assessment.* 2012; 19(2):198–204. [PubMed: 22389242]
27. Christopher MS, Woodrich L, Tiernan K. Using cognitive interviews to assess the cultural validity of state and trait measures of mindfulness among Zen Buddhists. *Mindfulness.* 2014; 5(2):145–160. [PubMed: 24976872]
28. Wilbarger JL, Cook DB. Multisensory hypersensitivity in women with fibromyalgia: implications for well being and intervention. *Arch Phys Med Rehabil.* 2011; 92(4):653–656. [PubMed: 21440712]
29. Branstrom R, Kvillemo P, Brandberg Y, Moskowitz JT. Self-report mindfulness as a mediator of psychological well-being in a stress reduction intervention for cancer patients—a randomized study. *Ann Behav Med.* 2010; 39(2):151–161. [PubMed: 20177843]
30. Park T, Reilly-Spong M, Gross CR. Mindfulness: a systematic review of instruments to measure an emergent patient-reported outcome (PRO). *Qual Life Res.* 2013; 22(10):2639–2659. [PubMed: 23539467]
31. Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *J Pers Soc Psychol.* 2003; 84(4):822–848. [PubMed: 12703651]

Table 1
Patient Characteristics (*n* = 4986)

Age, years	52.2 (SD = 10.6)
Gender (female)	97%
Current marital status	
Married/domestic partnership	68.7%
Divorced/separated	19%
Never married	8.6%
Widowed	3.7%
Educational level	
High school or less	11.9%
Some college and/or trade school	40.7%
College or post-graduate education	47.7%
Years diagnosed with FM	11.4 (SD = 10.67.27)
Years with FM symptoms	
Less than 5 years	7.4%
6–10 years	18.6%
Greater than 10 years	74.0%
FM symptom duration	
< 1–5 years	7.4%
6–10 years	18.6%
More than 10 years	74.0%
Currently take prescription medication for FM Symptoms	78%
If don't take prescription, why? (<i>n</i> = 1040)	
Too many side effects	84%
Cost is too high	36%
No one will prescribe for me	8%
Did not alleviate my symptoms	62%
Other treatments to alleviate FM symptoms:	
Rest	78.1%
Heat or ice	61.5%
Other exercise	44.3%
Yoga	15.9%
Physical therapy	17.3%
Psychological therapy	16.3%
Tai chi	14.1%
Hypnosis	1.7%
Do you have a regular mindfulness or meditation practice?	
Yes	25.0%
No	71.5%
Don't know	3.5%
Average minutes per week of meditation	118 min (SD = 139.3).

Table 2
Fibromyalgia Impact and Mindfulness Scores (*n* = 4986)

FM Symptom Severity Questionnaire (FIQR)	
Function (0–30)	17.36 (6.85)
Impact (0–20)	12.22 (5.11)
Symptom (0–50)	33.84 (8.00)
Total (0–100)	63.41 (17.80)
<i>Pain</i> (0–10)	6 (2.8)
Fatigue (0–10)	6.6 (2)
Stiffness (0–10)	7.5 (2)
Sleep quality (0–10)	7.2 (2)
Depression (0–10)	8.1 (2)
Memory (0–10)	5.4 (3)
Anxiety (0–10)	6.6 (2.4)
Tenderness to touch (0–10)	5.6 (3)
Balance (0–10)	7.7 (2.2)
Sensitivity loud noises, bright lights, odors, cold (0–10)	5.6 (2.7)
Mindfulness Questionnaire (FFMQ)	
Observe subscale (0–40)	27.27 (3.89)
Describe subscale (0–40)	24.27 (7.24)
Act-aware subscale (0–40)	22.07 (6.00)
Non-judge subscale (0–40)	24.32 (7.24)
Nonreact subscale (0–35)	20.77 (4.90)
Total (0–155)	118.69 (18.14)

FM = fibromyalgia, FIQR = Revised Fibromyalgia Impact Questionnaire, FFMQ = Five Facet Mindfulness Questionnaire.

Table 3
Correlations Between FFMQ Subscales and FIQR Symptom Scale

Observe	$r = .15^*$
Describe	$r = -.28^*$
Act-aware	$r = -.39^*$
Non-judge	$r = -.41^*$
Non-react	$r = -.24^*$

FIQR = Revised Fibromyalgia Impact Questionnaire, FFMQ = Five Facet Mindfulness Questionnaire.

* $P > .000$.

Table 4
FFMQ and FIQR Comparisons Between Self-Reported Mediators and Non-Meditators

	Non-Meditators or Don't Know (<i>n</i> = 3668)	Meditators (<i>n</i> = 1107)	Significance
FFMQ			
Observe	26.8 (3.8)	28.7 (3.7)	.000
Describe	23.7 (5.0)	26.0 (5.2)	.000
Non-judge	23.7 (7.1)	26.2 (7.3)	.000
Nonreact	20.2 (4.7)	22.5 (5.0)	.000
Awareness	21.6 (5.9)	23.6 (6.1)	.000
Total	116.0 (17.0)	127.1 (19.0)	.000
FIQR			
Function	17.3 (6.9)	17.6 (6.8)	.122
Impact	12.3 (5.1)	11.8 (5.0)	.001
Symptom	34.2 (7.9)	32.8 (8.3)	.000
Total	63.8 (17.8)	62.2 (17.9)	.003

FFMQ = Five Facet Mindfulness Questionnaire, FIQR = Revised Fibromyalgia Impact Questionnaire.

Table 5
Regression Model Predicting Fibromyalgia Impact (FIQR Total)

	Coefficient	Standard error
Age	−0.13	.02
Working	−8.10	.47
Income	−0.89	.07
Prescriptions	−2.79	.50
FFMQ observe	0.82	.06
FFMQ describe	−0.42	.05
FFMQ non-judge	−0.42	.04
FFMQ non-react	−0.20	.05
FFMQ awareness	−0.46	.04
Constant	77.16	2.24

Adjusted $R^2 = 0.29$.

$P = .000$ for model and individual coefficients.

Number of observations, 4865.

FFMQ = Five Facet Mindfulness Questionnaire, FIQR = Revised Fibromyalgia Impact Questionnaire.

Table 6
Meditation Practice Scale Modified from Brown and Ryan (2003)

1. Do you currently meditate? _(if NO skip the next 5 questions)						
2. What kind(s) of meditation do you practice (name or describe)						
3. For how long have you been meditating? _____						
4. How often do you meditate?						
_____ One or more times a day						
_____ One or more times a week						
_____ Less than weekly						
5. How long do you meditate when you do (on average)? _____						
6. To what extent do you carry your meditation practice into your daily life? (circle below)						
1	2	3	4	5	6	7
Not at all	Almost never	Very infrequently	Somewhat frequently	Very frequently	Almost always	Always

Brown and Ryan³¹.