

Effect of Short-Term Online Mindfulness Meditation in Patients with Fibromyalgia During The Covid-19 Pandemic: A Pilot Study

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Before our study was completed, it was presented as an oral presentation at the 6th International Congress on Medical Sciences and Multidisciplinary Approaches using the data available at that time.

Cite this article as:

Yıldız Y, Konca Ş, Koç GE, Sir E, Çelenlioğlu AE, Özler M. Effect of Short-Term Online Mindfulness Meditation in Patients With Fibromyalgia During The Covid-19 Pandemic: A Pilot Study. J Cogn Behav Psychother Res 2025; 14(1): 31-38.

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Submitted: 08.05.2024

Revised: 22.08.2024

Accepted: 02.12.2024

Available Online: 26.02.2025

JCBPR, Available online at
<http://www.jcbpr.org/>



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ABSTRACT

Fibromyalgia is a chronic pain disorder characterized by widespread musculoskeletal pain and fatigue, often affecting women. Depression, anxiety, and pain catastrophizing are common in patients with fibromyalgia, and these psychological comorbidities can increase pain intensity and decrease the quality of life. Mindfulness (awareness) meditation is defined as "moment-by-moment" awareness, and is a mental technique that increases a person's awareness of internal and external experiences occurring in the present moment. Mindfulness meditation has been a complementary treatment method recommended for patients with fibromyalgia. The hypothesis of our study is that short-term online mindfulness meditation can improve the level of mindfulness, pain intensity, anxiety, depression, and quality of life in patients with fibromyalgia. Fourteen patients with fibromyalgia were included in the study. Prior to the study, participants were given self-report scales to measure their level of awareness, pain intensity, anxiety, depression, and quality of life. Short-term online mindfulness meditation was conducted, and psychoeducation about pain was exclusively provided to the study group. After the study (end of the 4th week), all participants completed the same scales. The results demonstrate that the level of mindfulness increased significantly compared to the initial measurement ($p < 0.10$); pain intensity and anxiety decreased significantly ($p < 0.05$), and there was no change in depression ($p > 0.05$). In the study group, a significant improvement in the subgroups of the quality of life scale parameters "limitation of social functions" and "pain," was found in the second measurement compared to the first measurement ($p < 0.05$). In conclusion, short-term online mindfulness meditation can alleviate pain intensity, anxiety, and improve the subgroups of quality of life scale parameters in patients with fibromyalgia.

Keywords: Short-term, online mindfulness meditation, fibromyalgia.

ÖZ

COVID-19 Pandemisinde Kısa Süreli Online Mindfulness Meditasyonunun Fibromiyalji Sendromuna Etkisi: Bir Pilot Çalışma

Fibromiyalji yaygın kas ve iskelet sistemi ağrıları, yorgunluk ile seyreden ve kadınlarda sık görülen kronik bir ağrı bozukluğudur. Fibromiyalji hastalarında depresyon, anksiyete ve ağrı katastrofisi sık görülmektedir ve bu psikolojik komorbiditeler hastanın ağrı şiddetini artırır, hayat kalitesini azaltabilmektedir. Mindfulness (farkındalık) meditasyonu "anbean farkındalık" olarak tanımlanabilir ve kişinin şimdiki anda

gerçekleşen içsel ve dışsal deneyimlere dair farkındalığının artmasını sağlayan zihinsel bir tekniktir. Mindfulness meditasyonu fibromiyalji hastalarına önerilen tamamlayıcı bir tedavi yöntemi olabilir. Çalışmamızın hipotezi; kısa süreli online uygulanan mindfulness meditasyonu fibromiyalji hastalarında farkındalık düzeyi, ağrı şiddeti, anksiyete, depresyon ve hayat kalitesini iyileştirebilir. Çalışmaya 14 fibromiyalji hastası (çalışma grubu 7 hasta, kontrol grubu 7 hasta) dahil edildi. Katılımcılara çalışma öncesinde farkındalık düzeyi, ağrı şiddeti, anksiyete, depresyon düzeyi ve hayat kalitesini ölçen kendi kendine bildirim ölçekleri uygulandı. Sadece çalışma grubuna kısa süreli online mindfulness meditasyonu prosedürü uygulandı ve ağrı konusunda psikoeğitim verildi. Çalışma sonrasında (dördüncü hafta sonunda) aynı ölçekler tüm katılımcılar tarafından tekrar dolduruldu. Çalışma grubunun ikinci ölçümde, birinci ölçüme göre farkındalık düzeyinin anlamlı olarak arttığı ($p<0,10$), ağrı şiddetinin ve anksiyete düzeyinin anlamlı olarak azaldığı ($p<0,05$), depresyon düzeyinde ise değişim olmadığı tespit edildi ($p>0,05$). Çalışma grubunda hayat kalitesi ölçeği alt gruplarından “sosyal fonksiyonlarda kısıtlılık” ve “vücut ağrısı” parametrelerinde ikinci ölçümde birinci ölçüme göre anlamlı iyileşme görüldü ($p<0,05$). Kısa süreli online mindfulness meditasyonu ağrı şiddeti, anksiyete ve hayat kalitesi ölçeği alt gruplarında iyileşme gerçekleştirebilir. Bu iyileşme mindfulness meditasyonu uygulamaları ve ağrıya dair psikoeğitim yardımı ile ağrı katastrofisinin azalmasının sağlanması sayesinde gerçekleşmiş olabilir.

Anahtar Kelimeler: Kısa süreli, online mindfulness meditasyonu, fibromiyalji.

INTRODUCTION

Fibromyalgia is a chronic pain disorder characterized by widespread musculoskeletal pain, fatigue, and sleep disturbances, often occurring in women (Bair & Krebs, 2020). Various diagnostic criteria have been established for the diagnosis of fibromyalgia over the years. According to the 2016 modified American Rheumatology Criteria (ACR), in addition to widespread pain in at least 4 of 5 specific regions (excluding jaw, chest, and abdominal pain) that has persisted for at least 3 months, a patient must have a widespread pain index of ≥ 7 and a symptom severity scale of ≥ 5 or a widespread pain index of ≥ 5 and a symptom severity scale of ≥ 9 for a diagnosis of fibromyalgia syndrome. These criteria not only include the diagnosis of fibromyalgia but also ensure other clinically significant diseases are not excluded (Bair & Krebs, 2020; Wolfe et al, 2016).

Although fibromyalgia is a pain-centered syndrome, it can be accompanied by cognitive and emotional disorders, such as pain catastrophizing (negative repetitive thoughts about pain) (Flink et al, 2013), depression, anxiety, and fibro fog (cognitive dysfunction with impaired memory and mental clarity) (Galvez-Sánchez et al, 2020a, 2020b; Henao-Pérez et al, 2022; İnci & İnci, 2023). The term “quality of life” refers to how a person perceives their health in terms of psychological, physical, and social aspects, and the extent to which they can conduct their daily activities (Jenkinson et al, 1999). The aforementioned psychological comorbidities can deteriorate the pain intensity and the quality of life of patients with fibromyalgia (Galvez-Sánchez et al, 2020a, 2020b; Singh & Kaul, 2018). Depression is the most important determinant influencing the quality of life in patients with fibromyalgia

(Offenbaecher et al, 2021). Galvez-Sánchez et al. (2020a and 2020b) reported that increased pain intensity, pain catastrophizing, depression, and anxiety can decrease the quality of life in patients with fibromyalgia (Galvez-Sánchez et al, 2020a, 2020b; Steiner et al, 2017). These findings suggest that reducing pain catastrophizing, depression, and anxiety can decrease pain intensity and increase the quality of life in patients with fibromyalgia. In addition, since the use of many medications to treat fibromyalgia negatively impacts quality of life (Fernandez-Feijoo et al, 2022), nonpharmacological approaches (such as cognitive behavioral therapy and mindfulness meditation) can improve pain catastrophizing, depression, anxiety, and pain intensity (Adler-Neal & Zeidan, 2017; Teksin et al, 2022).

Mindfulness meditation, is one of the nonpharmacological methods recommended for fibromyalgia; it is defined as “*moment-by-moment awareness*” nonjudgementally (Kabat-Zinn, 2003).

The effectiveness of mindfulness meditation, widely used in psychotherapy, has also been investigated in patients with fibromyalgia, examining various parameters. In reviewing the literature, Brooks et al. (2017) found that increasing the level of mindfulness in patients with fibromyalgia can improve depression; however, no relationship was observed between the level of mindfulness and pain intensity (Brooks et al, 2017). Van Gordon et al. (2017) investigated the effects of cognitive behavioral therapy and mindfulness meditation on pain perception, sleep quality, psychological distress, and social life in patients with fibromyalgia. There were significant improvements in the mindfulness meditation group compared

with the other two groups. The article also mentions that the “fibro-fog” present in the patients had a negative effect during the meditation practices (Van Gordon et al, 2017).

Although the positive effects of mindfulness meditation in patients with fibromyalgia have been reported, in these studies, the meditation practices were either performed face-to-face or the parameters investigated were evaluated only with scales without meditation practice.

The COVID-19 pandemic, which began in China at the end of 2019, caused deterioration in people’s mental health along with social isolation (Banerjee & Rai, 2020). Pain intensity, depression, and anxiety increased in patients with fibromyalgia during the COVID-19 epidemic (Batres-Marroquín et al, 2022). In this context, the positive effects of mindfulness meditation in terms of various parameters have been reported in these patients, and mindfulness meditation practices that integrate technology could become particularly important when access to face-to-face medical treatment and mindfulness meditation practices is difficult, such as during the COVID-19 pandemic.

Our hypothesis is that short-term online mindfulness meditation can increase mindfulness levels, alleviate pain intensity, and improve depression, anxiety, and quality of life in patients with fibromyalgia.

METHODS

Ethical Principles

“All procedures used were in accordance with the ethical standards of the committee responsible for human experimentation and the Declaration of Helsinki of 1975 as revised in 2000.” This study was approved by the Gülhane Scientific Research Ethics Committee of the University of Health Sciences. Patients were asked to complete the “Voluntary Informed Consent Form,” which was prepared separately for the study and control groups.

The study included patients from the Algology Polyclinic and the Physical Therapy and Rehabilitation Polyclinic of the University Hospital of Health Sciences Gulhane Training and Research Hospital, who were diagnosed with fibromyalgia based on the modified 2016 ACR criteria. The research was conducted between August 1, 2021 and August 1, 2023. Although 48 patients with fibromyalgia were included in the study, due to strict exclusion criteria, those who could not meet the “inclusion criteria” and patients who initially volunteered but later gave up participation in the study were excluded. Although 15 patients with fibromyalgia (study group=8; control group=7) participated in the study, 1 patient from the study group was excluded from the study due to the development of another disease that caused pain during the

application. The study was completed with 14 participants. All participants (study and control group) continued their medication as prescribed by their physicians. This article does not include any identifying information of the participating volunteers.

Inclusion and Exclusion Criteria (for Study and Control Groups)

Inclusion criteria include (a) age between 18 and 65 years, (b) completion of elementary school or higher education, and (c) continuation of medication currently prescribed for fibromyalgia.

Exclusion criteria include (a) patients with severe depression (as a safety measure as they require advanced medical treatment), (b) patients who are pregnant, (c) patients with a family or personal history of psychiatric illness with psychosis, (d) subjects taking antidepressants or other psychiatric medications, (e) patients who have undergone any other pain-relieving intervention such as acupuncture, (f) patients who have previously received cognitive behavioral therapy, (g) individuals who have previously practiced any type of meditation (as results may differ for experienced and novice mediators may differ), (h) patients with previously diagnosed cancer, scoliosis, lumbar, thoracic or cervical hernias or other diseases that may cause pain, (i) patients with a history of epilepsy or seizures, and (j) patients who do not speak Turkish (meditation instructions are given in Turkish).

Preparation for the Study

Participants (study and control group) completed the self-report scales. These scales are the Mindful Attention Awareness Scale (MAAS) (Özyesil et al, 2011), the Visual Analog Scale (VAS) (Begum & Hossain, 2019), Short Form-36 (SF-36) (Koçyiğit et al, 1999), Beck Depression Inventory (Hisli, 1989), and Beck Anxiety Inventory (Ulusoy et al, 1998).

Study Group

Before starting mindfulness meditation practices, the study group received an online presentation about the physiology of pain, psychological aspects of pain, and principles of mindfulness meditation. A “text” prepared on the basis of the literature with similar content was presented. The participants completed the scales twice in total before the mindfulness meditation sessions began and within a week after completing the sessions.

Method of the Mindfulness Meditation Practice

A WhatsApp message was sent to the study group on the morning of each application to remind them of the time of the session that day. This ensured patient engagement and continuity in meditation practices.

The study group met online 3 days a week for 4 weeks for a 25-minute mindfulness meditation session. In each session, audio recordings of an experienced mindfulness meditation teacher were played from YouTube (Mindfulness Institute 2018a, 2018b, 2020). In these recordings, in the “short-term body scan meditation,” attention is directed to the physical sensations in different parts of the body nonjudgmentally; without interpreting and without criticizing them; in the “breathing awareness meditation,” attention is focused on the sensations that occur in the body during breathing, and to return to the breath when attention shifted to thoughts. In “sitting meditation,” the physical sensations arising from the body were observed without criticizing them, thoughts were observed nonjudgmentally, and emotions were described (Mindfulness Institute 2018a, 2018b, 2020).

In each session, the first author, who is a specialist in family medicine and physiology and has participated in mindfulness training, taught patients that “they should approach pain with an accepting attitude,” emphasizing that “pain is just a physical sensation”; “pain is temporary, like thoughts and feelings” psychoeducationally.

For self-management of pain, it is recommended that when they suffer from pain, they should shift their attention from the painful area to their breathing or the sensations arising from the body and nonjudgmentally observe these sensations.

To help patients adapt to mindfulness meditation practices, a 10-min mindfulness meditation recorded by the first author was sent to the study group via WhatsApp for listening and practice.

During the study, patients were given encouraged to perform daily activities, such as washing dishes, eating, and vacuuming, with a mindful attitude.

The study group was required to attend at least 75% of the sessions (9 sessions). For this reason, a separate online session was conducted in the same week with participants who could not participate, and the number of sessions required for the study was completed.

Control Group (Wait-List): Mindfulness meditation practice was not applied to the control group. No information about pain psychoeducationally or self-management of pain was provided. Patients in the control group completed all scales twice at monthly intervals.

Parameters and Scales

Level of Mindfulness (Awareness)

The Turkish version of the MAAS was used to determine the patient’s level of mindfulness. The MAAS is a single factor scale consisting of 15 questions that assess how aware a person is of their daily activities. Participants indicate activities with a

score between 1 and 6, depending on their level of experience. The total score varies between 15 and 90, with a higher score indicating that the person’s awareness is high (Özyesil et al, 2011).

Pain Intensity

The VAS was used to assess current pain intensity. Patients indicate their pain level on a visual scale, assigning a numerical value between 0 and 10. Lower values indicate that the patient has little pain, while higher values indicate that the pain level is high (Begum & Hossain, 2019).

Quality of Life

The Turkish version of the Short Form-36 (SF-36) was used to measure patient’s quality of life. The SF-36 is a scale that determines how a person evaluates their physical and mental health status in the last 4 weeks according to their health status. The SF-36 consists of the following subgroups: physical functioning, limitations due to physical health, limitations due to emotional problems, energy/fatigue, social functioning, pain, emotional well-being, and general health perception. Higher scores indicate that students can perform their daily activities comfortably (Koçyiğit et al, 1999).

Depression Level

The Turkish version of the Beck Depression Inventory (BDI) was used to assess feelings (such as unhappiness, sadness, and guilt) and somatic symptoms (such as weight gain, sleep disturbances, and appetite change). The inventory consists of 21 items, each rated on a scale between 0 and 3, depending on their experience in the previous week. Total score are interpreted as follows: Scores of 1–9 indicate minimal depression, 10–16 indicate mild depression, 17–29 indicate moderate depression, and 30–63 indicate severe depression (Hisli, 1989).

Anxiety Level

The Turkish version of the Beck Anxiety Inventory (BAI) was used to assess the extent to which individuals experienced anxiety symptoms, such as inability to relax, hot flashes, dizziness, and irritability, in the last week. It consists of 21 items. Participants rate each item on a scale from 0 to 3, depending on their experience in the previous week. Total score are interpreted as follows: Scores of 8–15 indicate mild anxiety, 16–25 indicate moderate anxiety, and 26–63 indicate severe anxiety (Ulusoy et al, 1998).

Statistics

Since the study and control groups were two independent samples and the data were ordinal, the significance of the difference between the medians of the two groups was analyzed using the Mann–Whitney U test. The Wilcoxon signed-rank test

Table 1. Values of the level of mindfulness, pain intensity, anxiety, and depression of the study group at the 1st and 2nd measurement

| Scales | 1. Mea. | | 2. Mea. | | p |
|--------|---------|------|----------------|------|---------------|
| | Median | SEM | Median | SEM | |
| MAAS | 51.00 | 4.8 | 71.00** | 1.91 | < 0.10 |
| VAS | 7.00 | 0.54 | 5.00* | 0.47 | < 0.05 |
| BDI | 22.00 | 2.25 | 15.00 | 3.22 | >0.05 |
| BAI | 26.00 | 2.92 | 19.00* | 4.24 | < 0.05 |

*: P<0.05 states statistically significant differences; **: P<0.10 states statistically significant differences; Mea: Measurement; SEM: Standard error of the mean; MAAS: Mindful Attention Awareness Scale; VAS: Visual Analog Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; P: Statistical significance.

Table 2. Values of the level of mindfulness, pain intensity, anxiety, and depression in the control group at the 1st and 2nd measurement

| Scales | 1. Mea. | | 2. Mea. | | p |
|--------|---------|-------|---------|-------|-------|
| | Median | SEM | Median | SEM | |
| MAAS | 61.00 | 9.75 | 51.00 | 13.44 | >0.05 |
| VAS | 6.00 | 1.70 | 7.00 | 1.77 | >0.05 |
| BDI | 19.00 | 7.66 | 10.00 | 3.91 | >0.05 |
| BAI | 21.00 | 10.13 | 14.00 | 11.61 | >0.05 |

Mea: Measurement; SEM: Standard error of the mean; MAAS: Mindful Attention Awareness Scale; VAS: Visual Analog Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; P: Statistical significance.

was used to determine whether there was a significant difference between the measurement results of the groups at two different time points. The differences between the groups or measurement times and the significance level are presented together.

RESULTS

In the study group, the level of mindfulness (MAAS) increased significantly in the second measurement compared with the first measurement (p<0.10); while pain intensity (VAS) and anxiety level (BAI) decreased significantly (p<0.05). There were no significant changes in the depression (BDI) level (p>0.05) (Table 1).

In the control group, there were no significant difference in the second measurement compared with the first measurement regarding the level of mindfulness (MAAS), pain intensity (VAS), anxiety level (BAI), and depression level (BDI) (p>0.05) (Table 2).

Table 3. Levels of mindfulness, pain intensity, anxiety, and depression in the study and control groups at the 1st measurement

| Scales | Study group | | Control group | | p |
|--------|---------------|------|---------------|-------|---------------|
| | Median | SEM | Median | SEM | |
| MAAS | 51.00 | 4.8 | 61.00 | 9.75 | >0.05 |
| VAS | 7.00** | 0.54 | 6.00 | 1.70 | < 0.10 |
| BDI | 22.00 | 2.25 | 19.00 | 7.66 | >0.05 |
| BAI | 26.00* | 2.92 | 21.00 | 10.13 | < 0.05 |

*: P<0.05 states statistically significant differences; **: P<0.10 states statistically significant differences; SEM: Standard error of the mean; MAAS: Mindful Attention Awareness Scale; VAS: Visual Analog Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; P: Statistical significance.

Table 4. Levels of mindfulness, pain intensity, anxiety, and depression in the study and control groups at the 2nd measurement

| Scales | Study group | | Control group | | p |
|--------|-------------|------|---------------|-------|-------|
| | Median | SEM | Median | SEM | |
| MAAS | 71.00 | 1.91 | 51.00 | 13.44 | =0.05 |
| VAS | 5.000 | 0.47 | 7.00 | 1.77 | =0.10 |
| BDI | 15.000 | 3.22 | 10.00 | 3.91 | >0.05 |
| BAI | 19.000 | 4.24 | 14.00 | 11.61 | >0.05 |

SEM: Standard error of the mean; MAAS: Mindful Attention Awareness Scale; VAS: Visual Analog Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; P: Statistical significance.

The study group’s pain intensity (VAS) and anxiety level (BAI) were significantly higher than the pain intensity (VAS) (p<0.10) and anxiety level (BAI) (p<0.05) of the control group at the first measurement (Table 3).

There was no significant difference between the study group’s mindfulness (MAAS), pain intensity (VAS), depression level (BDI), and anxiety level (BAI) at the second measurement and the control group’s mindfulness level (MAAS), pain intensity (VAS), depression level (BDI), and anxiety level (BAI) at the second measurement (p>0.05) (Table 4).

In the study group, there was a significant improvement in the parameters “limitation of social functions” and “pain,” which are subgroups of the SF-36, in the second measurement compared with the first measurement (p<0.05) (Table 5).

Table 5. Values of the parameters “limitation of social functions” and “pain” from the SF-36 scale subgroups of the study group

| Scales | 1. Mea. | | 2. Mea. | | p |
|---------------------------------|---------|-------|---------------|-------|-----------------|
| | Median | SEM | Median | SEM | |
| Limitations of social functions | 37.50 | 11.53 | 50.00* | 10.91 | <0.05 |
| Pain | 45.00 | 24.54 | 41.79* | 9.91 | <0.05 |

*: $P < 0.05$ states statistically significant difference; Mea: Measurement; SEM: Standard Error of the Mean; p: Statistical significance.

DISCUSSION

Fibromyalgia is a disorder that affects multiple body systems and has psychological aspects. Our study is one of the few studies that applied mindfulness meditation using technology and provides a comprehensive evaluation of the effect of short-term online mindfulness meditation on mindfulness levels, pain intensity, depression, anxiety, and quality of life in patients with fibromyalgia. The results of our study indicate that short-term online mindfulness meditation procedure leads to improvements in the level of mindfulness, pain intensity, anxiety, and some subgroups of the quality of life scale.

When examining systematic reviews, mindfulness meditation is rarely included as a method. In these studies, cognitive behavioral therapy, self-management of pain, acceptance, and commitment therapy were commonly used (Chew et al, 2023; Donisi et al, 2023). In studies that employed mindfulness as a method, Davis and Zautra (2013) compared patients with fibromyalgia who received online mindfulness training and those who received healthy lifestyle advice for 12 weeks. They reported that pain intensity decreased, pain management became more effective, and social relationships improved in the mindfulness training group (Davis & Zautra, 2013). Our study was a short-term (4 weeks) online mindfulness meditation practice that comprised pain-related psychoeducation and self-management of pain, differing from the aforementioned study in both methodology and assessed parameters.

Paolucci et al. (2022) conducted mindfulness-based online practices and found that pain intensity and disability decreased in patients with fibromyalgia (Paolucci et al, 2022). The application is not a formal mindfulness meditation practice, and levels of mindfulness, anxiety, and depression were not studied. Nevertheless, it highlights the importance of online applications for patients with fibromyalgia, such as COVID-19.

Serrat M et al. (2022) included three groups of patients with fibromyalgia in their study; first group, who continued their usual

treatment for their symptoms without additional treatment; the second group, who continued their usual treatment and received video-based FIBROWALK (mindfulness training and cognitive restructuring, pain neuroscience education, self-management pain education, physiotherapy, therapeutic physical exercise); and the third group, who continued their usual treatment and received similar to the video-based FIBROWALK program, except mindfulness training and cognitive restructuring. Compared with the patients, the video-based FIBROWALK group showed significant improvement in pain intensity, anxiety, depression, and physical function. Video-based FIBROWALK group was also found to have a superior effect on the third group. A previous study reported that patients' sense of belonging to a group and regular communication may contribute to significant differences (Serrat et al, 2022). Our study also involved group practice. Encouraging participants to perform daily activities with a mindful attitude and the mindfulness meditation procedure can increase the level of mindfulness. In this study, positive results were obtained in terms of pain intensity, anxiety, and quality of life. We believe that a short-term online application can be offered to patients with fibromyalgia as a more accessible, cost-effective, and practical therapeutic method than the current study.

In this study, short-term online mindfulness meditation improved pain intensity, anxiety, and quality of life in patients with fibromyalgia. It is possible that through mindfulness meditation, psychoeducation about pain, and guidance on self-management of pain, patients can achieve reduction in pain catastrophizing and improvement in subgroups of quality of life. Since the application is short-term online, this procedure can be an easy-to-access and practical complementary therapeutic method for patients with fibromyalgia who have difficulty accessing face-to-face treatment, such as those with COVID-19.

The strength of this study is that the mindfulness meditation was conducted with the recordings of an experienced mindfulness educator. The effectiveness of meditation is also increased by guiding patients to mindfulness meditation and psychoeducation about pain.

A limitation of this study is that only a small number of patients could be included, as very strict exclusion criteria were applied for patients. To reach a sufficient number of patients in future studies, cooperation with the primary healthcare institution, internal medicine, and rheumatology departments should be sought. The “pain catastrophizing” can be determined using scales, and the role of psychoeducation can be revealed more explicitly.

We also hypothesize that mindfulness meditation can be applied to other pain-causing diseases, such as chronic neck, chronic low back, and osteoarthritis, and studies can be conducted in this regard.

Ethics Committee Approval: The Health Sciences University Gülhane Scientific Research Ethics Committee granted approval for this study (date: 08.07.2021, number: 2021/306).

Author Contributions: Concept – YY, MÖ; Design – YY, MÖ, ES; Supervision – MÖ, YY, AEÇ; Resource – YY, ŞK; Materials – GEK, ŞK; Data Collection and/or Processing – ŞK, GEK, YY; Analysis and/or Interpretation – YY; Literature Review – YY; Writing – YY, MÖ, ES, AEÇ; Critical Review – MÖ, ES, YY, AEÇ, ŞK, GEK.

Conflict of Interest: The authors have no conflict of interest to declare.

Use of AI for Writing Assistance: Audio recordings from Youtube were used in our study; no artificial intelligence application was used.

Financial Disclosure: The authors declared that this study has received no financial support.

Peer-review: Externally peer-reviewed.

REFERENCES

- Adler-Neal, A. L., & Zeidan, F. (2017). Mindfulness meditation for fibromyalgia: Mechanistic and clinical considerations. *Curr Rheumatol Rep*, 19(9), 59.
- Mindfulness Institute. (March 7, 2018a). *Kısa beden taraması - Mindfulness: Şimdi ve burada* [Video]. YouTube. <https://www.youtube.com/watch?v=017OCZmr3xE>
- Mindfulness Institute. (May 9, 2020). *Nefesin farkındalığı meditasyonu / Prof. Dr. Zümra Atalay* [Video]. YouTube. https://www.youtube.com/watch?v=3tTwz_HE6B8
- Mindfulness Institute. (March 7, 2018b) *Oturma meditasyonu - Mindfulness: Şimdi ve burada* [Video]. YouTube. <https://www.youtube.com/watch?v=AER9ufg-6NE>
- Bair, M. J., & Krebs, E. E. (2020). Fibromyalgia. *Ann Intern Med*, 172(5), ITC33–ITC48.
- Banerjee, D., & Rai, M. (2020). Social isolation in COVID-19: The impact of loneliness. *Int J Soc Psychiatry*, 66(6), 525–527.
- Batres-Marroquín, A. B., Medina-García, A. C., Vargas Guerrero, A., Barrera-Villalpando, M. I., Martínez-Lavín, M., Martínez-Martínez, L. A. (2022). Effect of COVID-19 pandemic lockdown on fibromyalgia symptoms. *J Clin Rheumatol*, 28(1), e289–e291.
- Begum, M. R., & Hossain, M. A. (2019). Validity and reliability of visual analogue scale (VAS) for pain measurement. *J Med Case Rep Rev*, 2(11), 394–402.
- Brooks, J. M., Muller, V., Sánchez, J., Johnson, E. T., Chiu, C. Y., Cotton, B. P., Lohman, M.C., Catalano, D., Bartels, S., Chan, F. (2020). Mindfulness as a protective factor against depressive symptoms in people with fibromyalgia. *J Ment Health*, 29(2), 161–167.
- Chew, M. T., Chan, C., Kobayashi, S., Cheng, H. Y., Wong, T. M., Nicholson, L. L. (2023). Online pain management programs for chronic, widespread musculoskeletal conditions: A systematic review with meta-analysis. *Pain Pract*, 23(6), 664–683.
- Davis, M. C., & Zautra, A. J. (2013). An online mindfulness intervention targeting socioemotional regulation in fibromyalgia: Results of a randomized controlled trial. *Ann Behav Med*, 46(3), 273–284.
- Donisi, V., De Lucia, A., Pasini, I., Gandolfi, M., Schweiger, V., Del Piccolo, L., Perlini, C. (2023). e-Health interventions targeting pain-related psychological variables in fibromyalgia: A systematic review. *Healthcare (Basel)*, 11(13), 1845.
- Fernandez-Feijoo, F., Samartin-Veiga, N., & Carrillo-de-la-Peña, M. T. (2022). Quality of life in patients with fibromyalgia: Contributions of disease symptoms, lifestyle, and multi-medication. *Front Psychol*, 13, 924405.
- Flink, I. L., Boersma, K., & Linton, S. J. (2013). Pain catastrophizing as repetitive negative thinking: A development of the conceptualization. *Cogn Behav Ther*, 42(3), 215–223.
- Galvez-Sánchez, C. M., Montoro, C. I., Duschek, S., & Reyes Del Paso, G. A. (2020a). Depression and trait-anxiety mediate the influence of clinical pain on health-related quality of life in fibromyalgia. *J Affect Disord*, 265, 486–495.
- Galvez-Sánchez, C. M., Montoro, C. I., Duschek, S., & Del Paso, G. A. R. (2020b). Pain catastrophizing mediates the negative influence of pain and trait-anxiety on health-related quality of life in fibromyalgia. *Qual Life Res*, 29(7), 1871–1881.
- Henao-Pérez, M., López-Medina, D. C., Arboleda, A., Bedoya Monsalve, S., & Zea, J. A. (2022). Patients with fibromyalgia, depression, and/or anxiety and sex differences. *Am J Men's Health*, 16(4), 15579883221110351.
- Hisli, N. (1989). Beck depresyon envanterinin üniversite öğrencileri için geçerliliği, güvenilirliği. *Psikol Derg*, 7(23), 3–13.
- İnci, H., & İnci, F. (2023). Pain catastrophizing, depression, and anxiety in fibromyalgia patients. *J Exp Clin Med*, 40(3), 466–471.
- Jenkinson, C., Stewart-Brown, S., Petersen, S., & Paice, C. (1999). Assessment of the SF-36 version 2 in the United Kingdom. *J Epidemiol Community Health*, 53(1), 46–50.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clin Psychol Sci Pract*, 10(2), 144–156.
- Koçyiğit, H., Aydemir, Ö., Fişek, G., Ölmez, N., & Memiş, A. (1999). Kısa Form-36 (SF-36)'nin Türkçe versiyonunun güvenilirliği ve geçerliliği. *İlaç ve Tedavi Dergisi*, 12(2), 102–106.
- Offenbaecher, M., Kohls, N., Ewert, T., Sigl, C., Hieblinger, R.,

- Toussaint, L. L., Sirois, F., Hirsch, J., Vallejo, M. A., Kramer, S., Rivera, J., Stucki, G., Schelling, J., Winkelmann, A. (2021). Pain is not the major determinant of quality of life in fibromyalgia: Results from a retrospective “real world” data analysis of fibromyalgia patients. *Rheumatol Int*, 41(11), 1995–2006.
- Özyeşil, Z., Arslan, C., Kesici, Ş., & Deniz, M. E. (2011). Bilinçli farkındalık ölçeği’ni Türkçeye uyarlama çalışması. *Eğitim ve Bilim*, 36(160), 224–235.
- Paolucci, T., de Sire, A., Ferrillo, M., di Fabio, D., Molluso, A., Patruno, A., Pesce, M., Lai, C., Ciacchella, C., Saggino, A., Agostini, F., Tommasi, M. (2022). Telerehabilitation proposal of mind-body technique for physical and psychological outcomes in patients with fibromyalgia. *Front Physiol*, 13, 917956.
- Serrat, M., Albajes, K., Navarrete, J., Almirall, M., Lluch Girbés, E., Neblett, R., Luciano, J. V., Moix, J., Feliu-Soler, A. (2022). Effectiveness of two video-based multicomponent treatments for fibromyalgia: The added value of cognitive restructuring and mindfulness in a three-arm randomised controlled trial. *Behav Res Ther*, 158, 104188.
- Singh, G., & Kaul, S. (2018). Anxiety and depression are common in fibromyalgia patients and correlate with symptom severity score. *Indian J Rheumatol*, 13(3), 168–172.
- Steiner, J. L., Bigatti, S. M., Slaven, J. E., & Ang, D. C. (2017). The complex relationship between pain intensity and physical functioning in fibromyalgia: The mediating role of depression. *J Appl Biobehav Res*, 22(4), e12079.
- Teksin, G., Şahmelikoğlu Onur, Ö., & Karabıçak, D. (2022). Cognitive behavioral therapy for female patients with fibromyalgia syndrome: A pilot trial. *J Cogn Behav Psychother Res*, 11(1), 31–38.
- Ulusoy, M., Sahin, N. H., & Erkmén, H. (1998). Turkish version of the Beck Anxiety Inventory: Psychometric properties. *J Cogn Psychother*, 12(2), 163–172.
- Van Gordon, W., Shonin, E., Dunn, T. J., Garcia-Campayo, J., & Griffiths, M. D. (2017). Meditation awareness training for the treatment of fibromyalgia syndrome: A randomized controlled trial. *Br J Health Psychol*, 22(1), 186–206.
- Wolfe, F., Clauw, D. J., Fitzcharles, M. A., Goldenberg, D. L., Häuser, W., Katz, R. L., Mease, P. J., Russell, A. S., Russell, I. J., Walitt, B. (2016). 2016 revisions to the 2010/2011 fibromyalgia diagnostic criteria. *Semin Arthritis Rheum*, 46(3), 319–329.