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Use of Complementary and Alternative Medicine in Fibromyalgia: Results of an Online Survey

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Abstract

Objectives—The three main objectives of this study were to examine self-reported complementary and alternative medicine use in patients with fibromyalgia, to determine associations between the use of complementary and alternative medicine treatments and patients' self-reported quality of life and self-reported pain levels.

Design—Web–based, cross-sectional survey.

Methods—Patients with fibromyalgia responded to an online questionnaire regarding the following: treatments (complementary and alternative medicine, prescription and over-the-counter medications), quality of life (Quality of Life Scale −16), assessment of current pain (visual analog scale), and demographic information.

Results—Approximately, 66% of the respondents utilized complementary and alternative treatments. Vitamins, massage therapy, and meditation were the most commonly used complementary and alternative therapies. Results indicated respondents utilizing a combination of complementary and alternative medicine and pharmacologic treatments (prescription and/or over-the-counter) had significantly higher quality of life versus those utilizing pharmacologic treatments alone, $p = 0.011$. Respondents using only complementary and alternative medicine

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treatments reported lower pain levels versus those using pharmacologic treatments alone, $p = 0.046$.

Conclusions—The study suggests that a large proportion of fibromyalgia patients utilize complementary and alternative medicine, and these treatments may offer beneficial effects to these patients. Integration of complementary and alternative medicine into conventional treatment regimens may provide opportunities for a holistic treatment approach, and greater symptom relief, for fibromyalgia patients. This approach is timely as controlled substances are increasingly difficult for patients with fibromyalgia to access.

Keywords

fibromyalgia; complementary therapies; alternative therapies; integrative therapies

Introduction

Fibromyalgia (FM) is a chronic condition characterized by the hallmark symptom of pain and the presence of other symptoms and co-morbidities including fatigue, sleep disturbance, morning stiffness, headache, anxiety, and depression (Mease et al., 2005). FM has an estimated prevalence of between 1–4% in the general population (Branco et al., 2010).

The direct and indirect cost burden associated with this condition is high due to the extensive use of health care services and loss of productivity. For example, a claims database analysis, from the U.S., compared health care use between FM patients and a randomly selected group of patients without FM. This analysis revealed that FM patients visited physician offices four times more than the comparison group (Berger, Dukes, Martin, Edelsberg, & Oster, 2007). Additionally, the health care costs for the FM group were three times greater with a mean annual cost of US $ 9,573 versus US $ 3,291 for the comparison group (Berger et al., 2007).

The health-related quality of life (QoL) is compromised considerably in patients with FM. A study comparing the QoL of FM patients to those with other disorders including rheumatoid arthritis, osteoarthritis, chronic obstructive pulmonary disorder, and insulin dependent diabetes mellitus, reported that FM patients had the lowest scores across various QoL domains (Burckhardt, Clark, & Bennett, 1993).

Diagnosis and effective treatment of FM is not necessarily clear. The following presents challenges in the timely diagnosis and effective treatment of FM patients: a lack of clearly understood etiology, presence of a variety of symptoms some of which are difficult to detect, symptom overlap with other rheumatologic conditions, and a lack of objective diagnostic techniques (Wolfe, Michaud, Li, & Katz, 2010). Additionally, “invalidation” by health care providers may complicate the diagnosis and treatment process for people with FM. Invalidation as defined by Kool et al. (2009) refers to patient experiences including: inadequate understanding, lack of health care support, lack of recognition, stigmatization, embarrassment, frustration, skepticism, and cynicism. Invalidation of symptom experiences from health care providers may tend to interfere with the physician-patient relationship and

can impact patients on physical, emotional, social, and economic levels (Kool et al., 2009; Hayes et al., 2010; Lobo, Pfalzgraf, Giannetti, & Kanyongo, 2014).

In the absence of effective traditional treatment options and due to poor acknowledgement of symptoms from physicians, FM patients have reported utilizing complementary and alternative medicine (CAM) to achieve relief of their symptoms (Prabhakar et al., 2019). Currently, the National Institutes of Health (NIH) distinguish complementary and alternative treatments as those with "origins outside of usual Western practice" (National Center for Complementary and Integrative Health [NCCIH], 2018). The National Center for Complementary and Integrative Health (NCCIH, 2018) distinguish between complementary and alternative treatments as follows: complementary treatments are those used "together with conventional medicine", while alternative treatments are those used "in place of conventional medicine". The literature on the efficacy of CAM interventions for FM, however, is limited and results mixed (NCCIH, 2016). An internet survey of 2,596 FM patients reported that non-medical interventions (rest, heat, distraction) were common strategies utilized to manage FM. In the same study, however, prescription pain and sleep medications were reported as more effective than rest and heat modalities (Bennett, Jones, Turk, Russell, & Matallana, 2007).

Low QoL and significant levels of pain have been reported by patients with FM. These patients utilize CAM to help achieve symptom relief however, there is little data regarding the use of CAM and its effect on QoL and pain for this patient group. As transitions are occurring in the U.S. health care system and in light of the opioid crisis, increased evidence for the use of CAM in FM can help guide patients, heath care providers, policy makers, and researchers on whether or not they should incorporate CAM as part of their main treatment regimen for this chronic pain condition. Furthermore, the relationships between the use of CAM and the impact on QoL and pain may help guide treatment decisions for this subset of chronic pain patients.

The objectives of this study were as follows: 1. to examine self-reported CAM use in patients with FM, 2. to determine associations between the use of CAM treatments and patients' self-reported QoL, and 3. to determine associations between the use of CAM treatments and patients' self-reported pain levels.

Methods

A self-selected, web-based survey was conducted via Qualtrics® (Qualtrics, LLC, Provo, UT). The registered members of the National Fibromyalgia and Chronic Pain Association (NFMCPA) were invited to participate in the survey. The survey was advertised in the digital newsletter of the NFMCPA and was active for an approximately three weeks. Respondents 18 years of age or older, diagnosed with FM, and who provided informed consent were included in the survey.

Survey Instrument

The survey incorporated three standardized scales. First, the 16-item standardized Quality of Life Scale-16 (QOLS-16) which measures satisfaction of respondents on six domains

(material and physical well-being, relationships with other people, social, community and civic activities, personal development and fulfillment, recreation, and independence.) was included in the survey instrument (Burckhardt & Anderson, 2003). The composite score of responses to the 16 items (range: 16–112) represents the QoL of FM patients, with higher scores reflecting better QoL. Second, an 11-point, continuous visual analog scale (VAS) for pain (0 = no pain to 10= worst pain) was utilized to measure pain levels of respondents at the time of the survey. Third, respondents were asked to indicate perceptions of invalidation about their main health care provider utilizing the Illness Invalidation Inventory (3*I) (Kool et al., 2010). The 3*I is an eight-item scale and each item is measured on a five-point Likert scale which ranges from 1 (indicating “never” invalidating) to 5 (indicating invalidating “very often”). The final invalidation score was an unweighted mean of the eight items and ranged from one to five (Kool et al., 2010). Information on utilization of both pharmacologic treatments (prescription and OTC) and CAM treatments were also collected. Respondents were first asked if they used prescription or OTC medications to treat their symptoms associated with FM. Respondents answering “yes” were provided with a list of 28 medications. The list, utilized in the current study, was derived from a previous study which surveyed 2,596 FM patients and determined commonly utilized medications (Bennett et al., 2007). The FM patients, in the current study, were then asked to rate the effectiveness of any utilized medications. Next, respondents were asked about their use of CAM treatments and the effectiveness of these treatments. Perceived effectiveness of pharmacologic and CAM treatments were rated as follows: “very effective”, “moderately effective”, ‘not at all effective”, or “made symptoms worse”. Demographic information was also collected.

Validity and Pilot Study

Content and face validity were assessed during the development of the survey instrument. The survey was validated by experts in FM and health outcomes research. These experts included a neurologist (MD) who conducted survey research in FM patients, a clinical psychologist (PhD) and chronic pain researcher/co-creator of the invalidation inventory instrument (3*I), four PhD-level health outcomes faculty members with experience in survey research, and two health outcomes graduate students. A pilot study was conducted - among people diagnosed with fibromyalgia - to further evaluate the clarity of the survey questions. Three support group leaders of the National Fibromyalgia Association forwarded the survey to their members. In addition to the original survey questions, the pilot test included questions regarding clarity of the survey questions and instructions and the time it took the respondents to complete the survey. Sixty-eight responses were recorded in the pilot test. The majority of respondents were White/Caucasian (83%), females (84%), while the mean age of respondents was 50.8±11.27 years. Eighty-one percent of the pilot test respondents found the survey items easy to read and understand. The mean for survey completion time was found to be 15 minutes. Based on these results the researchers concluded the respondents were comfortable with the length of the survey and the nature of the survey questions. However, based on the feedback from the pilot study the researchers found the respondents frequently utilized three additional medications (meloxicam, tizanidine, guaifenesin). Therefore, the list of pharmacologic medications was expanded to include these three medications. The final survey was approved by the Institutional Review Board at Duquesne University.

Analysis

Descriptive statistics including means and frequencies were generated for the data. In addition, analysis of variance (ANOVA) statistical tests were conducted to determine differences in FM patients' self-reported levels of QoL and pain according to the type of treatment utilized. Data analysis was performed with IBM®SPSS®, Version 25.0 (IBM Corp., Armonk, NY).

Results

The survey resulted in a usable sample size of 670 people who reported a diagnosis of FM. The respondents had a mean age of 54.08 ± 10.99 years. A majority of the survey respondents were female (96.6%), White/Caucasian (92.5%), and married (65.6%). Many (42.2%) reported having at least a college degree. Nearly 62% of the respondents had an annual income of less than $50,000, while 35.7% reported an income of less than $25,000 annually. The mean QOLS-16 score was 66.98 ± 18.23 (range: 16–112), while the average current level of pain was 6.20 ± 2.27. The mean perception of invalidation from health care providers was 2.57 ± .93. This indicates respondents perceived their health care providers as invalidating "sometimes". Table 1 summarizes respondents' demographics (please note percentages may not add up to 100% due to item non-response - there was no pattern to the missingness).

Treatments

Approximately, 91% (608) of the total respondents reported using pharmacologic treatments (prescription and/or OTC medications). The most frequently utilized prescription medications were as follows: cyclobenzaprine hcl (27.0%) (muscle relaxant), duloxetine hcl (25.2%) (antidepressant), tramadol hcl (24.2%) (weak opioid), hydrocodone bitartrate/acetaminophen (22.9%) (opioid), and pregabalin (18.3%) (anti-convulsant). Respondents indicated that OTC medications, such as acetaminophen (19.2%) (analgesic) and ibuprofen (15.0%) (nonsteroidal anti-inflammatory (NSAID)) were commonly utilized. The most commonly utilized medications were rated as at least "moderately effective" by the majority of the respondents. A large proportion of FM respondents endorsed three prescription medications as "very effective". Among FM respondents who utilized hydrocodone bitartrate/acetaminophen 46.0% rated the medication as being "very effective". Similarly, 50.5% of those who utilized zolpidem tartrate and 50.7% of those who utilized alprazolam rated these medications as "very effective". Table 2 summarizes the most frequently utilized pharmacologic treatments and their perceived effectiveness.

The majority, 65.8% (441), of the survey respondents indicated they currently utilized CAM treatments. Of those respondents who indicated they utilized CAM, the most commonly reported treatments were as follows: vitamin supplements (87.5%), massage therapy (78.5%), meditation (63.3%), and aerobic exercise (57.4%). A majority (58.0%) of the respondents using vitamin supplements found them to be "moderately effective". Among those using massage therapy 48.3% rated it to be "very effective" while another 37.3% found it to be "moderately effective". Fifty-seven percent of the respondents using meditation rated it "moderately effective". Aerobic exercise was rated "moderately

effective" by 45.5% of the respondents, while 32.4% of those who used aerobic exercise reported that their symptoms worsened. Acupuncture (39.7%), spa therapy (40.4%), herbal medicine (46.7%), and cognitive behavioral therapy (35.4%) were also utilized by many respondents. Table 3 summarizes the utilization and perceived effectiveness of various CAM treatments.

Patient Preferences and Insurance Coverage

Respondents were asked their relative preference for using pharmacologic versus CAM treatments. Of those who utilized CAM 41.0% (181) indicated they preferred CAM over prescription and/or OTC medications. A majority (73.0% or 322) of the total survey respondents who utilized CAM reported utilizing these treatments without a physician's recommendation. Finally, all survey respondents (670) were asked about their health insurance coverage of CAM. Of those respondents who had health insurance 25.4% of the respondents indicated their health insurance partially covered CAM treatments, while 49.1% of the respondents did not have health insurance coverage for CAM.

Treatments and Patient Outcomes (QoL and Pain)

Based on observation in clinical practice, patients may utilize one of the three treatment strategies as follows: 1) pharmacologic treatments alone (prescription and/or OTC), 2) CAM treatments alone, or 3) both pharmacologic and CAM treatments. Since this is the case a one-way between subjects ANOVA was conducted to compare the association between treatment strategy on self-reported QoL in pharmacologic treatments alone, CAM treatments alone, and both pharmacologic and CAM treatments. There was a significant association of treatment strategy on QoL at the $p<.05$ level for the three treatment strategies [$F(2,638) = 4.84$, $p = 0.008$]. Post hoc comparisons using the Bonferroni test indicated that the mean self-reported QoL for the combination of both pharmacologic and CAM treatments ($M = 68.25$, $SD = 17.92$) was significantly different than the pharmacologic only treatment ($M = 63.71$, $SD = 18.10$). However, the CAM only treatment ($M = 70.03$, $SD = 19.38$) did not significantly differ from the pharmacologic only treatment and both pharmacologic and CAM treatment groups. These results revealed respondents using a combination of pharmacologic and CAM treatments had significantly higher QoL versus those using pharmacologic treatment alone.

Additionally, a one-way between subjects ANOVA was conducted to compare the association between treatment strategy on current pain levels in pharmacologic treatments alone, CAM treatments alone, and both pharmacologic and CAM treatments. There was a significant association of treatment strategy on current pain levels at the $p<.05$ level for the three treatment strategies [$F(2,581) = 4.28$, $p = 0.014$]. Post hoc comparisons using the Bonferroni test indicated that the mean self-reported QoL for the CAM treatment group ($M = 5.50$, $SD = 2.63$) was significantly different than the pharmacologic only treatment group ($M = 6.55$, $SD = 2.14$). However, the combination of pharmacologic and CAM treatment ($M = 6.08$, $SD = 2.27$) did not significantly differ from the pharmacologic only and the CAM only treatment groups. These results revealed respondents using CAM only treatments had significantly lower pain levels versus those using pharmacologic treatment alone.

Discussion and Conclusion

This study demonstrated CAM may be useful for patients with FM in achieving symptom relief and improving health outcomes. More than half of the survey respondents (65.8%) reported using CAM. FM patients, in this study, reported the most commonly utilized CAM treatments were vitamins, massage therapy, meditation, and aerobic exercise. According to the Centers for Disease Control, natural products (including vitamins), massage therapy, and meditation are among the 10 most commonly utilized complementary health approaches among the general population of adults, in the U. S. (Barnes, Bloom, & Nahin, 2008). Conversely 8 of the 10 most common reasons people, in the U.S., use CAM therapies are found in FM (back pain, neck pain, joint pain, arthritis, depression/anxiety, headache, recurring pain, and insomnia) (Barnes, et al., 2008).

The only prescription medications which FM respondents endorsed as “very effective”, by 46% or more of the respondents, were the following controlled substances: hydrocodone bitartrate/acetaminophen, zolpidem tartrate, and alprazolam. Zolpidem tartrate has demonstrated efficacy for improving sleep quality in patients with FM (Moldofsky, Lue, Mously, Roth-Schechter, & Reynolds, 1996). Position papers and recommendations, however, have discouraged the use of opioid medications - such as hydrocodone bitartrate/acetaminophen – as treatment for FM (Goldenberg, Clauw, Palmer & Clair, 2016; Chou et al., 2009). Additionally, the U.S. Food and Drug Administration added Boxed Warnings and has advised that concomitant use of opioid medications and other CNS depressants, such as zolpidem tartrate or alprazolam can result in serious side effects which include difficulty breathing and even death (U.S. Food and Drug Administration [US FDA], 2016; Jones & McAninch, 2015). Indeed, a recent 8-week clinical trial of cognitive behavioral therapy for insomnia and pain in FM, failed to reduce total opioid use, though sleep medication use declined, at least temporarily (McCrae et al., 2020). Nonetheless, these data support that patients find these medications helpful. Providers are tasked with managing the twin crises of treating chronic pain in the face of the growing war on opioids, an area rife with scientific debate (Mackey & Kao, 2019). Because of the potential for serious side effects, health care providers should weigh the risks and benefits when prescribing these medications (Cunningham, Craner, Evans, & Hooten, 2017).

The only CAM treatment to receive a similar endorsement of “highly effective” was massage therapy. Some effectiveness of massage therapy for improving FM symptoms has been established in the literature (Li, Wang, Feng, Yang, & Sun, 2014; Yuan, Matsutani, & Marques, 2015). For example, a systematic review and meta-analysis showed that massage therapy (if duration is ≥ 5 weeks) significantly decreased pain, decreased anxiety, and improved depression in patients diagnosed with FM (Li et al., 2014). This research, however, was based on a relatively small number of trials and the authors also conclude that higher quality, longer RCT’s need to be conducted in order to determine the effectiveness of massage therapy for FM symptoms (Li et al., 2014). Recent data suggests that people with FM can be differentiated from other chronic pain conditions based in part on muscle related symptoms including pain after exercise, muscle weakness, and muscle stiffness (Jones, Aebischer, St John, Friend, Bennett, 2018a; Jones, Bennett, St John, & Friend, 2018b). It is noteworthy that current diagnostic criteria for FM is silent on muscle symptoms, leading to a

potential missed treatment opportunity (Wolfe et al., 2016). These data indicate that therapies focused on relieving muscle symptoms are highly endorsed by FM patients.

The results indicated that 41.0% of the respondents (181 of 441 respondents) preferred CAM over prescription and/or OTC medications. Previous research has demonstrated FM patients, especially women, tend to utilize a wide variety of CAM treatments to achieve relief from symptoms (Land & Wang, 2017; Barnes et al., 2008; Bennett et al., 2007).

Interestingly, approximately three-fourths (74.0%) of the survey respondents reported utilizing CAM without a physician's recommendation. Current literature indicates that despite the fact CAM use is common, relatively few patients discuss utilizing CAM treatments with their health care providers (Sexton, 2009). In line with previous findings, our data suggests that providers should assess patients regarding their use of CAM therapies (Sexton, 2009; Ge et al., 2013). This assessment may help avoid potential adverse interactions between medications and CAM treatments. In addition, better education of health care providers regarding CAM and more frequent communication with patients about CAM treatment could be beneficial in FM symptom management. In fact, out of growing concern for this problem, the NCCIH (2012) launched a campaign "Time to Talk". The purpose of this campaign is to encourage health care providers to discuss CAM use with patients.

Our results echo previous research findings, in that patients want and do in fact utilize CAM to help alleviate FM symptoms, including pain. Health care providers, however, report having a lack of knowledge/education, lack of guidelines, and in some cases a lack of access to CAM treatments – these are key constructs that continue to elude clinicians (Land & Wang, 2017; Ziodeen & Misra, 2018; Marupuru et al., 2019). This may, in part. remain a challenge due to the fact there is still a consensus that research is lacking - regarding the effectiveness of CAM (NCCIH, 2020; Kim et al., 2019; Perry et al., 2017; Cheng et al. 2019). Therefore, even the NCCIH (2020) has called for more high quality research to better understand the efficacy and safety of CAM in people diagnosed with FM. In this manner health care providers may recommend CAM use, which is grounded in evidence-based medicine, for the treatment of FM symptoms.

The current study suggests CAM may be effective in reducing pain and the use of both prescription/OTC medications and CAM may be useful in improving QoL. These findings are in agreement with previous results (Yuan et al., 2015). The mean QOLS-16 score (66.98 ± 18.23) for the respondents in this study was consistent with people diagnosed with FM in other studies (Burckhardt et al., 1993; Burckhardt & Anderson, 2003). The mean QOLS-16 score for the general public has been reported to be 90 (Burckhardt & Anderson, 2003). Additionally, the mean current pain level reported by the respondents was 6.20 ± 2.27. This has been classified in the literature as a "moderate" pain level (Kapstad, Hanestad, Langeland, Rustoen & Stravern, 2008; The American Academy of Pain Medicine [AAPM], 2014). Respondents using a combination of pharmacologic and CAM had significantly higher QoL versus those using pharmacologic treatment alone. Similarly, there was a significant difference in the pain levels of respondents using different treatment strategies. The results indicate FM patients utilizing CAM only treatments had significantly lower pain

levels versus those using pharmacologic treatment alone. From a clinical standpoint, however, mean current pain levels in all three treatment groups (pharmacologic treatment alone, CAM treatment alone, combination of pharmacologic and CAM treatments) would still be classified as “moderate”. Unfortunately, this highlights the idea that there is still a lack of truly effective pharmacologic treatments for FM (Calandre et at., 2015, Thorpe et al., 2018). CAM treatments may be helpful to people with FM, but again more research in necessary to demonstrate efficacy so the correct modalities may be utilized as treatment (NCCIH, 2020). Until either new treatments are developed and/or efficacy of current treatments can be demonstrated, the health care practitioner needs to educate the FM patient and set realistic goals in terms of pain management (Ablin et al., 2015, Stournaras et al., 2019). Education and setting realistic treatment goals is one manner in which nurse practitioners may be helpful in the treatment of people with FM.

In March 2014, The American Academy of Pain Medicine (AAPM) issued a position statement outlining a goal in which interdisciplinary treatments would be considered the gold-standard for treating patients with chronic pain (AAPM, 2014). Additionally, AAPM called for payers to cover a minimum of three months of treatment (AAPM, 2014). While 25.4% of the respondents, in the current study, indicated their health insurance partially covered CAM treatments, approximately 49.1% of the respondents did not have health insurance coverage for CAM. The AAPM’s goals could benefit such patients. AAPM contends interdisciplinary treatments, covered by insurance, would provide not only more effective treatment outcomes for patients with chronic pain, but also reduce the societal burden associated with inadequate pain treatment (AAPM, 2014).

Limitations of this study are common to others which utilize survey methodology. The use of a nonprobability-based sampling method suggests the results of this study are more representative of those who are white, educated, women, diagnosed with FM, and members of an online support group. The generalization of the gender demographic, however, may be seen as a minor limitation of our study. Our sample was 96.6% female whereas community samples suggest that women are at least twice as likely as men to have FM (Centers for Disease Control, 2020). Additionally, the data could be susceptible to self-report bias, as the survey respondents could have provided socially desirable responses. Also, the effectiveness of CAM therapies, as self-reported by respondents do not indicate a causal relationship, as this was a cross-sectional survey.

Implications for Nursing

Nurses are at the forefront of interdisciplinary pain research, treatment, and education. Nurse scientists need to further investigate the relative contributions of CAM versus traditional pharmacologic therapies for their patients with FM. These investigations are particularly needed as pain management struggles with how to manage highly functional chronic pain in patients on long-term opioids (termed legacy patients) (Mackey & Kao, 2019). Nurses in acute care settings need to recognize acute pain in the context of ongoing, underlying chronic pain including FM. Advance practice nurses in primary care and pain clinic settings are encouraged to individualize assessment and treatment based on functional status rather than pain intensity (Atzeni et al., 2019). Nurses in all settings are committed to providing

patient activation and education that is supported by a preponderance of scientific evidence. Nurses are encouraged to seek continuing education in chronic pain, CAM and opioid management as these areas are changing rapidly. As leaders in the holistic view of patients, nurses support patients in a vast array of treatment modalities.

This study demonstrated CAM is associated with improved health outcomes when treating FM symptoms. Further investigation, however, is needed to explore specific CAM treatments for FM, their efficacy in reducing symptoms, their safety, and their relationship to health outcomes. FM symptoms are diverse in nature and the diagnosis and determination of an effective treatment for individuals with FM can be a challenging and lengthy process. This study suggests, however, the use of holistic, integrative treatments for people diagnosed with FM may prove beneficial in symptom control and provide this group of chronic pain patients improved QoL.

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Key Practice Points

People with fibromyalgia find complementary and alternative treatments to be effective in achieving symptom relief. The use of complementary and alternative treatments, in this study, was found to be associated with increased quality of life and decreased pain. In light of the opioid crisis and increasing difficulties accessing controlled prescription medications, the acceptance and perceived effectiveness of complementary and alternative treatments is important. Complementary and alternative medicine provides people with fibromyalgia options for achieving symptom relief.

Table 1.

Demographic Characteristics of Survey Respondents (n=670).

	MEAN±SD	FREQUENCY (%)
AGE (years)	54.08 ± 10.99	
GENDER		
Female		647 (96.6)
Male		20 (3.0)
RACE/ETHNICITY		
White/Caucasian		620 (92.5)
African American		13 (1.9)
Hispanic		16 (2.4)
Other		18 (2.6)
MARITAL STATUS		
Single, never married		49 (7.3)
Married without children		98 (14.6)
Married with children		342 (51.0)
Divorced/ Separated/ Widowed		146 (21.8)
Living with partner		34 (5.1)
EDUCATION		
Less than High School		6 (0.9)
High School / GED		77 (11.6)
Some College		207 (31.1)
2-year College Degree		95 (14.3)
4-year College Degree		168 (25.3)
Master's/ Professional Doctorate Degree (JD, MD, etc.)		112 (16.9)
INCOME		
Less than $25,000		239 (35.7)
$25,001 - $50,000		173 (25.8)
$50,001 - $75,000		107 (16.0)
$75,001 and over		116 (17.2)
QUALITY OF LIFE (Range: 16–112)	66.98 ± 18.23	
CURRENT PAIN (Range: 0–10)	6.20 ± 2.27	
PERCEPTIONS OF HCP INVALIDATION (Range: 1–5)	2.57 ± 0.93	
YEARS SINCE DIAGNOSIS	12.79 ± 8.14	
NUMBER OF HCP REFERRALS SINCE DIAGNOSIS		
None		36 (5.4)
1–5		278 (41.5)
6–10		176 (26.3)
11–15		71 (10.6)

	MEAN±SD	FREQUENCY (%)
16–20		34 (5.1)
More than 20		71 (10.6)

SD=standard deviation, HCP = health care provider. Percentages may not add to 100% due to item nonresponse - there was no pattern to the missingness.

Table 2.

Frequently Utilized Prescription and Over-the Counter Medications as Reported by Patients with Fibromyalgia for Treating Symptoms

Drug name	Total respondents utilizing medication n(%)	Respondents indicating drug was "very effective" n(%)	Respondents indicating drug was "moderately effective" n(%)	Respondents indicating drug was "not at all effective" n(%)	Respondents indicating drug "made symptoms worse" u(%)
Prescription Medications					
Cyclobenzaprine Hcl	164 (27.0)	43 (26.2)	103 (62.8)	15 (9.1)	3 (1.8)
Duloxetine Hcl	153 (25.2)	54 (35.3)	83 (54.2)	12 (7.8)	4 (2.6)
Tramadol Hcl*	147 (24.2)	41 (27.9)	89 (60.5)	13 (8.8)	4 (2.7)
Hydrocodone Bitartrate and Acetaminophen*	139 (22.9)	64 (46.0)	69 (49.6)	4 (2.9)	2 (1.4)
Pregabalin*	111 (18.3)	46 (41.4)	56 (50.5)	4 (3.6)	5 (4.5)
Gabapentin	104 (17.1)	26 (25.0)	67 (64.4)	S (7.7)	3 (2.9)
Zolpidem Tartrate*	91 (15.0)	46 (50.5)	40 (44.0)	3 (3.3)	2 (2.2)
Alprazolam*	71 (11.7)	36 (50.7)	28 (39.4)	7 (9.9)	0 (0.0)
Amitriptyline	58 (9.5)	17 (29.3)	31 (53.4)	7 (12.1)	3 (5.2)
Trazodone Hydrochloride	49 (8.1)	19 (38.8)	26 (53.1)	4 (8.2)	0 (0.0)
OTC Medications					
Acetaminophen	117 (19.2)	8 (6.8)	74 (63.2)	34 (29.1)	1 (0.9)
Ibuprofen	91 (15.0)	6 (6.6)	70 (76.9)	14 (15.4)	1 (1.1)
n = 608 (respondents indicating they utilized prescription or OTC medications)					

*-controlled substances

Table 3.

Utilization and Perceived Effectiveness of Complementary and Alternative Treatments as Reported by Patients with Fibromyalgia for Treating Symptoms

Types of CAM therapy	Total respondents indicating use n(%)	Respondents indicating treatment "very effective" n(%)	Respondents indicating treatment "moderately effective" n(%)	Respondents indicating treatment "not at all effective" n(%)	Respondents indicating treatment "made symptoms worse" n(%)
Vitamin Supplements	386 (87.5)	75 (19.4)	224 (58.0)	86 (22.3)	1 (0.3)
Massage Therapy	346 (78.5)	167 (48.3)	129 (37.3)	18 (5.2)	32 (9.2)
Meditation	279 (63.3)	72 (25.8)	159 (57.0)	47 (16.8)	1 (0.4)
Aerobic Exercise	253 (57.4)	41 (16.2)	115 (45.5)	15 (5.9)	82 (32.4)
Acupuncture	175 (39.7)	51 (29.1)	67 (38.3)	49 (28.0)	8 (4.6)
Spa Therapy	178 (40.4)	62 (34.8)	86 (48.3)	28 (15.7)	2 (1.1)
Herbal Medicine	206 (46.7)	29 (14.1)	120 (58.3)	54 (26.2)	3 (1.5)
Cognitive Behavioral Treatment	156 (35.4)	31 (19.9)	82 (52.6)	41 (26.3)	2 (1.3)
Other	175 (39.7)	86 (49.1)	71 (40.6)	15 (8.6)	3 (1.7)
n = 441 (respondents indicating they utilized CAM treatments)					