



RESEARCH ARTICLE

Development of Multi-Family Group and Mindfulness Treatment for Chronic Pain: Preliminary Outcomes

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Abstract

Background: Chronic Pain (CP) affects over 100 million people in the US and is responsible for \$635 billion in direct and indirect costs annually. Behavioral and family education and support can reduce pain intensity and related negative consequences of pain. This treatment development study examined the feasibility and participant satisfaction of a Mindfulness/Multi-Family Group Intervention for Chronic Pain (MFG-CP) patients and their care partners.

Methods: Participants engaged in individual meetings with program facilitators and then group meetings with all participants and facilitators where they engaged in group problem solving activities and mindfulness activities. They completed pre and post-intervention quantitative measures and participated in a post-intervention focus group.

Results: Participants showed improvement in levels of depression, anger expression, ability to manage pain, and social support. Qualitative deductive analysis supported themes observed in other evaluations of MFG and mindfulness-based interventions: positive group experience, skill acquisition and related pain management strategies, and commitment to practicing the skills learned. Inductive content analysis revealed experiencing stigma associated with CP and its treatment.

Conclusion: These findings inform the development and implementation of a randomized clinical trial to evaluate changes observed in MFG-Mindfulness against nonspecific effects of treatment.

Keywords

Alcohol, Drug & substance use/abuse, Care giving, Couple & family therapy, Family relationships, Marital quality & Satisfaction

Introduction

Chronic Pain (CP) affects over 100 million people in the US and is responsible for \$635 billion in direct and indirect costs annually. These CP expenditures are greater than the 6 most costly diagnoses of cardiovascular disease, cancer, injuries, and endocrine/metabolic, digestive, and respiratory disorders [1]. CP is the leading cause of long-term disability and accounts for nearly 5 hours-per-week in lost productivity [2]. Traditional treatments for CP including opioids are often ineffective and problematic. Moreover, The US is currently faced with an opioid epidemic where 1 in 5 patients are prescribed an opioid for pain-related symptoms and diagnosis despite their associated risks [3]. New approaches focusing on patient-centered nonpharmacologic interventions are crucial for this population in order to reduce reliance on opioid pharmacotherapy [4].

For clinicians, treating CP can be challenging and complex. Patients' experiences and management of pain are often influenced by personality, coping styles,

social support, and sociocultural factors. CP comorbidities include a high prevalence of psychological and physical conditions along with other risk factors, notably substance use disorders [5]. CP patients with comorbid opioid addiction have significantly higher health service utilization rates than those without opioid abuse or dependence [6]. The majority of CP sufferers seek treatment from primary care providers, where they typically receive limited visit times (15 minutes or less) and leave with narrowly focused pharmacotherapy [7,8]. Provider characteristics, attitudes, and lack of knowledge all impact treatment effectiveness [9,10].

Behavioral and family education and support can reduce pain intensity, psychological distress, and utilization of health resources, as well as improve physical activity tolerance, marital satisfaction and pain behavior, coping and control [11-13]. Additionally, family-focused interventions providing education, practical skills, guidance and supportive resources have been shown to improve the outcomes for both patients and family members with psychiatric and related chronic conditions [14,15]. Unfortunately, caregivers and family members continue to experience challenges when working with CP sufferers. They often try to accommodate both the person in pain and the accompanying pain-related behaviors which can cause extreme strain, burden, anxiety, physical illness, frustration, anger, social isolation and depression [16]. CP sequelae (e.g. reduced coping, isolation, disability, comorbidities, polypharmacy, and substance abuse/misuse) can directly affect family dynamics and indirectly impact work/life. Family dynamics can also contribute to work/life complications.

Research across many chronic conditions has established the challenges and consequences of family care giving, including extreme strain, burden, anxiety, physical illness, and depression [16]. The provision of behavioral interventions coupled with family education and support [13] and coping skills [12] have been shown to improve outcomes such as negative effect, activity tolerance, pain behavior, pain coping and pain control. Preliminary evidence indicates that cognitive behavioral interventions for spouses of CP sufferers are effective in reducing pain intensity [17], psychological distress [12,17], utilization of health resources [18] and improved marital satisfaction [17]. Despite these promising findings, families have not been systematically engaged in the management of CP, especially in cases of chronic opioid therapy.

Multi-family Group (MFG) model was originally developed and successfully tested for the management of schizophrenia and other psychiatric disorders [14,15,19,20]. MFG has recently been adapted for other neurobiological disorders such as brain and spinal injury, as well as dementia [21-24]. The current study used the MFG format tailored for persons with CP and their caregivers. Two MFG clinicians work with 3 to 6 patient/caregiver teams and provide them with social networking opportunities and group

learning. Given the compelling evidence that families are negatively impacted by CP and addiction, our aim was to adapt and test MFG for the Management of CP (MFG-CP), among participants prescribed opioids. Mindfulness practices were added to MFG-CP in order to enhance participant's adaptation and coping skills.

There is a growing emphasis on applying Mindfulness-Based Interventions (MBIs) in behavioral medicine. MBIs have emerged as novel approaches to CP management, behavior modification, stress/anxiety reduction, addictions treatment, and relapse prevention [25,26]. MBIs have also been used to address CP and addictions as a method to teach self-care to caregivers [27]. In sum, mindfulness practices are a mechanism for reducing negative emotional reactions, enhancing resilience, and promoting self-healing [28]. Mindfulness fosters acute awareness of the present moment and the impermanent nature of things [29]. The patient is thereby able to cultivate the ability to respond to stimuli in a nonjudgmental way; allowing them to navigate their life in a manner that does not involve attachment to particular beliefs.

A large portion of the MBI research on CP to date has been limited by small sample sizes, absence of randomization, and short follow-up periods making it difficult to fully confirm effectiveness. A Randomized Controlled Trial (RCT) using Mindfulness Based Stress Reduction (MBSR) to treat fibromyalgia reported minimal changes in pain, Quality Of Life (QOL), depression and anxiety [29]. Similarly, a meta-analysis of MBSR for fibromyalgia syndrome reported that the evidence for short-term improvements in pain and QOL was of low quality compared to control and that no evidence was found to support the long-term effectiveness of MBSR [30]. Veehof and colleagues [31] conducted a systematic review and meta-analysis and concluded that acceptance based interventions (e.g. MBSR, Acceptance and Commitment Therapy, or ACT) were equal but not superior to cognitive behavioral therapy but may be good alternatives for the treatment of CP [31]. Recent RCT of 109 CP patients reported that MBSR significantly improved vitality, pain coping/acceptance, mental health QOL, general anxiety and depression, as well as reduced the overall impact of CP on everyday life [32]. Finally, a newly published study found that MBSR participants had significant decreases in CP-related catastrophizing and greater increases in non-judging versus usual care and cognitive behavioral therapy cohorts [33].

This treatment development study was designed to assess the difficulty in effectively treating both CP and its impacts on the lives of patients and their caregivers. The aim of the study was to adapt and test MFG for the management of CP, among participants prescribed opioids. Utilizing the promising information on the effectiveness of MFG and MBIs for CP, we augmented MFG with a MBI to improve the effectiveness of both inter-

Table 1: Participant and caregiver characteristics.

	Participant (n = 7)	Caregiver (n = 7)
Age	46.4 (14.5)	51.7 (15.4)
Gender (% Female)	100%	25%
Marital status (% Married)	100%	100%
Education (% post High School)	85.70%	57.10%
Race		
American indian or Alaskan native	0%	14.30%
White or Caucasian	100%	85.70%

ventions synergistically. We were interested in determining participants' feasibility and acceptability of the intervention and whether it would lead to a reduction in the CP patient's need for opioid medications, subsequent risk of addiction, and improved support and outcomes for those with CP and their caregivers. These outcomes were examined through a focus group and through the use of surveys that were administered at the beginning, middle, and end of the intervention.

Methods

Participants

Participants in the study were CP patients 18-years of age or older with moderate to severe chronic, non-cancer pain that persisted for at least 6 months. Eligible participants were also receiving opioid therapy, were assessed to be at risk for prescription opiate abuse (COMM > 9, see measures descriptions) and had a caregiver (e.g. spouse, significant other, friend) willing to attend all of the study sessions. Participant and caregiver characteristics are shown in [Table 1](#).

Recruitment/Sampling

Criterion sampling was used to filter a self-selected group of volunteers for the study. Volunteers were recruited from online ads through [craigslist.org](#) and flyers placed in the community. All participants provided written informed consent, which was approved, along with the study protocol, by the Washington State University Institutional Review Board.

Purposive sampling was used for the focus group at the conclusion of the intervention. All participants who had experienced the intervention were asked to participate in the focus group.

Measures

Participants completed an assessment battery at the beginning, middle, and end of the intervention. Measures were chosen to address the following domains: emotional functioning, psychological distress, social functioning, caregiver burden, CP, and substance use. The Short Form Health Survey (SF-12) is a measure of perception of functional health and well-being in 8 domains, which contribute to physical and mental composite scores [34]. The Current Opioid Misuse Measure is a reliable and valid screening tool for the identification of

aberrant medication-related behavior among persons with CP who are prescribed opioids for pain [35]. The Anger Expression Scale assesses tendencies towards inward and outward expressions of anger. It consists of 20 items on a 4 point Likert scale and yields 3 primary scales - anger in, anger out, anger control - and one total score [36]. The Beck Depression Inventory measures intensity, severity, and depth of depressive symptomatology. This is a standardized 21-item questionnaire with good internal consistency and split-half reliability [37]. The Social Support Scale is a brief measure of the number of people who provide support and the respondents' satisfaction with that support [38]. The Perceived Stress Scale measures the degree to which situations in one's life are appraised as stressful. Ten items are rated on a scale of 0 (*never*) to 4 (*very often*). Higher scores have been associated with poorer health and treatment outcomes [39].

Intervention: MFG-CP and Mindfulness

MFG overview and phases

MFG has three phases, which proceed in the following chronological order: 1) The "joining" phase, which includes individual meetings between one of the two clinicians and family members; 2) A multi-family psycho-educational workshop; and 3) Weekly MFG problem-solving sessions. In this study, a MBI was added to MFG at the end of each of the weekly phase three sessions. Additionally, a half day mindfulness retreat was provided following the completion of the third and final phase.

Phase 1: Joining with individual families

Each participant and their caregiver met twice with one of the MFG clinicians for a 1-hour long joining sessions. Clinicians were psychologists who were trained in MFG. The clinician's initial goal was to develop a solid alliance with each patient and spousal caregiver, as well as learn about the strengths, interests, and skills of each member of the care dyad. Information was gathered about the adequacy of pain medications and any difficulties or challenges associated with medications. An assessment of current needs and functional limitations imposed by the CP, coping strategies, communication, resources, supports, and network was done. Clinicians also assessed pre-pain functioning, strengths, interests, skills and resources of the patient and the family, and reviewed the history and course of the pain condition. Finally, an explanation of MFG group format was provided and any questions from the participants were addressed.

Psychoeducational workshop

The second phase included a 4-hour workshop for all the participants and their caregivers. The workshop goals were to increase participants' understanding of CP, and the resultant impairments and functional lim-

itations. MFG and MBSR clinicians presented information on CP inclusive of concrete strategies and family guidelines for managing the disability and preventing secondary complications. Participants were also provided information on mindfulness practice and its use in CP and participated in mindfulness exercises. Overall, the workshop discussions, mindfulness exercises and informal socialization provided a social networking opportunity and a means to begin reducing family distress.

Overview of post-workshop phases: Multi-family group and mindfulness meetings

The 2 hour MFG/mindfulness sessions were held weekly for 16 weeks. Participants were encouraged to attend all of the group sessions. Each session was videotaped with prior participant consent for the purpose of fidelity monitoring and clinician supervision. Sessions began with 10 minutes of socialization followed by a 'go around'; a check-in to see what was going well and what could be better in their lives. A single problem was identified from the "go around" and then addressed. Problem solving began with the identification and listing of possible solutions. Following this, the advantages and disadvantages were solicited for each proposed solution. A solution was selected by the couple to discuss implementation issues and strategies. Mindfulness exercises were provided after the completion of the MFG-CP problem solving. Mindfulness activities offered over the 16-week intervention included body scan, mindful movements, various meditations (e.g. sitting, walking, loving kindness), present moment reflections, nonjudgmental thinking, and awareness of thoughts, feelings, and the present moment. Participants were provided copies of the textbook, *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* [29], by Jon Kabat-Zinn, yoga mats, blankets, and several CDs with guided mindfulness meditations for use in establishing their home practice. Over time, the group began to concentrate on problems associated with increased activity, independence, and social and occupational skills. The final few sessions focused on how to reduce CP-related office visits, create a network organized around the family's long term needs for support and mutual guidance, and the importance of maintaining a regular mindfulness practice after the intervention was complete.

Post-session mindfulness retreat

A 4 hour mindfulness retreat was provided at the conclusion of the 16-week intervention period. The retreat was guided by the MBSR clinician and included guided mindfulness exercises focusing on loving kindness, caring for self, and facing fears and pain ("embracing the unwanted"). Participants spent 90 minutes of the retreat (including their lunch period) in silence. The retreat concluded with participants sharing their reflections of their mindfulness experiences and how these exercises impacted their life.

Clinician training and supervision

The group was led by 3 clinicians, two psychologists and 1 pharmacist trained as a MBSR practitioner from the University of Massachusetts Medical School's Center for Mindfulness in Medicine, Health Care, and Society (Worcester, MA). The MFG-CP treatment manual was developed and used to train clinicians who were supervised by Dr. Dyck. Clinical supervision included a review of videotapes of each of the sessions and the use of a checklist to monitor fidelity of content and process. The two MFG clinicians received a minimum of 1-hour weekly supervision sessions with Dr. Dyck^a.

Focus Group Procedures

Upon conclusion of the 16 week intervention, participants were invited to participate in a one hour focus group to explore their experiences and elicit feedback. Four CP patients and their caregivers attend the focus group. Moderators were MFG expert, Dr. Dyck, and the project research supervisor. A structured moderator's guide with primarily open-ended questions was used to enable participants to speak freely about their experiences, while allowing the moderators to elicit specific suggestions for program improvement. Focus group questions included the following, along with clarifying questions:

1. In what ways did you personally benefit from the MFG?
2. What are the main strengths and weaknesses of the MFG?
3. How would you improve or alter the MFG? (What would you add? What would you take away? Would you shorten it; lengthen it; or keep it like it is?)
4. How helpful did you find the mindfulness activities? Will you continue to use these activities? Will you continue these practices?
5. Do you have any other evaluative comments of the group and/or practitioners?
6. Are there any other aspects of participating in the research project that you would like to comment on (e.g. the assessments, etc.)?
7. Would you do it again?
8. The focus group was video recorded in an effort to acquire a full and successful transcription. Video was transcribed by a research assistant and included verbal responses from participants and non-verbal communications such as hand gestures. After transcription was completed the script was placed in a grid format to separate comments and create consistent units for analysis.

^aCopies of the training manual can be obtained by written request to the lead author.

Analytic Strategy

This multi-method study used both quantitative and qualitative analysis.

Quantitative analyses

Quantitative data was evaluated for trends (means (SD)) in marital functioning, emotional functioning, psychological distress, social functioning, caregiver burden, CP, substance use, quality of life, and patient activation. Repeated measures ANOVA was then used to test for significant changes over time in a selected subset of measures given to the CP participants: Current Opioid Misuse Measure, Anger Expression Scale, Beck Depression Inventory, Social Support Scale, and Perceived Stress Scale. SPSS version 23 was used for all quantitative analyses, partial η^2 was used to describe effect sizes, and $p \leq 0.05$ (two-tailed) was used to indicate statistical significance. Listwise deletion was used for missing data over time (37.5% of the sample) as part of the repeated measures analysis.

Qualitative analyses

Qualitative focus group data was analyzed to provide more comprehensive understanding of the phenomena and how to improve the program in CP. A modified form of framework analysis provided structure for deductive and inductive coding [40,41]. Five researchers participated in coding the focus group. The logical unit of content for the focus group was each individual statement inclusive of conversational turns. Some statements were made that included multiple concepts; these were broken into appropriate pieces to avoid double coding. All investigators agreed on each of the statements that were sectioned out. Initial disagreements were discussed until the group reached consensus.

We began our modified qualitative framework analysis using deductive content analysis [42-44]. This structured method of analysis was chosen due to the existence of themes which had been identified in previous studies on MFG [22] and mindfulness [45-49]. Step 1 in coding the focus group was for the researchers to code all statements independently. In step 2, the researchers met as a group to discuss how they had individually coded and finalized coding for each statement.

All researchers noted that many of the themes found in MFG [24] and mindfulness literature overlapped. The decision was made to synthesize common themes in each and employ them as 'a priori' deductive themes for the analysis [40].

New themes were discovered by inductive content analysis, using a framework style procedure [50]. This more conventional method of analysis allows themes to flow from the data, rather than using preconceived themes [44,50]. Researchers identified potential novel themes and made note of these individually on their transcripts. The statements were then compiled into

categories [42]. Again, if agreement was not met, the group re-evaluated the category, theme, or statement to arrive at consensus.

Results

Participant characteristics

The group was established with 8 participants and their caregivers (16 people total), 5 of which completed the intervention. One of the 8 participant pairs that began the study chose not to provide demographic information, therefore the sample size in Table 1 is 7, rather than 8 pairs. All chronic pain participants were female and 100% of participants and their caregivers were Caucasian and lived in the Northwest United States.

Quantitative results

Trends in means (SD) of outcomes are shown in Table 2. Results showed that participants with CP experienced a reduction in anger expression, symptoms of depression, and perceived stress, and an increase in social support. Participant health status ratings remained stable over the course of the trial. Importantly, a reduction was also reported in the measure of opioid misuse (COMM) for patient participants. In contrast to the remarkable changes seen on a number of measures for the chronic pain participants, little change was observed in their caregivers.

Repeated measures ANOVA results correspond with trends in means reported above. Due to limitations in sample size, we selected only scales that we felt would be most impacted by the intervention, based on previous research and clinical experiences. Results of the ANOVA indicated a significant decrease in anger-in ($F(2,8) = 4.88, p = 0.04, \text{partial } \eta^2 = 0.55$), depression ($F(2,8) = 4.97, p = 0.04, \text{partial } \eta^2 = 0.55$), and perceived stress ($F(2,8) = 4.38, p = 0.05, \text{partial } \eta^2 = 0.52$), and a significant increase in anger-control ($F(2,8) = 4.73, p = 0.04, \text{partial } \eta^2 = 0.54$). There was not a significant

Table 2: Means (SD) of health functioning, opioid misuse and pain attitudes over the course of the trial.

	Baseline	Time 2	Time 3
	Patient (n = 8)	Patient (n = 6)	Patient (n = 5)
SF-12	3.63 (0.92)	3.83 (0.75)	3.60 (1.14)
COMM	25.00 (14.37)	15.83 (8.01)	10.60 (6.03)
AX			
Inside	18.63 (3.93)	13.17 (2.79)	12.40 (2.51)
Outside	16.75 (6.20)	14.00 (5.10)	12.60 (3.21)
Control	22.38 (5.42)	24.00 (5.59)	29.0 (2.92)
BDI	28.88 (9.11)	20.17 (6.27)	12.80 (7.40)
SSQN	3.31 (1.87)	3.97 (1.58)	5.10 (0.93)
SSQS	4.90 (0.93)	5.36 (0.56)	5.63 (0.51)
PSS	25.00 (4.60)	22.17 (4.88)	15.80 (3.19)

Notes: SF-12 = The Optum SF-12 Health survey; COMM = Current Opioid Misuse Measure; AX = Anger Expression Scale; BDI = Beck Depression Inventory; SSQN = Social Support Questionnaire-Number; SSQS = Social Support Questionnaire-Satisfaction; PSS = Perceived Stress Scale.

Table 3: Themes identified and corresponding exemplar quotes.

Deductive theme	Exemplar quote
(A) Group experience	"It really makes you feel like you are not experiencing chronic pain by yourself; it also helps with the guilt, knowing I am not the only one".
(B) Skills	"Listening to each other and even between us (gestures to caregiver) empathy and self-analysis and the non-judgment that was pretty important. I don't feel as judgmental of myself".
(C) Disease management	"I think if you balance with diet and medication, other medications maybe like you know antidepressants different vitamins and exercise and just mindfulness, then if you do a lot of these things, and you do them all together you reduce your level of pain".
(D) Commitment	"You know yesterday I sat for three hours in the dentist chair and my back was cramping. I was in excruciating pain, and all I was thinking was follow my breath you know...it worked about 40%".
(E) Treatment	"It would be nice if there [sic] could be longer, like 2 hours for talking and what not and maybe an hour of mindfulness".
Inductive theme	
Stigma	"Because there was [sic] a lot of discussions how everyone felt like a criminal asking for pain medications, have jump through all the hoops they do so it's not only a social issue, it's a stigma, you know?".

change in anger-out ($F(2,8) = 0.11, p = 0.90$, partial $\eta^2 = 0.03$) or social support ($F(2,8) = 1.68, p = 0.25$, partial $\eta^2 = 0.30$). There was a marginally significant reduction in opioid misuse ($F(2,8) = 3.99, p = 0.06$, partial $\eta^2 = 0.50$) (Table 1).

Qualitative results

Deductive content analysis: Deductive content analysis supported the four themes that were examined and also provided information on the inquiry regarding suggestions for treatment improvement (see Table 3). Each of the themes is listed below with supporting evidence.

Positive group experience: With rare exception, focus group members reported experiencing social support from the group experience. Participants reported they experienced and appreciated the support and non-judgement from the group. The ability to share their common experiences made participants feel less isolated and more connected. A number of the participants used the term 'fellowship' to describe what they most appreciated about the group. Group members agreed that a major benefit was "the fellowship going through the same thing at the same time" and the result of that being that they didn't "feel so alone, so isolated".

Skill acquisition: Participants were able to develop several skills during the study including nonjudgmental thinking towards self and others, problem solving, active listening, empathy, awareness, and confidence for self and with others (e.g. family members, health care provider). Nonjudgmental thinking was commonly identified with statements such as, "it benefitted my spouse being able to share nonjudgmentally with other people who have [CP]" and "[what] struck me was, um, the emphasis on non-judgement, for any of us". Overall, most participants found the mindfulness-related activities to be very helpful in their lives. The skill of enhanced mind-body awareness was best described by one participant, who stated, "Exactly how present are you when you lay [sic] in bed and can't do anything but focus on your mindfulness". The skills learned in this pilot study were consistent with previously published studies [46,48,51,52].

Disease management: Illness-related insight and management was another major theme of the study. Learning to overcome their pain-related fear; gaining understanding for the place in therapy of various classes of medications for CP; and finding life balance to improve health using exercise, medications, supplements, and mindfulness were sub-themes. A number of the participants commented that opioid medications were not their sole means of treatment for CP and that they discovered that antidepressants helped with pain management. One participant related a conversation with her sister who recently underwent back surgery and how taking narcotics short term would not likely result in addiction by saying, "My sister. . . went for back surgery on the 21st of January and she won't take her pain medications because she doesn't want to get addicted". She told her sister, "We weren't saying take lots of medication. We were saying take the stupid stuff as it's prescribed. You are not going to get addicted to it in a month or two of recovery from a surgery". Participants also spoke about the limitations associated with opioids and the impact these medications have on their ability to participate in family functions and the workplace. Several participants indicated that they experienced a "new lease on life" and that they were not feeling as shameful about having to take opioids for pain. Overall, it appears that participants experienced less stigma and increased confidence in coping with and managing their CP.

Commitment: Participants reported using coping skills by practicing mindfulness and the problem solving techniques for experiences they faced between sessions. One participant commented on her use of mindfulness in the dentist chair: "you know yesterday I sat for three hours in the dentist chair and my back was cramping. I was in excruciating pain and all I was thinking was follow my breath you know...it worked about 40%". Another participant, who worked in a medical setting and could not take prescription pain medicines while at work, said that she got through her work by using her mindfulness strategies. Group support also contributed to commitment and motivation through encouragement and sharing of common experiences.

Treatment suggestions: When discussing aspects of the treatment process, reports were generally favorable. In regard to the treatment process, participants expressed that the transitions from MFG-CP problem-solving activities to mindfulness exercises could be somewhat ‘jarring’ or that they would have liked more time for the mindfulness exercises. This is an interesting finding in that it is highly unusual for participants, particularly those in CP, to request more time spent in sessions. This attitude from the participants provides support for the strength of the intervention and perceived positive impacts. Finally, there was agreement from the group that they would have appreciated additional guest speakers, especially in the area of pharmacotherapy and pain management for additional disease and treatment-related education.

Inductive content analysis

The most common inductive theme was the experience of being stigmatized. Every participant in the focus group made multiple comments indicating a feeling of being stigmatized particularly related to their medication use. These feelings of stigmatization were attributed both to self-judgement and judgement by healthcare providers. One participant stated, “[before MFG] I was a narcotic” and another explained “[when] you’re on pain pills, you’ve got a mark . . . like a strike against you” which the participant explained lead to abrasive treatment from healthcare staff. She recalled a comment from a doctor, “I’ve seen you’ve been creeping around the hospitals, gosh how many are [you] going to?” Another participant says she felt “like a criminal asking for pain medications”. One participant acknowledged that addiction and medication abuse is a real possibility, but “we don’t want to go there and we don’t want our pain to take us there” (Table 3).

Discussion

This study evaluated the feasibility, acceptability and preliminary treatment response to a combined MFG-CP and mindfulness intervention by CP patients who were also at-risk for opioid misuse. Three of the 8 couples stopped attending the group. The reasons given were scheduling and commitment conflicts and in one instance the dissolution of the couple’s relationship. Although our small sample size limits the confidence given to promising quantitative outcomes, it is noteworthy that changes in several measures showed statistically significant effects for CP patients and supported our hypothesized of improvements in pain management, depression, functioning, anger expression, and use of social support. If replicable, these are important benefits for people with CP. Fewer differences were noted in the caregivers, which is understandable given the chronic pain patient focus of this intervention.

The focus group data further established the value of the intervention for participants. The themes are

reminiscent of MFG adaptations to other chronic conditions [23]. Participants’ reflections about the value of their group experience provided important information about the treatment acceptability and perceived usefulness. All participants described powerful experiences of connecting with other group members, improved openness and communication, and decreased social isolation and stigmatization. The stigmatization associated with opioid dependence was also a shared experience. These results paralleled the impact for family interventions for chronic psychiatric and neurologic conditions, in which benefits such as increased knowledge and empathy, and reduced stigmatization have been noted [14].

Patient participants were able to increase their social supports and significantly reduce their opioid misuse. Several common themes were supported in the qualitative analysis including: Group experience, skills, disease management, and commitment. In the absence of more robust quantitative data, these themes are key to assessing participant engagement and outcomes, as well as providing feedback on the intervention. Participants’ suggestions for improving treatment acceptability and engagement provided important insight about how to further tailor the intervention.

Study Challenges

Implications of this study are limited by its small sample size and homogeneity of sex and race/ethnicity, as all patient participants with chronic pain were female and 100% of the sample was Caucasian. In addition, participant retention was a major challenge in this preliminary study. Only 50% of the originally recruited participants completed the study. It is difficult to know whether chronic pain patients are more difficult to retain than other conditions and or why this might be the case. However, MFG attrition rates of participants with schizophrenia, mild cognitive impairment, brain and spinal cord injury typically are less than half of what we saw in this study. The budget only allowed for a stipend of \$75 per patient/caregiver team which may have hampered retention. An increased and tiered participant stipend (e.g. \$350 per team) paid out after each assessment battery along with a formal recruitment and retention plan will be utilized on future studies. Additionally, study monitoring should include identifying reasons for participant withdrawal from the study using χ^2 analyses to determine if demographic information or baseline instrument values differ for those who withdraw vs. those who remain in the study.

Conclusion

It should be emphasized that the lack of a control group and randomization does not allow us to attribute improvements to the MFG-CP intervention itself vs. nonspecific effects of treatment such as devoting extra time and attention to participants and spousal caregivers. These findings provide support for implementing a randomized clinical trial to evaluate changes observed

in the MFG-CP against nonspecific effects of treatment. Our preliminary results on implementation and value to participants will allow us to make changes in the intervention in approaching this next, critical step. This intervention holds the potential, after further testing, to improve the management of chronic pain and the lives of chronic pain patients and their caregivers. There is a strong push away from pain management using opioid medications. This intervention could serve as a substitute for these medications or as a means to help patients navigate decreasing their medication reliance.

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