

# Qualitative evaluation of an interdisciplinary chronic pain intervention: outcomes and barriers and facilitators to ongoing pain management

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**Background:** Many leaders in the field of chronic pain treatment consider interdisciplinary pain management programs to be the most effective treatments available for chronic pain. As programs are instituted and expanded to address demands for nonpharmacological chronic pain interventions, we need to better understand how patients experience program impacts, as well as the challenges and supports patients encounter in trying to maintain and build on intervention gains.

**Methods:** We conducted a qualitative evaluation of an interdisciplinary chronic pain coaching program at the Atlanta Veterans Affairs. A purposive sample of Veterans were engaged in interviews (n=41) and focus groups (n=20) to elicit patient outcomes and barriers and facilitators to sustainment of improvements. Transcripts were analyzed using matrix and thematic analyses.

**Results:** Veterans reported various outcomes. Most frequently they described adopting new self-care or lifestyle practices for pain management and health. They also often described accepting pain, being better able to adjust and set boundaries, feeling more in control, participating in life, and changing their medication use. A small portion of the sample reported no improvement in their conditions. When outcomes were examined as a whole, individuals described impacts that could be placed along a spectrum from whole life change to no change. Facilitators to maintenance of improvements included having building blocks (eg, carrying forward practices learned), support (eg, access to resources), and energy (eg, motivation), and improving incrementally. Challenges were not having building blocks (eg, life disruptions), support (eg, unknown follow-up options), and energy (eg, competing demands) and having an unbalanced rate of improvement.

**Conclusion:** Most Veterans identified experiencing multiple areas of improvement, especially learning about and taking up new pain and general health management skills. Ensuring participants can build on and find support for these outcomes when applying what they have learned in their dynamic social and physical worlds remains a challenge for this program and other relatively short-term interdisciplinary chronic pain interventions.

**Keywords:** chronic pain, multimodal treatment, interviews, quality improvement

## Background

There is broad recognition that the predominant mode of treating chronic pain with pharmaceuticals has not been effective as hoped and had unintended consequences.<sup>1-3</sup> As our health care systems shift from promoting biomedical models of chronic pain to biopsychosocial models, interdisciplinary and multidimensional treatment interventions for chronic pain are being encouraged.<sup>4,5</sup> These interventions focus less on bringing

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patient's pain levels to zero and more on patient's active self-management to reduce and cope with pain.

Interdisciplinary pain programs that incorporate multimodal approaches have been shown to be effective for improving chronic pain management.<sup>6–10</sup> Although components and delivery of interdisciplinary pain management programs vary, making it challenging to compare effectiveness,<sup>11</sup> they often include staff from disciplines that can address complementary aspects of the biopsychosocial model of pain. These staff include physicians, clinical psychologists, physical therapists, and other healthcare professionals as needed.<sup>5</sup> Treatments mostly include medicine, psychotherapy, physiotherapy, and/or relaxation techniques.<sup>12</sup>

Studies demonstrate that such programs generally yield positive physical and psychosocial outcomes in patients.<sup>6,7,12–18</sup> Physical improvements have been observed in disability, functional status, self-care, and fitness.<sup>6,15,17,19</sup> Positive psychosocial outcomes include improvements in depressive symptoms, pain anxiety, and readiness to change.<sup>14,15,17</sup> Some studies have also observed decreases in use of pain medications, including opioids.<sup>13,20</sup>

However, authors have highlighted inconsistencies in outcomes across studies,<sup>21</sup> chronic pain subgroups,<sup>12</sup> participants' age and gender,<sup>22</sup> and patients within studies.<sup>15–17</sup> Within studies, not all participants in programs experience the same degree or direction of change<sup>15,16</sup> and some may experience losses of gains over time.<sup>19</sup> Day et al<sup>15</sup> found that across most of their psychosocial, social, and physical outcome measures, about half of the participants in their group interdisciplinary pain intervention experienced clinically significant positive change, around 40% experienced no significant change, and in less than 10% the condition deteriorated. Donath et al identified that 58% of their multimodal program participants experienced at least a half SD improvement in four of the five constructs (pain severity, disability due to pain, depressiveness, and physical- and mental health-related quality of life).<sup>23</sup>

The few qualitative studies conducted on these programs have found that participants may perceive changes in the ways they engage in life and personal growth, but experience varying challenges to sustaining change. In the study by Bremander et al,<sup>24</sup> participants described their partially inpatient intervention as a process of "changing one's life plan", but varied in terms of the degree to which their lives were changed. Six months after the intervention, those who made life adjustments rather than whole life changes were more likely than others to stagnate in their life management. In the mixed-methods study by Wideman et al,<sup>25</sup> participants

described personal growth (ie, acceptance, resilience, and capacity; motivation to engage in meaningful activity; and self-worth), factors that impacted personal growth, and ongoing challenges (eg, to pain acceptance, maintaining skills and strategies). Importantly, participants' perceptions of improvements were not captured in quantitative measures.

As we expand the reach of interdisciplinary chronic pain programs, understanding differences in outcomes, patients' perceptions of program outcomes, and the challenges and supports that the patients experience in trying to sustain and build on positive outcomes will be important to take efforts to implement more effective pain programming. While published research on the impacts of interdisciplinary pain programs is established using various standardized measures, there is little information about the barriers and facilitators to self-management after leaving such programs (for exceptions, see Ref. 26). The primary objective of this project was to describe Veterans' perceived impacts of participation in an interdisciplinary pain rehabilitation program. The second aim was to identify after-program pain management barriers and facilitators experienced by program participants. By sharing the experiences of Veterans who use the program, we illustrate participants' perceptions of their successes and challenges following program participation to directly inform ongoing quality improvement efforts and apprise others who may be engaged in similar chronic pain programmatic efforts.

## Methods

### Setting

Data described in this manuscript were collected for an evaluation that we conducted of the Empower Veterans Program (EVP) at the Atlanta Veterans Affairs (VA) Health Care System as part of ongoing quality improvement work. The site is one of the more than 1,700 facilities that comprise the Veterans Health Administration, the largest integrated health care system in the United States. The organization provides primary, specialized, and institutional-based care and supportive services to more than nine million military veterans.<sup>27</sup> To qualify for health benefits, veterans must have served in active duty and not been dishonorably separated from military service.

EVP is a 10-week, 30+ hour whole health group training program for self-care for chronic pain. Any Veteran within the Atlanta VA system with chronic pain can self-refer or be referred to enroll in EVP. There is no limit on the number of times Veterans can participate. Veterans attend weekly 3-hour classes with a cohort of 8–12 peers and engage in one-on-one coaching with interdisciplinary team members. All classes

take place in a large conference room in a community-based outpatient clinic in a suburban community outside of Atlanta. Individual coaching takes place by phone as well as in person as deemed appropriate. The interdisciplinary team includes chaplains, clinical psychologists, physical therapists, social workers, clerks, and medical doctor/director. EVP curriculum is composed of three parts as follows: whole health (mindfulness activities and exploration of issues that might impact pain, such as nutrition and relationships); Acceptance and Commitment Therapy (ACT; discussion of personal values and how thoughts, feelings, and behaviors relate to pain); and mindful movement (development of body awareness and safety in movement).

Our evaluation utilized qualitative methods to understand program processes and impacts from the perspective of EVP participants. Veterans were engaged in interviews and focus groups between October 2016 and August 2017. Data collection was completed by the authors, a PhD medical anthropologist (LP) and an experienced research assistant with an MPH (EH). Neither had prior relationships with any of the study participants.

## Participants

We employed slightly different sampling strategies for interviews and focus groups. Sampling targets were guided by a desire to collect a diverse range of experiences, resources available to the Quality Improvement (QI) team, and research related to non-probabilistic sampling to thematic saturation.<sup>28,29</sup> Potential Veteran participants for interviews were identified using EVP referral and enrollment lists (for May 2015–December 2016), EVP staff recommendations, and volunteers from pilot focus groups. From this cohort (760 Veterans, 488 who had enrolled in EVP and 272 who were referred to but never enrolled in EVP), to ensure sample diversity, we created a stratified purposeful sample by categorizing all potential participants into nonoverlapping groups by program status (graduate, noncompleter [defined as attending fewer than 8 of 10 group classes], and never attended [defined as referred to the program but never attended a class]). Graduates were further stratified into men, women, and people with previous EVP noncompletion. Noncompleters were further stratified by persons having multiple noncompletions, attendance in all women's group, or attendance in mixed-gender groups. Purposeful random selection of participants within each stratum was then carried out; we aimed to recruit 24 graduates, 8 noncompleters, and 8 who never attended.

Eligible participants were recruited via telephone by LP or EH to participate in semi-structured interviews about their

experience with EVP. Persons who declined to participate or who were unsuccessfully contacted after three attempts were removed and replaced with a new potential participant. Because of difficulties encountered recruiting Veterans who had never attended EVP (mostly because we could not reach them), we over recruited for the other two groups.

To collect data from Veterans who had more recently gone through EVP, we identified a purposive random sample of Veterans who were enrolled in EVP between December 2016 and August 2017 (138 Veterans) to participate in focus groups. They were identified using an internally kept EVP attendance log provided by EVP staff. We excluded any Veteran on this list who participated in an interview. Veterans were invited to participate in one of six focus groups. Focus groups were stratified by gender (male, female). We aimed for six participants per focus group. Eligible veterans were recruited by EH by phone. Recruitment included a detailed description of the goals of the study and focus groups. Persons who declined or who had unsuccessfully contacted after three attempts were removed and replaced from our potential sample list with a new participant.

The Atlanta Veterans Affairs Medical Center (VAMC) Research Office determined that EVP's quality improvement work was not research. All potential participants were informed of the purpose and intended use of the data collected, assured confidentiality, and informed that they could decline to answer any question they were asked or cease participation at any point without penalty. Participants were asked to give oral rather than written consent before engaging in interviews or focus groups so as to limit the risk of breach of confidentiality.

## Data collection

Veteran interviews were conducted over the phone by the authors from January 2017 to July 2017. We developed and iteratively refined a semi-structured interview guide ([Supplementary material 1](#)). Veteran focus groups were conducted in-person in August 2017. Focus groups were carried out by the authors using a semi-structured focus group guide ([Supplementary material 2](#)) adapted from a mind-mapping exercise used by Burgess-Allen and Owen-Smith.<sup>30</sup> Although interviews were designed to collect detailed information about individual Veteran's experiences inside and outside the program, focus groups were targeted to highlight diversity in perspectives and to allow group members to provide affirmations and checks on each other's responses.<sup>31</sup> Both interview and focus group guides contained open-ended questions concerning program outcomes and prompts to

elicit information about postprogram barriers and facilitators to pain management.

Detailed interview and focus group notes were taken during data collection. When participants consented to audio recording, interviews and focus groups were also recorded and later professionally transcribed.

### Data analysis

Data were analyzed using deductive (predefined domains) and inductive (patterns within domains) approaches. Transcripts were analyzed using a matrix approach in Excel spreadsheets.<sup>32</sup> Data were inputted into the matrices by domains of interest (eg, Veteran outcomes, facilitators post-EVP, and challenges post-EVP) by both authors. Domains stemmed from evaluation objectives and the interview and focus group guide questions. For example, the Veteran outcomes domain was created based on the aim to describe participants' perceptions of program impacts and corresponded with the interview question: "Since enrolling in EVP, what if anything are you doing differently to manage your pain?" and focus group questions: "Thinking about your time since you've gotten out of EVP, what do you think has gone really well in terms of your pain management? What has been challenging?" Participants' responses to questions did not always map entirely onto the domain(s) associated with those questions. For example, when discussing changes in pain management practices, interviewees might also discuss challenges in maintaining new practices that would fit under the challenges post-EVP domain. Thus, the authors had to interpret and sort responses into their proper domains. Reliability was assured by the pair independently summarizing the domain material for 15% of the participants and reaching a shared understanding of the material to be included in each domain. Discrepancies were discussed and resolved by agreeing upon content for each matrix domain summary. Focus group data were coded in NVivo qualitative analysis software<sup>33</sup> by LP after interview analysis was completed. Focus group transcripts were also initially coded broadly by domains of interest (eg, outcomes, post-EVP gone well, and post-EVP challenges).<sup>29</sup>

The authors inductively identified patterns or themes within each broad domain. Themes were developed to express latent meanings and participants' lived experiences.<sup>34</sup> Themes were constructed by cutting and sorting similar responses into clusters and then developing the theme based on abstraction of meaning in each cluster.<sup>35</sup> Themes were compared through triangulation between conceptually related domains for interviews and focus groups.

### Results

We recruited 41 Veterans to participate in interviews. Of the 98 Veterans invited to participate in interviews, 36 (37%) could not be reached, 14 (14%) declined participation, and 7 (7%) agreed but could not be reached on the day of the interview. Of those who participated in interviews, 31 (76%) had completed EVP, 7 (17%) did not complete EVP, and 3 (7%) never attended the program.

Twenty Veterans participated in focus groups. Of the 97 veterans contacted to participate in focus groups, 25 (26%) could not be reached, 38 (39%) declined participation, and 14 (14%) agreed but did not attend the focus group. Focus group size ranged from 1 to 5 Veterans, with an average size of three participants. Thirteen (65%) focus group participants were female. Of those who participated, 18 (90%) had completed the program and 2 (10%) had not.

Demographics of participants in comparison to demographics of all EVP enrollees are presented in Table 1. Mean age of the participants in our sample was 53 years and 51% were female. Seventy percentage of the participants were identified as Black/African American, 15% White, 2% bi/multiracial, and 13% were of unknown racial background.

**Table 1** Veteran demographics

Demographic factor	Interview sample (n=41)	Focus group sample (n=20)	EVP population <sup>a</sup> (n=488)
EVP participation, n (%)			
Graduate	31 (76)	18 (90)	320 (66)
Non-completer	7 (17)	2 (10)	168 (34)
Never attended	3 (7)	0	n/a <sup>b</sup>
Age (mean, range)	53 (28–71)	54 (40–67)	57 (24–88)
Gender, n (%)			
Female	18 (45)	13 (65)	156 (32)
Male	23 (55)	7 (35)	332 (69)
Ethnicity, n (%) <sup>2</sup>			
Non-Hispanic/Latino	36 (88)	19 (95)	464 (95)
Hispanic/Latino	1 (2)	0	5 (1)
Unknown	4 (10)	1 (5)	15 (3)
Race, n (%)			
Black/African American	26 (64)	17 (85)	366 (75)
White/Caucasian	7 (17)	2 (10)	93 (19)
Bi/multiracial	1 (2)	0	1 (<1)
Unknown	7 (17)	1 (5)	15 (3)

**Notes:** <sup>a</sup>Calculated based on EVP enrollee data available up to February 17, 2017. Data are not available for individuals who were referred to but never enrolled in EVP. <sup>b</sup>Veterans referred to but never enrolled in EVP (272 people) are not included in the EVP enrollment data.

**Abbreviation:** EVP, Empower Veterans Program.

Interviews lasted an average of 26 minutes and ranged from 6 to 81 minutes in length. Focus groups were an average of 59 minutes and ranged from 24 to 86 minutes.

## Veteran-reported outcomes

Veterans described various outcomes, from adoption of concrete coping skills to feelings of empowerment and positivity

(see Table 2 for a full list of major categories of change and illustrative quotes). There were no identified differences in outcomes reported by different subsamples. The most frequently described changes were new self-care or lifestyle practices to help manage pain and health. These practices included exercise, meditation, eating healthier, and general coping skills (eg, resting when needed).

**Table 2** Veteran-reported outcomes (based on interview and focus group data)

Theme	Description	Illustrative quotes from interviews	Illustrative quotes from focus groups
New/adjusted daily practices	Participating in more or different lifestyle activities, such as exercise, stretching, meditation, and healthy eating.	<p>"I have been working out every day so I do a lot of the simple exercises at home that they showed us on the video...I eat more fruits and vegetables" (CP-WM-23)</p> <p>"I do stretching exercises and I do meditation, I do breathing exercises...but for the most part...the pain is still there, it helps me to be able to live in a way where it's not so depressing." (DO-GEN-05)</p>	<p>"What went real well in terms of my pain management was ... utilizing the mindful practice exercises...[I] Also engage in mindful movement exercises, using the bands and using--I have a TV in my room with the video DVD in it." (FGF02P2)</p> <p>"I exercise more, or at least I try." (FGM02P2)</p>
Coping skills	Utilize new strategies and tools from EVP to help manage pain and life.	<p>"It's really changed for me. And I mean, don't get me wrong, but all of us have good days or bad days so it's just having the information and the tools makes just going through a bad day just a little bit easier." (DO-MU-01)</p> <p>"instead of just reacting to things in my life EVP gave me the tools to think about it before I react" (CP-WM-06)</p>	<p>"I have more tools to deal with the pain. ... I guess after a while when you get to a point where you're just so tired of the pain... you get numb to the fact ... now it's like, okay, I don't have to be numb to the fact no more. I can try to do something." (FGM02P3)</p> <p>"[I'm] able to manage the pain better ... The pain is still there but I'm able to through mindfulness I can keep going" (FGF03P3)</p>
Accepting	Acceptance that pain is not going away, focus on accomplishing goals.	<p>"Life is life. You just deal with it as it comes... I just didn't really care about nothing before I was in so much pain. And now I just deal with it, I accept it, take my meds accordingly and then do other things like mediate and walk." (CP-PD-03)</p> <p>"I learned the art of acceptance. I would not go out because I would feel like I would be in pain at a certain time and then I'm going to make everybody else's time feel like crap so I would just stay home and be miserable. But I had to just work around that." (CP-WM-23)</p>	<p>"[In EVP] they spoke about the, at a party and some, I forgot the name of the person that is supposed to resemble pain, would constantly show up and you would lock him out. I'm learning to live with the pain just invite it in and just try other methods of getting through it" (FGM03P1)</p> <p>"[I'm]able to acknowledge that, yes, pain is there, my shoulder is throbbing like crazy or whatever and—but still being able to go forward, because I've acknowledged it, I've kind of moved it over to the side and I keep pushing forward." (FGF01P3)</p>
Adjusting and setting boundaries	Adjusting tasks and expectations, being accommodating of needs, not pushing beyond what one can do.	<p>"I'm more accommodating now in my lifestyle as far as when I'm at the airport I do let them roll me in the wheelchair...I'm not trying to be superwoman anymore, I'm just adjusting my life to my pain." (DO-GEN-01)</p> <p>"one thing the instructor told me, 'Do as much as you can, but don't sit and do nothing. Try and do something and push yourself as much as you can, and then when you can't take it, then go and sit back down and rest.'" (DO-GEN-05)</p>	<p>"[There were a couple metaphors from the class that were inspiring] Let me tell you what that ocean [metaphor] did for me. For years I was always the type of person trying to push and push through all my pain, push, push, instead of trying to go around it. So that was helpful for me. Stop pushing through, trying to get through there, and go do things to get around it." (FGF02P2)</p> <p>"just being mindful of my activities is somewhat helpful. I'm trying different methods. Instead of trying to do the yard all in one day I might break it up in three days, and I take more breaks now and sit a chair out and I try to breaks in between. It may take me all day to get it done but I get it done." (FGM03P1)</p>

(Continued)

**Table 2** (Continued)

Theme	Description	Illustrative quotes from interviews	Illustrative quotes from focus groups
Feeling empowered	Sense of more control over pain and life.	<p>“I don’t let [pain] control my life any more.” (CP-WM-17)</p> <p>“the very most important thing was giving me a voice about myself.” (CP-MN-01)</p>	<p>“I’ve stopped letting the pain control my life. There were so many barriers prior to me going through this class. It’s like I found a reason for everything. Well, I can’t do this because I hurt today or whatever. But I ended up doing a 5K walk a week before the class was over with and, I don’t know, it just took off from there. ... See the smile. [Laughter] It’s a big deal. It’s a big deal.” (FGF02P1)</p> <p>“having the options to seek outside treatment, so being off of the medication, the pain pills, all of those, I tried acupuncture so just from taking that [EVP] class it empowered me to seek other options.” (FGF03P3)</p>
Participating in life	Experience of a whole life shift, and able and willing to engage in more activities.	<p>“I was at one point really embarrassed and I didn’t have a quality of life at all, and I just woke up in morning, I was in pain, I went back to bed...I’m doing so, so, so much better...it was a life changing experience” (DO-GEN-01)</p> <p>“they brought me out of the gutter” (CP-PD-03)</p>	<p>“Pushing through the pain and...refuse to let the pain from allowing you to live your life. A fulfilling life.” (FGF01P4)</p> <p>“like some days it’s kind of like gloom and doom. You just kind of I guess be a prisoner to your pain. So I was able to, you know, just get out and do things.” (FGM02P1)</p>
Adjusted medication use	Reduced use of pain medications or a change in pattern of usage.	<p>“I don’t reach for the pills automatically.” (CP-PD-02)</p> <p>“I stopped taking so much pain medication for one thing because I didn’t really see them helping me [...]. But, I needed to come off of something that wasn’t truly taking pain away but it made me sleepy and stuff.” (CP-PD-05)</p>	<p>“The positives for me is I don’t take meds every day like automatically. My pain meds, I used to just—</p> <p>(Another participant): Pop, pop, pop. That’s part of breakfast. Yeah, it was—so now I don’t and that was the biggest improvement for me because I said, ‘Well, let me just see what I can do without these.’ It’s like it’s amazing. It just depends on—of course it’s day by day. I get up. I see how I’m feeling. And I go, ‘Okay, I may be able to go do blah, blah, blah.’ And then I do it and I’m like, ‘And I didn’t take pain medicine today.’ So I feel really proud.” (FGF02P3)</p>
Stuck	Lack of change, sense of hopelessness, and/or frustration that condition may never improve.	<p>“Pain is pain.... It’s a medical condition and, you know, it’s there and it’s going to be there until the day I die” (CP-WM-16)</p> <p>“I mean the techniques there, I mean, you know, I’m aware of them. ... Now I know the difference, but it doesn’t change” (CP-MN-04)</p>	<p>“Not much has changed. ... I have a few challenges. Because of other health issues I’m not able to take NSAIDs [nonsteroidal anti-inflammatory drugs]. So that cuts down on my ability to do physical activities because I can’t treat the pain afterwards. Weight gain, depression, and lack of accountability.” (FGF02P5)</p> <p>“What I learned from [EVP] is that there’s no real help...I wasn’t helped the way that I had hoped...I had hoped that I would be able to get off of the pain medication, or there would be some sort of programs that would help relieve the pain.” (FG02AAMP1)</p>

**Note:** Data in parenthesis represents the participant identifier.  
**Abbreviation:** EVP, Empower Veterans Program.

Veterans also often described learning to accept their pain. With that understanding came a commitment to adjusting their lifestyle (eg, using a wheelchair when needed) and practices (eg, splitting tasks down into incremental stages) to accomplish things that mattered to them. A handful of

Veterans expressed awareness that this required finding boundaries and a balance between 1) pushing too hard which might exacerbate pain and 2) resting or avoiding pain too much which risked disengagement. As Veterans described these changes, about a quarter specifically mentioned feeling

more in control since leaving EVP. For some, this sense of empowerment went beyond their relationship with chronic pain, to the ways they interacted with their providers, family, and friends, and to their life more generally. Some of those describing such shifts also described major whole life changes and a different, more engaged way of being in the world.

Some Veterans also said that since leaving EVP they had altered and reduced the way they used pain medication to manage their pain. Examples of changed usage included being more mindful of and deliberative about when they took their medications, rather than taking them whenever they felt pain or at their usual time.

Finally, a small group of Veterans described no improvement since participating in EVP. They described being stuck in the same place and of thinking about pain in the same way. With this came a sense of resignation and/or frustration.

Because we had richer, individual data from Veterans who participated in interviews, in addition to looking at individual changes Veterans described and how those fit into broader categories, we looked at the total changes each Veteran experienced. We noticed an apparent continuum of change (Figure 1).

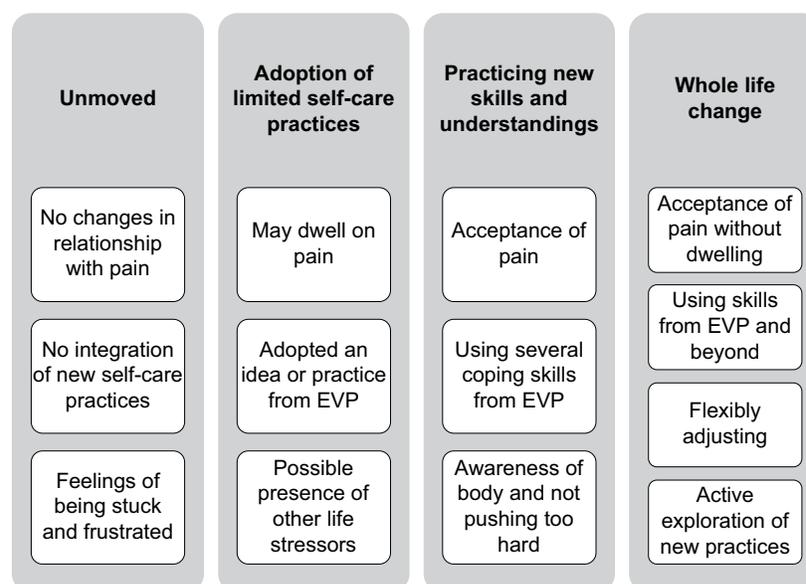
On one end were a minority of Veterans who experienced no change. These Veterans described feelings of frustration since leaving EVP. In the middle were most Veterans, who described adopting some of the practices and skills they learned in EVP and, to some degree, accepting pain. Veterans

in those categories described implementing a single or limited idea or practice from the program (eg, do morning stretches learning EVP, accept pain), whereas others talked about drawing on multiple components or understandings from EVP (eg, eat healthier, employ coping skills when in pain, and make time to connect with friends). These Veterans varied in terms of the challenges they described to adopting more life changes (eg, family stressors and continued ill health) and their general understandings of the program (eg, limited demonstrated understanding of EVP components to broader grasp of the three major pieces of curricula). On the other end of the spectrum were a minority of Veterans who left EVP eager to learn more, who took comprehensive understandings of the EVP components and applied them to many aspects of their lives to experience whole life changes. Illustrative quotes and discussions are presented in Table 3.

### Post-EVP facilitators and barriers

Interviewees and focus group participants described facilitators and barriers that mirrored each other. We separated them into four broad themes as follows: building blocks, support, energy, and trajectory (Table 4).

Veterans frequently described how the presence or absence of essential building blocks either supported or challenged their pain management after EVP. Veterans talked about using strategies and approaches they had started practicing in EVP (eg, doing stretches from EVP every morning), drawing on course handouts and materials (eg, mindfulness



**Figure 1** Continuum of change as told by Veterans in interviews.  
**Abbreviation:** EVP, Empower Veterans Program.

**Table 3** Examples of Veteran-reported outcomes by continuum category

Category	Illustrative quotes	Analytic notes
Unmoved	<p>"I'm still dealing with chronic pain...Pain is pain. It's a medical condition and it's there and it's going to be there until the day I die.... I did what [EVP staff] asked me to do, but I did not find any relief...I haven't moved forward at all as far as dealing with the pain. I'm still on medications...I'm limited [in terms of putting things I learned into practice] because of my high pain...it's very frustrating, very, and depressing...I understand that [pain is] going to be a part of my life and I take my medications for it and, you know, that's it." (CP-WM-16)</p>	<p>The Veteran expresses frustration over not having found relief despite doing what was asked of her in EVP. Pain and pain medications are described as an unchanging, given part of her existence.</p>
Adoption of limited self-care practices	<p>"[I still use] the breathing exercises [I learned in EVP]. It was more in depth than what I was doing on my own [before EVP]. ... I've been diagnosed with pretty big depression, and that is a real bitch to try to get your hands around and try to manage it. The counselors that I've had at the VA [Veterans Affairs] aren't that good. ... since graduating from the EVP none of my meds have changed whether they be for physical ailments or blood pressure or cholesterol, or depression. ... [the VA] started like a swimming class that I wasn't really too keen on. See... anything [taking place at the main facility] depends on the time...and whether you want to deal with the traffic and everything that goes along with it or not. ... we eat healthy, we eat good. We can be procrastinators when it comes to physical exercise." (CP-PD-01)</p>	<p>The Veteran identifies multiple barriers to adopting more ideas and practices from EVP: eg, depression and poor mental health care, centralized location of VA programming and traffic, and procrastination. However, he describes using breathing exercises he learned in EVP and continuing to eat healthy, as he did before EVP.</p>
Practicing new skills and understandings	<p>"when I can Friday I mornings I always come to i-Move [the weekly movement class for EVP graduates]...[In EVP] I got some ideas and some thoughts about how to change my diet and through that I was able to lose weight...I realized the second [thing] that I struggled with was the acceptance that I was injured and that my life had changed ... I do sometimes remember what I've learned [in EVP] and I put that into use so even when I have bad days I still can find something to make it a good day... even when I'm in extreme pain I'm able to say, 'You know what pain? It's okay. It's okay that you're in pain, do the best that you can.' ... to be honest, back then if you'd asked me what my future was looking like I honestly would tell you I don't know. But now when I'm asked that question I talk about the things that I love. I talk about the things I would love to be able to do and think about implementing them and just not letting the injury be such a downer. ... I can walk with my cane and I don't think of it as a crutch. I just think of it as a helping ...So, you know what? I'm starting to see the brighter side of it and I know that's really because my mindset was changed because of EVP...I isolated myself. I didn't want nothing to do with the life I was living or my friends or enjoying it. But now I'm calling up my friends and I'm asking if they can go to the movies and stuff like that." (DO-MU-01)</p>	<p>This Veteran now engages in multiple, different lifestyle practices derived from her time in EVP (eg, exercise, diet) and describes how she has gained acceptance of her injury and has adopted a positive focus, despite continued pain. She adjusts for her limitations so that she can continue participating in activities important to her and makes special effort to foster her social relationships.</p>
Whole life change	<p>"by the VA offering the Empowered Veterans Program, they offered a way of mentally and emotionally addressing the issue [of my limitations] as well as physically. They give you mindfulness exercise, check in to your body, do some breathing exercise, calm down, realize that you can still climb the mountain, so to speak, but you're going to have to go about it in a totally different way, and giving yourself permission to try to come up with new ways of going about doing all your regular business and finding out what works and what doesn't... it's been a long journey and a process... But in the midst of it, I can see that I'm getting better...I'm managing the stress of the pain or managing the pain itself better. I understand that when I get angry or upset or scared about the pain, that just increases the pain or sustains the pain. And if I can stay calm and allow myself to rest when I need rest or to find a new way of doing the same old, same old, then that has a--it softens [the pain]... [EVP's] impact on my life, mentally, physically, socially, spiritually, all of it's been impacted... I can't just have that mentality of, well, this a job and I'm going to do it no matter what, and we'll just push through the pain because that's just unwise. And so I have to have this whole different approach... I need to manage [pain], and I don't have to let it manage or overtake me." (CP-WM-13)</p>	<p>In more detail than is provided here, the Veteran describes how her life has been holistically impacted by her participation in EVP. While she notes that she uses coping skills learned in EVP (eg, mindfulness, body awareness), she highlights the importance of experimenting to find what combination of skills and pain management practices work for her and adjusting her activities and emotional reactions to soften the experience of pain. In doing these things, she is able to manage her pain and not let it overwhelm her.</p>

**Abbreviations:** EVP, Empower Veterans Program; VA, Veterans Affairs.

**Table 4** Veteran identified facilitators and barriers to self-management after EVP (based on interview and focus group data)

Theme	Facilitators		Barriers/challenges	
	Description	Illustrative quote	Description	Illustrative quote
Building blocks	Carrying practices forward	"if you keep up with the routine that they taught us in the class, it would help" (DO-WM-07)	Disruptions	"right now, I'm going through different things and it's hard to keep up with my routine like I thought I would do because I've had to help my daughter move and I'm trying to move... I'm off schedule right now." (DO-WM-07)
	Drawing on class materials	"I have the [class] packet, I can go back and review it from time to time. I can integrate it back into my life." (CP-WM-06)	Not enough training in EVP to continue forward	"I wish that they would have offered something after the initial EVP class... it's kind of discouraging that after the initial class, that that's it, you know?" (DO-MU-05)
	Creating routines	"I have what's called three Ms, well M and Ms, I call it, and that's meditation, mantras and mindfulness. That's how I begin my day." (DO-GEN-04)	Forgetting	"you can learn something, but we are all human, and the old saying goes that you tend to forget 80% of what you learn" (CP-MN-08)
Support	Access to resources	"I joined the senior citizen recreation, so a lot of the seniors they charge are under \$25" (DO-GEN-01) "I went through [EVP] twice... They brought me from a different place. I wasn't in the same place when I graduated especially the second time" (CP-PD-03)	Inaccessible resources	"if you're in a clinic [CBOC] somewhere, you're not gonna get all [the different physical and occupational therapy options] because they don't offer it...they preach all the physical therapy and getting active and stuff, but if you're a depressed person who's coming off of medication, you are not gonna get up every day and do your exercises. You're not. You need some help." (FG03NAAMP1)
	Reinforcement	"[I had another series of ACT through the posttraumatic stress disorder clinic] even though I've been through it I went through it again because sometimes we need to again" (DO-MU-01) "I went through another mindfulness class through the VA, which is much more in-depth, so that has given me new text to play, and then I found mindfulness play through on my phone" (DO-GEN-01)	Follow up options unknown	"the way that VA is run right now is that you have to hear [about special programs like MOVE] from another veteran before you know about it. They [VA providers] don't talk about the programs that are available." (CP-MN-01)
	Continued external support	"There was one veteran that I kept in touch with after the program and she's been very supportive... We talk about the program." (DO-WM-08)	Lack of social support	"one bad part of [managing my pain after EVP] is just having the support. I mean the drive is there but sometimes you get bored doing stuff alone." (CP-PD-09)
Energy	Motivation	"I have my disabilities, but I still want to live... I want to be able to have my cane and get on the train and sit the train ride and recline or whatever and go to [redacted, state] and see my granddaughter at least twice a year. But I want to be able to manage my pain to do it" (CO-WM-04)	Competing demands	"what's been challenging for me is my job. It takes up most of my time... I've got the physical therapy sheets from the EVP class. I guess with my schedule it's hard to get a day-to-day activity along with ... physical therapy at the VA ... it's pretty difficult so I'm mainly running off of opioids just trying to control the pain and continue on trying to provide for my family" (FGM03PI)

(Continued)

**Table 4** (Continued)

Theme	Facilitators		Barriers/challenges	
	Description	Illustrative quote	Description	Illustrative quote
	–	–	Depression	“I got all the information in the world here, but with me putting forth the effort, that’s the hard part for me because I’m so depressed because of the pain” (FG02AAMP4)
Trajectory	Incrementalism	“Do as much as you can, but don’t sit and do nothing.” (DO-GEN-05) “I kind of like take things as in perspective and just take one day at a time” (CP-MN-07)	Lack of balance	“I’m the roller coaster guy... When I have a good day, I seem to overdo it.” (CP-MN-04)

**Note:** Data in parenthesis represents the participant identifier.

**Abbreviations:** EVP, Empower Veterans Program; VA, Veterans Affairs.

CDs), and creating their own daily routines that buttressed their self-care. At the same time, some discussed that life disruptions to their routines, forgetting EVP teachings, and leaving EVP without a firm understanding of coping skills made self-management difficult.

The existence or lack of support also reportedly impacted Veterans’ success. Positive supports included having access to resources such as EVP’s weekly movement class for graduates, discounted gym memberships and recreation classes, and Buprenorphine; opportunities for reinforcement, such as through formal standalone ACT programs or continued physical therapy; and additional social support, such as through an activity partner or supportive and understanding partner. Similarly, Veterans discussed how lacking access to continued services (eg, because of distance or cost involved), not knowing what services are available, and lacking social support made trying to implement what they had learned in EVP more challenging.

Having a motive force in the form of aims or positive perspective was described as facilitating adoption of coping skills and self-care practices. Veterans noted how momentum from EVP graduation and having specific goals (eg, traveling to see a grandchild) and responsibilities (eg, caring for a dog) helped keep them motivated to continue practices learned in EVP. Some also mentioned how optimism could help them not get stuck on the experience of pain. However, competing responsibilities (eg, work), life stressors (eg, death of a spouse, homelessness), and depression were all described as hampering self-care efforts.

Finally, Veterans who described incremental progress seemed to have more successful post-EVP experiences. These Veterans talked about working to balance challenging themselves with taking care of their needs, in a way that kept moving them forward. However, Veterans who characterized

their experiences as less balanced, either swinging from highs and lows or feeling stuck in one place, seemed to find pain management more challenging.

## Discussion

Our evaluation found that most Veterans described positive outcomes from their participation in EVP. Degree and type of outcome varied, but included adopting new self-care practices, acquiring coping skills, accepting pain, feeling more in control, participating in life, adjusting to pain and finding more balance, and changing medication use. However, some said that they did not perceive improvement. Participants described multiple conditions and factors that either supported or challenged their ability to maintain positive gains after leaving EVP.

Veterans who participated in interviews could be categorized into qualitatively different subgroups based on their perceived outcomes. On one end of the spectrum were a group of people who described EVP as instigating whole life change. On the other end, were Veterans who told of no change. These were similar to Bremander et al’s<sup>24</sup> categories of “overall life changes” and “stagnation”. In this project, we were unable to identify a priori, demographic factors that might help to explain this heterogeneity. Several studies of interdisciplinary pain interventions have examined patient predictors for standardized outcomes. Day et al<sup>15</sup> found that higher baseline depression scores, having nociceptive pain, and being older were predictive of increased improvement, whereas Donath et al<sup>23</sup> found that pain severity, disability due to pain, and number of pain-related physician visits in the past 6 months were predictive of classification as program success (notably, depressiveness was not predictive in the study by Donath et al). Additional work is needed to understand when and what patient-level factors might interact with intervention

characteristics to impact outcomes. Such patient-level factors might include comorbidities, type and severity of chronic pain, readiness for change, previous treatment experiences, pain-related treatment usage, and/or the degree to which interventions align with patient understandings of their conditions and goals. Intervention-level characteristics should also be investigated, these might include documentation setting, structure, curriculum, patient centeredness, disciplines involved, degree of interdisciplinarity, and coordination with outside pain providers. By understanding such factors, we might better support individuals for program success by, for example, preparing them for treatment (eg, motivational interviewing, expectation setting) or better matching patients and interventions.

Notably, most Veterans acknowledged that the pain continued in their life. Few spontaneously mentioned any improvement in pain since participating in EVP. Especially if their pain medications had been tapered, some described increased pain. However, most endorsed that they were at least aware that pain would be chronic and had skills and tools to help them manage pain in a way that fit their lives and helped them feel more in control. In addition, the sense of empowerment and engagement in life that participants reported suggest that Veterans derived benefits from the program beyond pain management. This is similar to the findings of the mixed-methods study by Wideman et al,<sup>25</sup> which found that patients reported limited improvement in standardized, clinical measures, but did report meaningful and enduring personal growth. Future studies may want to incorporate a broader array of mixed methods for assessing impacts.

The challenges and supports participants experienced post-EVP are similar to those identified in Bair et al's study of barriers and facilitators to pain management strategies after an interdisciplinary intervention<sup>26</sup> and in studies of barriers and facilitators to nonpharmacological pain treatment.<sup>36-40</sup> Veterans in our study echoed many of the same barriers that Veterans reported to Bair et al almost a decade ago. These included lack of social support, resource barriers to accessing or doing different strategies, depression, and other life stressors or priorities.<sup>26</sup> Also in the VA, Becker et al' participants described access to care, patient and provider awareness or knowledge and treatment beliefs, patient-provider interaction, and patient social support and provider health care system support as top facilitators and barriers to nonpharmacological therapy.<sup>37,38</sup> Veterans we talked to reflected similar experiences in terms of support (eg, having or not having access to resources, not knowing about other pain management options, having or not having social support)

and energy (eg, motivation, positive outlooks) for chronic pain management post-EVP. Patient and provider beliefs about nonpharmacological treatments probably also played a role in the participants in our study, with Veterans and providers more open to such therapies more likely to, respectively, participate in or to refer patients to EVP. While addressing patient and provider preferences and beliefs about multimodal pain therapies, and distrust that might hamper patient and provider conversations about pain management, are prominent issues facing efforts to improve pain management, assuring systems are appropriately resourced (eg, standing up new nonpharmacological pain management services, ensuring programs have adequate capacity) and have policies in place to facilitate access (eg, having travel vouchers to help patients access resources, using nonrestrictive eligibility criteria to lessen burdens on patients and providers, and ensuring services with availability in the evenings or weekends) are challenges for health care systems moving forward. The VA as a system has made some gains in increasing utilization of non-opioid pain treatment and continues to work to improve uptake of and Veteran access to these therapies and services.<sup>41</sup>

In our study, one of the key facilitators to patients' positive self-management was continuing and building on the self-management strategies learned during EVP. Craner et al<sup>42</sup> found that patients value gaining practical skills that they can apply in their lives. Some veterans noted that a barrier to sustaining those self-management practices was not feeling like they had enough experience with them by the time the intervention ended. It seemed important that EVP offered many in class opportunities to engage in hands-on, memorable activities to introduce ideas and practices and that patients had reinforcement practicing those skills while still in the program in order to carry them on once the program was over.

Gilliam et al noted that,<sup>19</sup> after leaving programs such as EVP, patients are challenged to apply what they have learned to their life worlds and to use self-management techniques amid different stressors. Participants in our evaluation described these challenges and argued that there was a need for more follow-up support. Gilliam et al suggested plans for follow-up care, and identification of supports and barriers be built in components of multidisciplinary pain programs. Several follow-up options (eg, weekly mindful movement class, ACT for sleep course) have been added to EVP; however, these have experienced low utilization rates. EVP staff are challenged by how best to offer follow-up support in ways that will not overstretch limited resources and that will reach Veterans. Leveraging existing resources and making efforts

into ensuring better handoffs and coordination of care with longer term VA providers in primary care and mental health might offer a solution. However, that necessitates ensuring that other VA providers have the knowledge, skills, time, and willingness to offer such support. These challenges are not unique to EVP and require more study as interdisciplinary pain management programs are implemented to address gaps in health system effective pain management resources.

Bremander et al<sup>24</sup> found that social support was an important component to Veterans' experience in EVP. After graduating, participants missed the social support they received from other Veterans while in the program. It is possible in the future that peers might be used to provide after program support and reinforcement. Matthias et al<sup>43</sup> found that Veterans with chronic musculoskeletal pain benefited from a peer-supported pain management program. Veterans who participated identified several key areas that impressed the most impact: establishing interpersonal connections, receiving or giving encouragement and support, and providing a venue for using self-management strategies.<sup>44</sup> These elements overlap with themes noted in our data, suggesting that these may be important program components for pain programming involving peers.

This work is limited by a number of factors. As a quality improvement project, our intention was to not generate generalizable knowledge, but to collect particular knowledge to inform this intervention. Our findings should not be interpreted as representative of other interdisciplinary pain management program outcomes; however, we believe that insights and concerns raised here, especially as related to facilitators and barriers to pain management after leaving EVP, may be of interest and value to those considering or implementing similar programs. As yet there are very little published qualitative data on these topics and we hope our contribution will help spark further discussion and research, we were unable to gauge the clinical or functional significance of the outcomes Veterans reported. As a qualitative evaluation, we took the outcomes that participants described to be meaningful to them and thus important. Veterans in our sample may not be representative of all Veterans who have participated in EVP. We anticipate that Veterans with negative experiences with the program would have been less likely to participate in interviews and focus groups. In addition, by design but amplified due to sampling difficulties, we oversampled for Veterans who completed the program. This may have also inflated the degree of reported positive program impacts. We had a hard time recruiting and eventually abandoned efforts to recruit Veterans who had been referred to EVP but had

opted not to enroll. Veterans who self-select into EVP might be different than Veterans who did not receive the intervention. We were also unable to detect differences between the outcomes and postprogram experiences of our subsamples. A closer examination of the data using methods such as grounded theory or examining heterogeneity across other factors (eg, type or intensity of chronic pain, pain-related health care utilization, age, and depression) might have allowed us to tease out important group differences. Understanding the different experiences and challenge Veterans perceive after their program participation is important for continuing QI to adapt EVP to optimize program reach, engagement, and impact of the diverse pool of Veterans it seeks to help.

## Conclusion

Veterans described many positive benefits to participating in EVP, including adopting new pain self-management skills, pain acceptance, and a sense of empowerment. Multiple factors could either challenge or support maintenance of outcomes. They identified hands-on experience and reinforcement of practices, access to resources, motivation, and engagement in incremental change as important for experiencing enduring benefits. By contrast, life stressors, lack of proficiency with self-management practices, and inaccessibly or unknown follow-up resources were some barriers to sustaining change. Determining mechanisms for continuing to help patients manage chronic pain for the long term, especially when conditions surrounding their pain shift, remains a challenge for short-term interventions such as this one.

## Abbreviations

ACT, Acceptance and Commitment Therapy; EVP, Empower Veterans Program; VA, Veterans Affairs

## Ethics approval and consent to participate

This project was part of ongoing quality improvement work conducted for Empower Veterans Program that was deemed nonresearch and exempt from review by the Veterans Affairs-Emory Institutional Review Board. The project was carried out in accordance with the principles of the Declaration of Helsinki. During our recruitment and consent process, all participants were notified of the objectives of the project and how the information they provided would be used and assured confidentiality. Participants provided verbal consent to participate and to audio recording. Written consent was not deemed necessary by the research team as this was

not research, there was minimal risk, and not recording participants' names lessened the risk of participants being identified.

## Availability of data and material

The data sets generated and/or analyzed during the current study are not publicly available because of the need to preserve the anonymity of the participants. Anonymity would potentially be at risk because of the personal nature of material elicited during interviews.

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## Author contributions

All authors contributed to data analysis, drafting or revising the article, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

## Disclosure

The authors report no conflicts of interest in this work.

## References

1. von Korff M, Kolodny A, Deyo RA, Chou R. Long-term opioid therapy reconsidered. *Ann Intern Med.* 2011;155(5):325.
2. Manchikanti L, Helm S, Fellows B, et al. Opioid epidemic in the United States. *Pain Physician.* 2012;15(3 Suppl):ES9–ES38.
3. Deshazo RD, Johnson M, Eriator I, Rodenmeyer K. Backstories on the US opioid epidemic. good intentions gone bad, an industry gone rogue, and watch dogs gone to sleep. *Am J Med.* 2018;131(6):595–601.
4. Stanos SP. Stemming the tide of the pain and opioid crisis: AAPM reaffirms its commitment to multidisciplinary biopsychosocial care and training. *Pain Med.* 2017;18(6):1005–1006.
5. Gatchel RJ, Mcgeary DD, Mcgeary CA, Lippe B. Interdisciplinary chronic pain management: past, present, and future. *Am Psychol.* 2014;69(2):119–130.
6. Gatchel RJ, Mcgeary DD, Peterson A, et al. Preliminary findings of a randomized controlled trial of an interdisciplinary military pain program. *Mil Med.* 2009;174(3):270–277.
7. Huffman KL, Rush TE, Fan Y, et al. Sustained improvements in pain, mood, function and opioid use post interdisciplinary pain rehabilitation in patients weaned from high and low dose chronic opioid therapy. *Pain.* 2017;158(7):1380–1394.
8. Jeffery MM, Butler M, Stark A, Kane RL. *Multidisciplinary Pain Programs for Chronic Noncancer Pain.* Rockville (MD): Agency for Healthcare Research and Quality (US); 2011. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK82511/>. Accessed December 8, 2017.
9. Kamper SJ, Apeldoorn AT, Chiarotto A, et al. Multidisciplinary biopsychosocial rehabilitation for chronic low back pain: cochrane systematic review and meta-analysis. *BMJ.* 2015;350:h444.
10. Stanos S. Focused review of interdisciplinary pain rehabilitation programs for chronic pain management. *Curr Pain Headache Rep.* 2012;16(2):147–152.
11. Kaiser U, Treede RD, Sabatowski R. Multimodal pain therapy in chronic noncancer pain-gold standard or need for further clarification? *Pain.* 2017;158(10):1853–1859.
12. Scascighini L, Toma V, Dober-Spielmann S, Sprott H. Multidisciplinary treatment for chronic pain: a systematic review of interventions and outcomes. *Rheumatology.* 2008;47(5):670–678.
13. McCormick ZL, Gagnon CM, Caldwell M, et al. Short-term functional, emotional, and pain outcomes of patients with complex regional pain syndrome treated in a comprehensive interdisciplinary pain management program. *Pain Med.* 2015;16(12):2357–2367.
14. Vowles KE, Witkiewitz K, Sowden G, Ashworth J. Acceptance and commitment therapy for chronic pain: evidence of mediation and clinically significant change following an abbreviated interdisciplinary program of rehabilitation. *J Pain.* 2014;15(1):101–113.
15. Day MA, Brinums M, Craig N, et al. Predictors of responsivity to interdisciplinary pain management. *Pain Med.* 2017;19(9):1848–1861.
16. Fedoroff IC, Blackwell E, Speed B. Evaluation of group and individual change in a multidisciplinary pain management program. *Clin J Pain.* 2013;30(5):399–408.
17. Dysvik E, Kvaløy JT, Stokkeland R, Natvig GK. The effectiveness of a multidisciplinary pain management programme managing chronic pain on pain perceptions, health-related quality of life and stages of change: a non-randomized controlled study. *Int J Nurs Stud.* 2010;47(7):826–835.
18. Guzmán J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C. Multidisciplinary rehabilitation for chronic low back pain: systematic review. *BMJ.* 2001;322(7301):1511–1516.
19. Gilliam WP, Craner JR, Cunningham JL, et al. Longitudinal treatment outcomes for an interdisciplinary pain rehabilitation program: comparisons of subjective and objective outcomes on the basis of opioid use status. *J Pain.* 2018;19(6):678–689.
20. Guildford BJ, A D-E, Hill B, Sanderson K, Mccracken LM. Analgesic reduction during an interdisciplinary pain management programme: treatment effects and processes of change. *Br J Pain.* 2017;204946371773401.
21. Ravenek MJ, Hughes ID, Ivanovich N, et al. A systematic review of multidisciplinary outcomes in the management of chronic low back pain. *Work.* 2010;3:349–367.
22. Spinord L, Kassberg AC, Stenberg G, Lundqvist R, Stålnacke BM. Comparison of two multimodal pain rehabilitation programmes, in relation to sex and age. *J Rehabil Med.* 2018;50(7):619–628.
23. Donath C, Dorscht L, Graessel E, Sittl R, Schoen C. Searching for success: Development of a combined patient-reported-outcome (“PRO”) criterion for operationalizing success in multi-modal pain therapy. *BMC Health Serv Res.* 2015;15(1):272.
24. Bremander A, Bergman S, Arvidsson B. Perception of multimodal cognitive treatment for people with chronic widespread pain-changing one's life plan. *Disabil Rehabil.* 2009;31(24):1996–2004.
25. Wideman TH, Boom A, dell'elce J, et al. Change narratives that elude quantification: a mixed-methods analysis of how people with chronic pain perceive pain rehabilitation. *Pain Res Manag.* 2016;2016:9570581.
26. Bair MJ, Matthias MS, Nyland KA, et al. Barriers and facilitators to chronic pain self-management: a qualitative study of primary care patients with comorbid musculoskeletal pain and depression. *Pain Med.* 2009;10(7):1280–1290.
27. U.S. Department of Veterans Affairs. *FY 2019/FY 2017 Annual Performance Plan and Report (APP&R)*; 2018. Available from: <https://www.va.gov/oei/docs/VA2019appr.PDF>. Accessed October 19, 2018.
28. Guest G, Bunce a, Johnson L. How many interviews are enough? An experiment with data saturation and variability. *Field Methods.* 2006;18(1):59–82.

29. Guest G, Namey E, Mckenna K. How many focus groups are enough? Building an evidence base for Nonprobability sample sizes. *Field Methods*. 2016;29(1):3–22.
30. Burgess-Allen J, Owen-Smith V. Using mind mapping techniques for rapid qualitative data analysis in public participation processes: using mind mapping in analysis of qualitative data. *Health Expect*. 2010;13(4):406–415.
31. Patton MQ. *Qualitative Research and Methods: Integrating Theory and Practice*. London: Sage Publications Ltd; 2015.
32. Averill JB. Matrix analysis as a complementary analytic strategy in qualitative inquiry. *Qual Health Res*. 2002;12(6):855–866.
33. QSR International. *NVivo Qualitative Data Analysis Software*. QSR International Pty Ltd; 2016.
34. Saldaña J. Coding and analysis strategies. In: Leavy P, editor. *The Oxford Handbook of Qualitative Research*. Oxford: Oxford University Press; 2014:581–605.
35. Ryan GW, Bernard HR. Techniques to identify themes. *Field Methods*. 2003;15(1):85–109.
36. Giannitrapani KF, Ahluwalia SC, Mccaa M, Pisciotta M, Dobscha S, Lorenz KA. Barriers to using nonpharmacologic approaches and reducing opioid use in primary care. *Pain Med*. 2017 20 Oct 2017.
37. Becker WC, Dorflinger L, Edmond SN, Islam L, Heapy AA, Fraenkel L. Barriers and facilitators to use of non-pharmacological treatments in chronic pain. *BMC Fam Pract*. 2017;18(1):41.
38. Becker WC, Mattocks KM, Frank JW, et al. Mixed methods formative evaluation of a collaborative care program to decrease risky opioid prescribing and increase non-pharmacologic approaches to pain management. *Addict Behav*. 2018;86:138–145.
39. Giannitrapani K, Mccaa M, Haverfield M, et al. Veteran experiences seeking non-pharmacologic approaches for pain. *Mil Med*. 2018;183(11–12):e628–e634.
40. Kennedy LC, Binswanger IA, Mueller SR, et al. “Those conversations in my experience don’t go well”: a qualitative study of primary care provider experiences tapering long-term opioid medications. *Pain Med*. 2018;19(11):2201–2211.
41. Frank JW, Carey E, Nolan C, et al. Increased nonopioid chronic pain treatment in the Veterans Health administration, 2010–2016. *Pain Med*. 2018;18(3).
42. Craner JR, Skipper RR, Gilliam WP, Morrison EJ, Sperry JA. Patients’ perceptions of a chronic pain rehabilitation program: changing the conversation. *Curr Med Res Opin*. 2016;32(5):879–883.
43. Matthias MS, Mcguire AB, Kukla M, Daggy J, Myers LJ, Bair MJ. A brief peer support intervention for veterans with chronic musculoskeletal pain: a pilot study of feasibility and effectiveness. *Pain Med*. 2015;16(1):81–87.
44. Matthias MS, Kukla M, Mcguire AB, Bair MJ. How do patients with chronic pain benefit from a peer-supported pain self-management intervention? A qualitative investigation. *Pain Med*. 2016;17(12):2247–2255.

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