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Understanding Barriers and Facilitators to the Uptake of Best Practices for the Treatment of Co-Occurring Chronic Pain and Opioid Use Disorder

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Abstract

Objective: Patients with a combination of chronic pain and opioid use disorder have unique needs and may present a challenge for clinicians and health care systems. The objective of the present study was to use qualitative methods to explore factors influencing the uptake of best practices for co-occurring chronic pain and opioid use disorder in order to inform a quantitative survey assessing primary care provider capacity to appropriately treat this dual diagnosis.

Methods: Guided by the Consolidated Framework for Implementation Research (CFIR), semi-structured qualitative interviews were conducted with 11 primary care providers (PCPs) to inform the development of a questionnaire. Interviews were audio-recorded and transcribed verbatim. Fifteen comments from an open-ended question on the questionnaire were added to the analyses as they described factors that were not elucidated in the interviews. Barriers and facilitators were identified and categorized using the CFIR codebook.

Results: The most frequently described barriers were cost and inadequate access to appropriate treatments, external policies, and available resources (e.g., risk assessment tools). The most frequently described facilitators were the presence of a network or team, patient-specific needs,

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and the learning climate. Knowledge and beliefs were frequently described as both barriers and facilitators.

Conclusions: While substantial funding has been allocated to initiatives aimed at increasing PCP capacity to treat this population, numerous barriers to adopting appropriate practices still exist. Future research should focus on developing and testing implementation strategies that leverage the facilitators and overcome the barriers illustrated here to improve the uptake of evidence-based recommendations for the treatment of co-occurring chronic pain and opioid use disorder.

Keywords

Opioid use disorder; primary care; chronic pain; dual diagnosis; implementation science

Chronic pain is a serious public health concern: an estimated 25.4 million people in the United States experience chronic pain daily (Institute of Medicine Report from the Committee on Advancing Pain Research & Education, 2011; Nahin, 2015; Pitcher, Von Korff, Bushnell, & Porter, 2018). Opioids are one of the most commonly used treatments for chronic pain, but evidence for their long-term effectiveness is weak and understudied (Chou et al., 2015; Manchikanti et al., 2011). A rise in chronic pain and opioid prescriptions have been coupled with an increase in opioid overdose deaths (Centers for Disease Control & Prevention, 2015). While opioid prescriptions have plateaued in the past 5 years, overdose death rates continue to rise (Piper, Shah, Simoyan, McCall, & Nichols, 2018). Because chronic pain is most commonly treated in the primary care setting, primary care providers (PCPs) are the main prescribers of opioid medications for chronic pain. Thus, PCPs have been a primary focus for initiatives aimed at curtailing the opioid crisis (Barth, Guille, McCauley, & Brady, 2017; Dowell, Haegerich, & Chou, 2016).

Recent initiatives to address opioid prescriptions have focused on reducing access to medication more than increasing access to treatments for problematic opioid use or opioid use disorder (OUD; Kertesz & Gordon, 2018). One review of opioid safety initiatives demonstrated that long-term implementation of dose reduction and other risk reduction initiatives were not associated with lower rates of opioid use disorder among chronic opioid therapy patients, highlighting the need for strategies designed to facilitate the implementation of practices that go beyond changing prescription practices (Von Korff et al., 2017). To identify appropriate implementation strategies, it is necessary to first understand the factors influencing a provider's decision-making process when treating individuals with both chronic pain and opioid use disorder.

A common approach to improving the uptake of clinical innovations is to first identify barriers and facilitators to change, and then to tailor interventions accordingly to facilitate uptake (Cabana et al., 1999; Kajermo et al., 2010). Numerous barriers to treating chronic pain have been identified in the literature, but fail to capture the processes involved in providing patient-centered care once opioids are no longer appropriate (Barry et al., 2010; Chenot et al., 2008; Deflavio, Rolin, Nordstrom, & Kazal, 2015; Dowell et al., 2016; Harle et al., 2015; Jamison, Sheehan, Scanlan, Matthews, & Ross, 2014; Khalid et al., 2015; Krebs et al., 2014; Macerollo, Mack, Oza, Bennett, & Wallace, 2014; Upshur, Luckmann,

& Savageau, 2006; Westanmo, Marshall, Jones, Burns, & Krebs, 2015). To guide these efforts, the complexities of treating this dual diagnosis in the primary care setting must be considered.

Treatment of chronic pain with opioid use disorder as comorbidity requires a more nuanced treatment plan (Edlund et al., 2014; Liebschutz, Beers, & Lange, 2014; Merlin et al., 2018). Although evidence-based treatment for co-occurring chronic pain among people with comorbid opioid use disorder has not yet been established, best practice guidelines integrate recommendations for each disorder (Liebschutz et al., 2014). These guidelines endorse practices including medication-assisted treatment (MAT), non-opioid pain medications, cognitive behavioral therapy (CBT), and referral to substance use disorder treatment (Kaye et al., 2017; Liebschutz et al., 2014; National Institute on Drug Abuse, 2012; Volkow, Benveniste, & McLellan, 2018).

Little is known about barriers and facilitators specific to the integration and implementation of best practices for both chronic pain and opioid use disorder within the context of primary care. Thus, the objective of the present study was to use qualitative methods to explore factors influencing the uptake of best practices for co-occurring chronic pain and opioid use disorder in order to inform a quantitative survey assessing primary care provider capacity to appropriately treat this dual diagnosis.

Methods

The present study was the first step within a mixed-methods instrument development study. All study activities were overseen and approved by the University of Alabama at Birmingham's Institutional Review Board.

Participants

Two groups of participants were recruited. First, to recruit interview subjects, members of the study team sent email study invitations to primary care providers (both academic and community-based) in the Birmingham, Alabama area. As participants were enrolled, they were asked to identify other potentially eligible providers. Great effort was made to recruit a diverse population of PCPs. Using a purposive sampling approach, 60 invitations were sent and 11 PCPs from academic, VA, and community settings were recruited, including both physicians and nurse practitioners (Creswell & Plano Clark, 2011).

Second, to recruit subjects for an online questionnaire, a group of 509 PCPs was recruited from primary care clinics (with publicly accessible email addresses) across the United States and through posts about the study on social media. The launch page for the survey contained an information sheet and qualifying questions. Respondents who stated that they practiced in the United States, considered themselves to be PCPs, and had an advanced degree (MD, DO, NP, or PA) were permitted to proceed to the questionnaire items. Fifteen participants completed the questionnaire and provided qualitative comments on facilitators or barriers to treatment of pain with comorbid opioid use disorder.

Interview guide development

Items for the semi-structured interview guide were adapted from the Consolidated Framework for Implementation Research's (CFIR's) qualitative interview guide (Consolidated Framework for Implementation Research, 2016; Damschroder et al., 2009). The CFIR is a practical guide for assessing potential barriers and facilitators to the implementation of evidence-based treatments (McGovern, Saunders, & Kim, 2013). The framework consists of five broad constructs: characteristics of individuals, innovation characteristics, inner setting, outer setting, and processes. Questions were drawn from the CFIR's qualitative guide development tool and adapted to reflect specific evidence-based practices for the treatment of co-occurring chronic pain and opioid use disorder. Once an initial set of questions was compiled, the study team reviewed them for clarity and content. The interview guide was then pilot-tested with two primary care providers (a nurse practitioner, and a physician). Based on their feedback, the interview questions were further refined, resulting in the final interview guide. Table 1 displays the codebook with definitions and example interview questions.

Online questionnaire

After the semi-structured interviews were conducted, a questionnaire assessing capacity to treat co-occurring chronic pain and opioid use disorder was developed and distributed to 509 PCPs. At the end of this questionnaire, PCPs were asked to provide comments with one open-ended item, "Do you have comments about the content of this survey?" Comments describing either barriers or facilitators were included in this study. Although the data come from two different data sets, comments from the online questionnaire were added to the analysis because they contained text describing factors not revealed in the interviews.

Procedures

In-person semi-structured interviews were conducted with PCPs from March to November 2017. Online questionnaires were collected from March to May 2018. Interviews were conducted in provider offices by a graduate student with training in qualitative interviews. Interviewees were compensated with \$30. Interviews were audio-recorded, and transcribed. Interview and questionnaire comment text was uploaded to NVivo 12. Using a framework analysis approach, text that fits the definition of a CFIR construct and reflected a specific barrier or facilitator was coded and included in the analyses. Two members of the research team coded all interviews. The coding team met frequently to compare coding and discuss agreement of codes and themes. Once all interviews were coded, two senior qualitative researchers reviewed the coding scheme. Based on their feedback, codes were adjusted and reviewed until there was agreement in codes by the four members of the team. Themes and quotations were then used to inform the development of items for a quantitative questionnaire.

Results

Characteristics of the 11 interview participants and 15 survey respondents are shown in Table 2. Subjects were men and women from academic, community and government settings who primarily had MD degrees. Barriers and facilitators to appropriately treating

co-occurring chronic pain and opioid use disorder were elucidated across the majority of CFIR constructs. Table 3 summarizes the barriers and facilitators that were found in each CFIR domain by theme. Quotations from interviews are marked (I) and quotations from the online questionnaire are marked (Q).

Characteristics of individuals

Knowledge and Beliefs—Knowledge and beliefs about treating the population emerged as a theme. PCPs' beliefs about their responsibility to treat both chronic pain and opioid use disorder were commonly discussed. PCPs described how certain interventions were out of their scope of practice, “, “Some also described negative perceptions of the population, “ and “usefulness of risk assessments. For example,” ... etc) many similar cases observed in this case, please suggest how to proceed further.

I am constantly hearing from specialists how primary care needs to do more. The whole issue of chronic pain has fallen to the bottom of my list of emotionally exhausting conditions. (Q)

Other PCPs expressed a reluctance to treating this population stating, “I don't really want the responsibility of chronic pain management (I).” Some also described negative perceptions of the population,

Patients with weight issues don't call my office multiple times a week, or even in a day, asking for more medication. They don't keep me on the phone or in an exam room for extended periods of time trying to plead with me to increase their pain medication (Q).

Beliefs specific to implementing MATs were also discussed. One PCP stated, “We shouldn't be referring people for buprenorphine, we should be providing it in our setting. Integrating it into primary care is just as effective as providing it in specialized settings (Q).” However, not all PCPs were as motivated, noting, “I feel like it's best to leave that to the people who have more addiction training than me (I).” These statements suggest that PCPs' beliefs about their responsibility to adopt certain treatments can be both a barrier and a facilitator to providing appropriate care.

The use of risk assessments versus clinical expertise was another emergent theme. One PCP noted, “With time you don't need a tool for everything. The tools are a rough approximation for years of doing (Q).” However, other participants described the usefulness of risk assessments. For example,

We have a lot of avenues of information to assess what is going on when we manage their pain. In comparison to standard primary care with the knowledge of what people do with their lives comes down to what they tell you in a 10-minute visit (I).

Innovation characteristics—Characteristics specific to certain interventions were described as both barriers and facilitators.

Cost—The cost of certain treatments and the evidence behind the treatment were of greatest concern to interviewees. A patient’s ability to afford recommended treatments was a commonly cited barrier. For example,

If you go to a buprenorphine clinic in a private setting you’re going to have to pay cash up front. They’ll say, ‘You know you were buying heroin on the street at \$20 a day, so you can do this.’ But how were they doing that? They were breaking the law, cheating, stealing, and we are trying to stop all of that. It doesn’t make any sense to make people pay the same amount that they were paying for illicit drugs. The treatment is more expensive than the heroin is. (I).

No PCPs in the present study described cost as a facilitator.

Evidence strength—PCPs described how the level of evidence for practice was important in their decision-making process. When discussing mandated psychosocial treatments with buprenorphine a PCP said, “The randomized trials have not shown that a required social treatment component produces better abstinence results... it troubles me that people do require it (I).” The generalizability of research evidence to the patient population was also discussed as a barrier. As one PCP said,

I think the problem with evidence is, evidence is derived from usually a randomized controlled trial, and they are a very select group of people whose profile and demographics are different than the people I treat (I).

Inner setting

Networks and communications—The ability to communicate and refer to other providers within an organization was another factor described as both a barrier and facilitator. One PCP described their integrated system as a facilitator, “I can consult with a bunch of people through electronic communication. This system at my organization is like electronic messaging. I can talk to their therapist, their everything (I).” Another participant described this as a barrier,

There is no integration. The person who is doing the buprenorphine prescription is probably not in communication with the primary care provider because of regulatory barriers. If I am running a buprenorphine clinic way outside of the city, the likelihood of any cross talk is close to nil (I).

Relative priority—PCPs described how the implementation of appropriate treatments was high priority in their organization. One PCP said, “As a group we have decided to identify those high- risk patients and we developed our own opiate safety clinic...we have a couple of general internists that did additional training and were willing to manage this clinic (I).” Another PCP added,

We use that as leverage with administrative people to say quality of life is important to people. I can oftentimes convince administrative people who hold the purse strings to say, ‘this gives us an edge above Joe Blow down the street.’ It may not be reimbursable, but

we're willing to spend money on that because that gives us a foot up in this competitive world of healthcare (I).

Learning climate—Academic PCPs described their learning climate as a facilitator. For example, one provider noted how they learn about new treatments because, “We’re constantly having to find information to teach students that’s up-to-date and accurate (I).” Furthermore, another PCP discussed the range of expertise in an organization as a potential facilitator,

I think being at a major medical center you have people coming from different training areas. They bring with them a knowledge base and clinical expertise, and it’s very difficult to have these things when you’re in a small, rural facility (I).

Readiness for Implementation

Availability of resources—Availability of resources was discussed extensively as both a barrier and facilitator. PCPs described how it was difficult to access certain resources, like non-pharmacological treatments for pain. For example, “I know the data well enough for people to say, ‘There is physical therapy, meditation, and other interventions.’ I don’t have access to that (I).” Where another said, “There are other sorts of non-opioid interventions, like CBT, that are a little bit easier to get at my organization, that are a little bit harder to get in the outside world (I).” One PCP described accessing the Stratification Tool for Opioid Risk Mitigation (STORM), “In my organization, you have to request special permission to access it. It exists, but you have to put in an electronic request to get it, and most people don’t know about it (I)” (Oliva et al., 2017).

Outer setting

Needs of those served by the organization—The most commonly described barrier/facilitator was the needs of patients. PCPs asserted that treatment plans were dependent on the individual needs of the patient; “There are plenty of anecdotes about people with very aggressive tapers if the patients don’t really buy into, that can be really problematic (I).” One participant emphasized the need to tailor treatment for opioid use disorder,

If somebody has OUD, a lot of them tend to have significant challenges in terms of how they think about themselves and how they cope. It feels to me, correct to be willing and ready to provide support for those things (I).

External policies and incentives—Policies regarding buprenorphine prescriptions were described as a barrier for some of the PCPs. One stated, “The legal barriers are real (I).” Another said,

The regulations. The fact that the board of medical examiners set some sort of threshold that you had to have a clearance. They just passed the regulation that you have to do CME around addiction. And there are people that are just saying I don’t want to do that (I).”

Another PCP described how the media and policymakers’ dissemination approaches create a barrier to the uptake of guidelines, “Different therapies work for different people. National

guideline writers actually take this into account, but by the time that the lawmakers or media commentators get to it, one size fits all (Q).”

Process

Engaging key stakeholders—Engaging opinion leaders and key stakeholders were described by participants as both a barrier and a facilitator. As one PCP said,

In our organization there is some level of thoughtfulness about a lot of these things among a fair number of senior people. There are these people that are like, “Yeah we need to do this in a very patient-centered way (I).”

Another PCP described engaging important team members, “My nurses immediately said, ‘Are you opening up a suboxone clinic? We are already busy enough.’ I was like, No. I just want us to be able to have that option for our patients (I).”

Planning—PCPs described future plans for implementing new treatments into their practice;

If I had someone who could help me. We are hiring a nurse practitioner and one of her jobs is going to be to assess people’s pain and write their pain medicines for them every month as opposed to me seeing them when I can and mailing prescriptions in between (I).

Another said, “I have gotten suboxone training, but my academic center has not been helpful in applying this. I’m trying with one other doc to get a clinic up and running this fall. Wish me luck (Q).”

Executing—Some of the PCPs were already implementing practices. For example,

We as a practice, 3 years ago we really began to say we’d like to use our evidence-based guidelines. So, that’s when we brought our nurse practitioners into this. We were able to do it so that it didn’t all fall on the physician (I).

Reflecting & evaluating—PCPs reflected on past issues with implementing certain practices.

PCPs that had implemented new pain and opioid use disorder treatments described this process as challenging. Participants also noted that there is a lack of quality metrics. One PCP reflected on initiatives that use prescription rate as a metric of success, “Single number metric of performance overwhelm everything (Q).”

Questionnaire Development—Themes and quotations were used to develop items for a quantitative questionnaire to be distributed to a national sample of PCPs. Examples of items drawn from the qualitative data are displayed in Table 4. Quotations were modified into statements that respondents could rate on a 7-point Likert scale from strongly disagree to strongly agree.

Discussion

The objective of the present study was to use qualitative methods to identify factors influencing the uptake of best practices for co-occurring chronic pain and opioid use disorder in order to inform a quantitative survey assessing primary care provider capacity to appropriately treat this dual diagnosis. Semi-structured interviews were conducted with 11 PCPs. Fifteen responses from an online questionnaire were added to the analysis. The most frequently described barriers were cost and access to appropriate treatments, external policies, and available resources. The most frequently described facilitators were presence of a network or team, the needs of the patients being served, and the learning climate. Knowledge and beliefs were frequently described as both a barrier and facilitator.

Unsurprisingly, the cost of treatments was the most commonly described barrier, as misaligned financial incentives in primary care have been extensively documented (Safran, 2003). Thus, cost is a significant barrier that will need to be addressed in order to increase access to appropriate treatments. Coverage for therapies, such as medication-assisted treatments, is expanding as new policies emerge (Andrews et al., 2018). To ensure all patients have access to appropriate treatments, insurance providers should continue to expand coverage to include, at the very least, treatments that are recommended by empirically-supported guidelines.

Furthermore, organizations should consider providing incentives to providers willing to treat patients with chronic pain and opioid use disorder, as this was highlighted as a facilitator in the present study.

Self-efficacy in assessing risks was a common theme. Indeed, risk/benefit analysis is a primary focus of recommendations for the treatment of both chronic pain and opioid use disorder (Dowell et al., 2016; Institute of Medicine Report from the Committee on Advancing Pain Research & Education, 2011). PCPs discussed how screening tools were not useful when one had adequate clinical expertise, suggesting a disconnect between best practice guidelines and PCP behavior. This could be due to a lack of screening resources, which was also a frequent theme in the data. However, there were PCPs who identified measures of risk as a facilitator to appropriately treating this population. One participant discussed the Oliva et al. (2017) pilot study, which developed a decision-support tool for opioid risk mitigation (STORM). This tool uses electronic medical record data and allows providers to assess risk for overdose events and identify high-risk patients. While more research is needed to validate the model, it is an example of a risk assessment tool that can be integrated into clinical practice.

Previous research highlighted the importance of provider knowledge and training (Barth et al., 2017; McNeely et al., 2018; Ruff, Alford, Butler, & Isaacson, 2017; Webster et al., 2017). In this study, knowledge and beliefs were frequently described as key factors influencing the decision-making process when developing a treatment plan for patients.

Providers differed regarding their views concerning their responsibility to treat this population. Some felt that treating patients with both chronic pain and opioid use disorder was their responsibility, while others held negative perceptions of the population.

Shifting negative perceptions may facilitate the uptake of certain practices (Powell et al., 2012). However, access to empirically-supported educational interventions that could shift perceptions is dependent on the PCPs organization (Barth et al., 2017). Future studies should develop strategies aimed at changing knowledge and beliefs about appropriate interventions for this population within the context of primary care.

One size does not fit all when choosing an appropriate treatment. PCPs described cases where they clearly knew which treatment was appropriate and cases where they did not. Initiatives aimed at increasing the uptake of such interventions will need to use multiple strategies to target different practices and take into consideration a range of contextual factors (Powell et al., 2012). For example, Quanbeck et al. (2018) demonstrated the feasibility, acceptability, and effectiveness of a blended strategy that used audit and feedback, academic detailing, and external facilitation to implement opioid prescribing guidelines (Quanbeck et al., 2018). Future research should test similar approaches with a focus on the practices recommended for co-occurring chronic pain and opioid use disorder.

This study has limitations. The interview sample was somewhat modest in size and nonrandom, but these results expand the current understanding of treating co-occurring chronic pain and opioid use disorder by revealing the perspectives of PCPs from multiple organizations. It is possible that other methods, like focus groups, might have resulted in the elucidation of different factors by allowing PCPs to reflect on the experience of their peers (Creswell, 2007). However, semi-structured interviews were the most appropriate approach, as it allowed data collection to be tailored to each participant's schedule.

The present study provides a starting point to better understand how to support the integration of best practices for both chronic pain and opioid use disorder within the primary care setting, which may require a more nuanced understanding of organizational context as well as a specific combination of implementation strategies (Bond & McGovern, 2013). As interventions aimed at increasing the uptake of these practices emerge, it is necessary to understand the factors that influence PCPs' decision-making while accounting for the complex environment in which these practices are to be implemented. Doing so will promote patient safety, increase access to alternative treatments, and support the implementation of best practices for this population.

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Table 1.

CFIR Codebook (CFIRGuide.org) with definitions, and interview questions.

Characteristics of individuals: The individuals involved with the implementation process

Knowledge and beliefs about the innovation: Individuals’ knowledge and beliefs about the intervention as well as familiarity with facts, truths, and principles related to the intervention. Example question: What do you know about the “best practices” for treating co-occurring chronic pain and opioid use disorder?

Individual identification with organization: How individuals perceive the organization and their degree of commitment with that organization.

Individual stage of change: The phase an individual is in, as they progress toward sustained use of the intervention.

Self-efficacy: Individual confidence in their ability to achieve implementation goals. Example question: How confident are you that you would be able to successfully implement these practices? Why?

Innovation characteristics: Key attributes of interventions that influence the success of implementation

Complexity: Perceived difficulty of adopting the intervention.

Cost: Costs associated with the intervention and its implementation.
Example question: What kind of costs must be considered when implementing these practices?

Evidence strength and quality: Perceptions of the quality and validity of evidence supporting the intervention.
Example question: What kind of information or evidence are you aware of that shows whether or not the different practices for treating chronic pain and opioid use disorder are effective?

Innovation source: Perception of key stakeholders about whether the intervention is externally or internally developed.
Example question: Please tell me your perceptions about what is considered “best practice” for treating patients with chronic pain and opioid use disorder? Can you tell me about the organization/group that developed these guidelines?

Relative advantage: Stakeholders’ perception of the advantage of implementing the intervention versus an alternative solution.
Example question: How do these practices compare? Is one better than the others?

Adaptability: The degree to which an intervention can be tailored to meet the needs of the people involved.

Trialability: The ability to test the intervention in the organization, and to be able to reverse course (undo implementation) if warranted.

Design quality and packaging: Perceived quality in how the intervention is presented.

Inner setting: The structural, political, and cultural contexts through which the implementation process will proceed

Structural characteristics: The social architecture, age, maturity, and size of an organization. Example question: What kinds of infrastructure changes were/will be needed to accommodate these practices?

Implementation climate: The capacity for change, shared receptivity of involved individuals to an intervention, and the extent to which use of that intervention will be supported within their organization.

Culture: Norms, values, and basic assumptions of a given organization.
Example question: How do you think your organization’s culture (general beliefs, values, assumptions that people embrace) would affect the implementation of this practice?

Goals & feedback: The degree to which goals are clearly communicated, acted upon, and fed back to staff, and alignment of that feedback with goals.
Example question: Do you get any feedback reports about your work?

Learning climate: A climate in which: (a) leaders express their own fallibility and need for team members’ assistance and input; (b) team members feel that they are essential, valued, and knowledgeable partners in the change process; (c) individuals feel psychologically safe to try new methods; and (d) there is sufficient time and space for reflective thinking and evaluation. Example question: To what extent are new ideas embraced and used to make improvements in your organization?

Relative priority: Individuals’ shared perception of the importance of the implementation within the organization.
Example question: What kinds of high-priority initiatives or activities are already happening in your setting?

Tension for change: The degree to which stakeholders perceive the current situation as intolerable or needing change.

Compatibility: The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals’ own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems.

Organizational incentives and rewards: Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary, and less tangible incentives such as increased stature or respect.

Networks and Communications: The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization.
Example question: Tell me a little bit about your team or colleagues, who would you consider to be in your team in your practice? Are meetings, such as staff meetings, held regularly?

Readiness for Implementation: Indicators of organizational commitment to its decision to implement an intervention.

Available resources: The level of resources dedicated for implementation and on-going operations, including money, training, education, physical space, and time.
Example question: Do you have sufficient resources to implement these practices? What resources would you need?

Leadership engagement: Commitment, involvement, and accountability of leaders and managers with the implementation.

Access to knowledge and information: Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks.

Outer setting: The economic, political, and social context within which an organization resides.

External policies & incentives: A broad construct that includes external strategies to spread interventions, including policy and regulations, external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.
Example question: What kind of local, state, or national performance measures, policies, regulations, or guidelines influenced your/your organization’s decision to implement new practices to treat co-occurring chronic pain and opioid use disorder?

Needs & resources of those served by the organization: The extent to which patient needs are prioritized by the organization.
Example question: What barriers do/will the individuals served by your organization face in participating in trying to adopt these practices?

Peer pressure: Pressure to implement an intervention.

Cosmopolitanism: The degree to which an organization is networked with other external organizations.

Process: The processes involved in implementing a new practice.

Planning: The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance, and the quality of those schemes or methods.
Example question: What have you done (or what do you plan to do) to get a plan in place to implement these practices?

Engaging: Involving appropriate individuals in the implementation and use of the intervention.
Example question: Who are the key influential individuals to get on board to implement these interventions?

Executing: Carrying out or accomplishing the implementation according to plan.

Reflecting and evaluating: Feedback about the progress and quality of implementation.
Example question: How do you assess progress when implementing new practices?

Note. CFIR = Consolidated Framework for Implementation Research.

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Table 2.

Participant characteristics.

Provider characteristics	Semi-structured interviews [% (<i>n</i> = 11)]	Online questionnaire [% (<i>n</i> = 15)]
Gender		
Male	64 (7)	40 (6)
Female	36 (4)	60 (9)
Primary organization		
Academic	46 (5)	60 (9)
Community	36 (4)	40 (6)
Government	18 (2)	0 (0)
Degree		
MD	73 (8)	87 (13)
NP	27 (3)	6.5 (1)
PA	0 (0)	6.5 (1)

Note. MD = doctor of medicine; NP = nurse practitioner; PA = physician assistant.

Table 3.

Barriers and facilitators by CFIR construct.

CFIR construct and definition	Barriers	Facilitators
Characteristics of individuals		
Knowledge and beliefs about the innovation	Attitudes about screening tools, knowledge of screening tools, emotionally exhausting, belief in responsibility to provide MAT	Belief in treatment efficacy, belief in his/her responsibility to treat the population, belief in responsibility to provide MAT
Individual identification with organization	Organization not supportive of implementing MAT clinic	Desire to “align with organizational policy”
Individual stage of change		Intent to implement [MAT] once organization is supportive
Self-efficacy	Ability to assess risk, confidence in implementing MATs	Ability to assess risk in patients using tool or clinical expertise
Other personal attributes	Training, desire to treat population	Training, desire to treat population
Innovation Characteristics		
Complexity	Screening tools are “cumbersome”	Screening tools easy to use
Cost	Alternative treatments, buprenorphine waiver, general cost to patients of treatments	
Evidence strength and quality	Lack of evidence for psychosocial treatments, generalizability of research results, lack of evidence of benefit of taper	
Inner setting		
Implementation climate		Integrated system
Compatibility	Policy is to refer OUD patients out	
Goals & feedback	Using a single metric	
Learning climate		Being in an academic institution, teaching students
Relative priority	Organizational support for MAT clinics, organization does not want responsibility	Providing certain treatments gives organization a “leg up” on competition, established group to support implementation
Networks and communications	Provider does not work with team	Team-based approach to treatment. Ability to communicate with patient’s other providers
Readiness for implementation		
Available resources	Access to non-pharmacologic treatments, time	Access to non-pharmacologic therapies, access to risk assessment tools
Outer setting		
External policies & incentives	Absence of PDMP, misinterpretation of guidelines by policymakers and media	PDMP, state-funded MAT team
Needs & resources of those served by the organization	Patient access to therapies, patient perception of efficacy of treatments	Ability to tailor approach to patient needs
Process		
Planning	Lack of institutional support	Obtaining a waiver to prescribe medications for OUD, institutional support
Engaging		Engagement of team members
Executing		Successfully assembling a team
Reflecting and evaluating	Lack of appropriate quality and performance metrics	

Note. CFIR = Consolidated Framework for Implementation Research; MAT = medication-assisted treatment; OUD = opioid use disorder; PDMP = prescription drug monitoring program.

Table 4.

Questionnaire items drawn from quotations and themes.

Quotation	Questionnaire item
<p>“I heard that the folks down here were in need of somebody who would be willing to come to work and take over the pain clinic because nobody wanted to take over the pain clinic.”</p>	<ul style="list-style-type: none"> • I want to work with patients with chronic pain. • I want to work with patients with opioid use disorders.
<p>“It’s not something that that we covered a whole lot in school to be honest, so I didn’t have a lot of training.”</p>	<ul style="list-style-type: none"> • I have adequate training in addiction. • I have adequate training in chronic pain.
<p>“This means we have a lot of avenues of information to assess what is going on when we manage their pain.”</p>	<ul style="list-style-type: none"> • I assess risk for opioid use disorder in my chronic pain patients. • I have the ability to assess risk for opioid use disorder in my chronic pain patients. • I have adequate avenues of information to assess what is going on with my chronic pain patients.
<p>“In comparison to standard primary care with the knowledge of what people do with their lives, basically comes down to what they tell you in a 10-minute visit. I think that is a systems issue, both the ability to track what people do.”</p>	<ul style="list-style-type: none"> • I have the ability to track my patients’ behaviors related to their chronic pain.
<p>“You are assuming that I believe in evidence.”</p>	<ul style="list-style-type: none"> • I trust research evidence related to chronic pain. • I trust research evidence related to opioid use disorder.
<p>“I know the data well enough for people to say, ‘Yeah, but there is physical therapy, meditation, and there are other non-pharmacologic interventions.’ I don’t have access to that.”</p>	<ul style="list-style-type: none"> • I have access to non-pharmacologic treatments for chronic pain.
<p>“I know what the therapies are. A lot of my patients can’t afford the therapies that are recommended.”</p>	<ul style="list-style-type: none"> • My patients can afford the recommended therapies for chronic pain. • My patients can afford the therapies for opioid use disorder.
<p>“So, the barrier that providers would have is if they are wanting to refer, they don’t have somebody that they work with.”</p>	<ul style="list-style-type: none"> • I have a buprenorphine provider I can refer my patients to if necessary.
<p>“I am addiction certified and could get this waiver pretty easily.”</p>	<ul style="list-style-type: none"> • It is easy to acquire a buprenorphine waiver.

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