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Longitudinal association between pain severity and subsequent opioid use in prescription opioid dependent patients with chronic pain*

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Abstract

Background—Patients with prescription opioid use disorder commonly report relief of chronic pain as the chief reason for first opioid use; indeed, the prevalence of chronic pain is high in this population. Understanding the association between pain severity and subsequent opioid use is crucial for understanding how to manage these conditions simultaneously and has not been examined in this population. The aim of this analysis was to examine the proximal effect of pain severity on opioid use during 12 weeks of buprenorphine-naloxone therapy for patients with chronic pain and prescription opioid use disorder.

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Contributors/Role of Co-authors MLG participated in study design and conducted the statistical analysis and manuscript preparation. KAM was involved in manuscript preparation and critically reviewing drafts of the report. RKM participated in the statistical analysis and critically reviewed drafts of the report. GMF was involved in study design and data interpretation, oversaw the statistical analysis, and critically reviewed drafts of the report. RNJ was involved in data interpretation and critically reviewed drafts of the report. RDW designed and led the original study as well as this secondary study, was responsible for project oversight, and critically reviewed drafts of the report. All authors have approved the final manuscript.

Conflict of Interest Dr Weiss has served on the Scientific Advisory Board of Indivior. The other co-authors declared no conflict.

Methods—This study is a secondary analysis of a national, randomized, controlled trial of buprenorphine-naloxone plus counseling for prescription opioid dependent patients. The association between past-week pain severity and opioid use in the subsequent week was examined in 148 patients presenting with chronic pain at baseline.

Results—Results from a multivariable logistic regression model showed that greater pain severity in a given week was significantly associated with increased odds of opioid use in the following week over the 12-week treatment, even after adjusting for covariates associated with opioid use (aOR=1.15, $p<.001$).

Conclusions—Despite previous reports of no association between baseline pain and subsequent opioid use, our findings suggest that patients who experience flare-ups of pain during treatment are prone to relapse to opioid use. Future studies may identify those who are at risk to use opioids by carefully monitoring patterns of their pain intensity over time.

Keywords

prescription opioids; opioid use disorder; pain; treatment; outcome; addiction

1. INTRODUCTION

The presence of chronic pain reported by patients entering prescription opioid use disorder treatment ranges from 42-61% in recent studies (Cicero et al., 2008; Green et al., 2009; Rosenblum et al., 2007; Weiss et al., 2011). Understanding the association between pain and opioid use among those with prescription opioid use disorder is important, given the frequent occurrence of chronic pain in this population.

In studies of patients receiving methadone maintenance treatment, pain is often a correlate of more severe clinical problems, at baseline and during treatment. Those with chronic pain are more likely to have major medical problems (Jamison et al., 2000; Trafton et al., 2004), worse psychiatric problems (Barry et al., 2009; Jamison et al., 2000; Trafton et al., 2004), higher unemployment (Trafton et al., 2004), and worse sleep problems (Peles et al., 2006), compared to patients with either no pain or less severe pain. Interestingly, however, although the presence of chronic pain and illicit opioid use have been associated at treatment entry (Ilgen et al., 2006; Trafton et al., 2004), several studies have found no association between baseline pain and illicit opioid use during treatment (Chakrabarti et al., 2010; Fox et al., 2012; Ilgen et al., 2006). Further, a few studies have assessed chronic pain during treatment and found no association with opioid use measured at the same time (Barry et al., 2009; Dhingra et al., 2015; Fox et al., 2012). Similarly, the multi-site Prescription Opioid Addiction Treatment Study, led by our group, reported no association between baseline pain and opioid use at the end of treatment among patients with primary prescription opioid dependence (for treatment outcomes, Weiss et al., 2011; for follow-up outcomes, Potter et al., 2015).

This lack of association between chronic pain at treatment entry and opioid use at the end of treatment may be attributable in part to variation in pain severity over the course of treatment; perhaps pain is a stronger predictor of proximal opioid use outcomes than of more

distal outcomes. For example, in a 12-month follow-up study of patients in methadone treatment, 38% of patients with clinically significant chronic pain at baseline did not consistently report that level of pain throughout treatment, and another 45% who reported no pain at baseline later reported clinically significant chronic pain (Dhingra et al., 2015). Further, potential variability may have been overlooked due to the measurement of pain as dichotomous rather than continuous, resulting in a loss of sensitivity. Previous studies have focused on the presence or absence of pain, rather than on pain severity. Even when pain was initially assessed on a continuous scale, outcome analyses relied on discrete categories, either any pain or no pain (Jamison et al., 2000; Peles et al., 2006; Weiss et al., 2011); significant pain or not (Fox et al., 2012; Ilgen et al., 2006; Trafton et al., 2004); or significant pain, some pain, and little or no pain (Barry et al., 2009; Chakrabarti et al., 2010; Dhingra et al., 2015). In addition, variability in the experience of pain may be the result of variation in analgesic response to opioid agonist therapy, which has been efficacious in reducing pain overall among patients with opioid dependence (Neumann et al., 2013). However, not all patients report improvement in pain or function (Jamison et al., 2000), suggesting that the agonist analgesic effect is another factor that could affect the pain and opioid use association when considered more distally. Although earlier reports suggest that pain varies over the course of treatment, most studies examining pain and treatment outcome measure the distal association between pain at baseline and end-of-treatment outcomes. Examining the proximal effect of pain on use may control for some factors that could obscure the association between pain and treatment outcome.

Primary prescription opioid use disorder is an important problem, but little research has been conducted on pain among those who primarily abuse prescription opioids with minimal or no heroin use. Investigating the extent to which pain influences these patients' ability to abstain from illicit opioid use over the course of treatment is crucial for understanding how to manage these disorders simultaneously. The first large, multi-site, randomized controlled trial to study treatment of prescription opioid dependence provides an opportunity to address this issue. The aim of this analysis was to examine the proximal effect of pain severity on opioid use during 12 weeks of buprenorphine-naloxone therapy for patients with prescription opioid dependence and chronic pain. In particular, we sought to determine whether pain severity in a given week was associated with opioid use in the following week, after adjusting for opioid use in the previous week (i.e., the week in which the pain data were collected). This study is novel in examining the association between a continuous measure of pain severity and opioid use at weekly time intervals over 12 weeks in patients with prescription opioid dependence and chronic pain.

2. METHODS

The current secondary analysis uses data from the Prescription Opioid Addiction Treatment Study sponsored by the National Drug Abuse Treatment Clinical Trials Network; the parent study was a national, 10-site randomized controlled trial (N=653) comparing different durations of buprenorphine-naloxone treatment (a 4-week treatment phase followed for some participants with an extended, 12-week treatment phase) and different intensities of counseling (standard medical management with or without additional opioid dependence counseling) to treat patients with prescription opioid dependence (for details, see Weiss et

al., 2010b). Following approval by the Institutional Review Boards at the participating sites, participants were recruited upon entry for treatment of prescription opioid dependence. Manual-based standard medical management (Fiellen et al., 1999) consisted of medically-oriented addiction counseling delivered to all participants by a physician. In addition, half the participants were randomly assigned to receive individual opioid dependence counseling, also manual-based (Pantalon et al., 1999), by trained substance abuse or mental health professionals; these counseling sessions were more frequent and covered a wider range of issues in greater depth during longer sessions. (Manuals can be found as Supplementary Material¹) Treatment fidelity was excellent: all sessions were audiotaped, with 99% rated by independent reviewers as acceptable. All participants identified with chronic pain at baseline were monitored for pain at each medical management visit and were encouraged to use a self-guided behavioral pain management manual (Jamison, 1996); the impact of pain on recovery from substance dependence was addressed for those participants assigned to opioid dependence counseling. However, participants were not specifically treated for pain as part of the study.

Buprenorphine doses of 8-32 mg/daily were set by study physicians based on opioid use, craving, withdrawal, and adverse effects; pain was not an indication to alter dose. Participants were instructed to take the medication once per day. Treatment attendance was quite strong: 85.8% of participants attended 60% of standard medical management sessions, designated a priori as adequate; this did not vary by treatment condition. Further, 68.9% of participants assigned to opioid dependence counseling (n=74) attended an adequate number of these sessions.

Study participants met DSM-IV criteria for current opioid dependence and were 18 years old. Because this was the first large-scale trial to examine patients dependent exclusively or primarily on prescription opioids, key exclusion criteria included past-month heroin use on >4 days, a lifetime diagnosis of opioid dependence due to heroin alone, or a history of heroin injection (Weiss et al., 2010a). We also excluded those who needed to continue opioid use for pain management (as determined by the physician treating the participant prior to study entry), as well as those with current unstable psychiatric illness or on-going formal SUD treatment (for details, see Weiss et al., 2011).

2.1. Measures

Chronic pain was defined as pain beyond the usual aches and pains, lasting 3 months, in accordance with the International Association for the Study of Pain (Merskey and Bogduk, 1994), and excluding pain from opioid withdrawal. At baseline, 42% of participants met this definition of chronic pain; the current analysis is limited to those who initially reported chronic pain and participated in the 12-week buprenorphine-naloxone treatment phase ("extended treatment;" N=148), which was offered to participants who relapsed to opioid use during an initial 4-week opioid taper ("brief treatment") or during the 8-week post-taper follow-up period.

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The *Brief Pain Inventory-Short Form* (BPI-SF; Cleeland and Ryan, 1994; Keller et al., 2004) was used to measure physical pain. Originally developed for cancer pain, it is widely used to assess nonmalignant acute and chronic pain (Tan et al., 2004). The BPI-SF is considered appropriate to evaluate pain in heterogeneous samples including opioid use disorder patients (e.g., Dhingra et al., 2013). The current analysis examines the 4-item Pain Severity score (range=0-10 for each item). The total score is the mean of responses to the four items: worst pain in the last 24 hours, least pain in the last 24 hours, average pain, and pain right now, with 0=no pain and 10=pain as bad as you can imagine. In addition, this measure was used to describe pain location and a pain interference score at baseline. During the treatment study, participants who had reported chronic pain at baseline completed an abbreviated version of the BPI-SF weekly, to provide the Pain Severity score only, (1) over the past 7 days and (2) right now.

Daily use of opioids other than the study medication was assessed each week during the 12-week extended treatment phase with the *Substance Use Report* (SUR), a self-report measure using a calendar technique to facilitate recall, similar to the Timeline Follow-back (Sobell and Sobell, 1992). At each weekly visit, the SUR was corroborated by *urine drug screens*.

Additional assessments were administered to all participants at baseline. The *Composite International Diagnostic Interview* (Robins et al., 1988) was used to diagnose SUDs and other selected psychiatric disorders (major depressive disorder and posttraumatic stress disorder). The *Beck Depression Inventory II* (BDI; Beck et al., 1996), a 21-item self-rated scale, was used to measure severity of depressive symptoms. Two additional measures were developed for this study: the *Pain and Opiate Analgesic Use History* assessed opioid use history, with a focus on the association between pain and opioid use; and the *Medical and Psychiatric History*, completed by a study physician during the initial medical examination, inquired explicitly about 14 medical and 7 psychiatric disorders, as well as ensuring that participant inclusion and exclusion criteria were met.

2.2. Data analysis

Initially, the Pain Severity score and individual items were assessed for outliers and skewness. Bivariate tests examined whether sociodemographic and clinical characteristics and study variables were related to the Pain Severity score at baseline, using independent t-tests for dichotomous characteristics and Pearson correlation for continuous characteristics. Longitudinal models examined the association between the Pain Severity score at each week and the likelihood of opioid use in the following week over the 12 weeks of the extended treatment phase of the main trial. This phase provided the maximum number of weeks for analysis, with pain in weeks 1-11 related to subsequent opioid use in weeks 2-12. To account for repeated assessments of the same participants, the generalized estimating equations (GEE) approach was used when fitting a logistic regression model for opioid use. This approach does not require complete data at all weeks of follow-up; however, with 83.2% of the intended observations obtained, missing data were minimal. While Pain Severity score was the independent variable of particular interest, the model also adjusted for study treatment condition (standard medical management with or without additional opioid dependence counseling), opioid use in the previous week, gender, and other participant

characteristics identified in prior analyses as related to opioid use outcome, i.e., age, lifetime history of major depressive disorder and heroin use, prior opioid use disorder treatment, and use of opioids by a route of administration other than oral or sublingual (Dreifuss et al., 2013; Weiss et al., 2011). This model was also fit separately using each of the four individual Pain Severity item scores to evaluate the contribution of each. Data were analyzed using SPSS v.20.

3. RESULTS

3.1. Sample description at baseline

The participants with chronic pain at baseline (N=148) were 18 to 61 years old, with a mean age of 34.1 (sd=9.6). Most (87.8%) were white, with 7 to 20 years of education, mean (sd)=12.8 (2.3). Approximately half (45.3%) were female, half (54.7%) were employed full-time, and 43.2% were never married.

About one-third (33.1%) reported any prior opioid dependence treatment, and 23.6% had ever used heroin. Most (82.4%) had used opioids by a non-standard route of administration such as intranasal use or crushing. Most reported that their first source of prescription opioids was a legitimate prescription (73.6%), typically taken for physical pain (81.8%). Although most had prescription opioid dependence only, 13.5% had an additional substance dependence diagnosis.

Beck Depression Inventory scores were relatively high (mean=22.3, sd=12.1), and major depressive disorder was present in a third of the participants (33.8% current). Seventeen percent of the participants (16.9%) were diagnosed with current posttraumatic stress disorder. Overall, 52.7% had a current psychiatric disorder other than substance use disorders, including major depressive disorder and posttraumatic stress disorder, as well as other anxiety disorders (25.0%), attention deficit disorder (5.4%), and bipolar disorder (3.4%).

Most participants had active medical problems (85.8%), with a median of 2 conditions (mean=1.9, sd=1.4). The most common type of medical problem was musculoskeletal (n=92), followed by eyes, ears, nose, and throat (n=34); neurological (n=30); gastrointestinal (n=28); respiratory (n=25); dermatological (n=20); cardiovascular (n=18); and other conditions (n=27).

At baseline, approximately half of the participants reported intermittent, rather than constant, pain (53.4%) and nearly all reported pain lasting one year or more (93.9%); 52.0% reported experiencing pain for at least 4 years. The most common location of the worst pain was the spine (48.0%), followed by the lower extremities (21.6%). The mean Pain Severity score at baseline was 4.4 (sd=2.1). Using cutoff scores derived from analysis of functional interference from pain (Jensen et al., 2001; Serlin et al., 1995), 3.4% of participants reported no pain at baseline, 37.0% reported mild pain (1-4), 39.0% reported moderate pain (5-6), and 20.5% reported severe pain (7-10). (Due to variability of pain symptoms over time, 5 participants meeting the criteria for chronic pain at the initial assessment reported no pain on

the day of treatment randomization.) Pain Interference scores also varied, ranging from 0-9, with a mean of 4.2 (sd=2.6).

At baseline, each Pain Severity item was significantly correlated with the others, ranging from moderate to strong (r 's=.63-.81, with p values <.001); and each item was strongly correlated with the total score (r 's=.87-.91, with p values <.001), with Cronbach's α =.90, suggesting that this measure is reliable in this population.

Pain Severity scores at baseline were compared by sociodemographic, clinical, and study characteristics (Table 1). Fewer years of education and the presence of lifetime posttraumatic stress disorder were associated with worse Pain Severity scores. Pain Severity scores at baseline were not associated with the other sociodemographic, clinical, and study characteristics assessed.

3.2. Pain severity and opioid use over time

Eighty-five percent of participants ever reported mild pain, 58.1% ever reported moderate pain, 29.7% ever reported severe pain, and 15.5% ever reported no pain. Reports of pain severity during the 12-week buprenorphine-naloxone treatment varied for most participants (67.6%), i.e., they crossed categories (see Section 3.1. for the definition of these categories); most of these participants reported a combination of no-mild pain and moderate-severe pain ($n=70/100$). Participants who consistently reported pain within a single category over time most likely reported mild pain ($n=38/48$).

Study participants achieved substantial overall abstinence rates during treatment: 65.9% of weeks reported were opioid-abstinent. A longitudinal logistic regression model examined the association between Pain Severity score in a given week and opioid use in the following week over 12 weeks of treatment. In addition to age, gender, treatment condition, and past-week use of opioids other than the study medication, covariates were included if they were significant in the bivariate associations at baseline (Table 1) or if they significantly predicted opioid use in the main outcome study (see Section 2.2. for covariates). Pain severity was significantly associated with opioid use in the following week, after adjusting for covariates associated with opioid use outcome, including past-week opioid use: adjusted odds ratio=1.15; 95% confidence interval=1.06-1.24; $p<.001$. Specifically, every 1 point increase on the Pain Severity scores was associated with a 15% increase in the odds of opioid use in the following week, adjusted for the covariates. Described another way, crossing the categories from mild pain (1-4) to moderate pain (5-6), commonly a 2 to 3 point increase, is associated with a 32% ($1.15^2=1.32$) to 52% ($1.15^3=1.52$) increase in the odds of subsequent opioid use. These results were supported when the models were also adjusted for study site. Separate analyses of each of the four items comprising the Pain Severity Scale yielded the same pattern of associations with opioid use, in models adjusted for the same covariates (Table 2).

4. DISCUSSION

The co-occurrence of prescription opioid use disorder and chronic pain is quite common (Cicero et al., 2008; Green et al., 2009; Rosenblum et al., 2007). Among patients with both

disorders (N=148), the association between pain and opioid use was evaluated during a 12-week course of buprenorphine-naloxone therapy in a multi-site, national trial. Results from a multivariable logistic regression analysis showed that pain severity in a given week was significantly associated with opioid use in the following week over 12 weeks of treatment, despite adjusting for covariates associated with opioid use outcome, including past-week opioid use. These results are consistent with studies of chronic pain and opioid use measured at baseline (Potter et al., 2008; Trafton et al., 2004), but contradict other studies including those that measured chronic pain at baseline and opioid use during treatment (Barry et al., 2009; Chakrabarti et al., 2010; Weiss et al., 2011) or that assessed co-occurring pain and opioid use during treatment (Dhingra et al., 2015; Fox et al., 2012). None of these study designs, however, used a lagged, multivariable analysis or reported excluding pain from opioid withdrawal.

Because we previously reported in our main outcome paper no association between chronic pain at baseline (measured as present or absent) and opioid use outcome at the end of treatment (Weiss et al., 2011), it is worth noting key differences between the current analysis and the primary outcome study: (a) in the current analysis, opioid use was measured weekly during weeks 2-12 of the 12-week treatment, whereas the main outcome study focused on the last four weeks of treatment to identify successful outcomes; (b) pain severity was measured weekly, as a continuous variable, during weeks 1-11 in the current study, whereas chronic pain was considered at baseline only, as present or absent, in the main outcome study; (c) the current analysis focuses on the proximal (1-week lagged) association between pain severity and opioid use, whereas the main outcome study focused on the more distal (baseline to weeks 9-12) association between pain at baseline and opioid use at the end of treatment; and (d) the current analysis is limited to the subset of main outcome study participants who reported chronic pain at baseline (N=148 of 360).

There are several potential explanations for this association between pain and opioid use. For some patients, increasing pain might trigger craving for prescription opioids (Wasan et al., 2009); others might be using drugs to treat current pain or avoid future pain. Pain can be a strong motivator of behaviors that provide immediate relief or escape, and, accordingly, pain has been linked to greater self-administration of opioids in animal models (Martin and Ewan, 2008). Chronic pain also negatively affects inhibitory control (e.g., Apkarian et al., 2004; Verdejo-Garcia et al., 2009), thus depleting the cognitive and emotional control resources that are needed to resist urges to use opioids. Thus, pain may both increase the drive to use opioids to relieve painful states and hamper cognitive control resources needed to resist such urges.

Results from the current study, as well as in the literature presented, suggest that the *presence* of chronic pain does not necessarily predict opioid use weeks later, whereas the *severity* of pain at a particular time is associated with proximal opioid use. Perhaps monitoring pain at each visit and increasing the frequency of visits would alert clinicians to high-risk times, allowing them to help patients develop strategies to avoid returning to opioid use when pain becomes more severe, e.g., attending self-help groups.

The current study has several limitations. It represents a secondary analysis, excluding regular heroin users; hence generalizability is limited, by design, to a subset of prescription opioid users with minimal or no heroin use. Study participation excluded patients requiring ongoing opioids for pain management, so these results may not be generalizable to patients with more severe chronic pain. Since pain was reported weekly, rather than daily, some variation in pain may have been overlooked; the corroboration of our findings when examining pain “right now,” however, strengthens our findings. Although we adjusted for a number of potential confounding variables in our analyses, including past-week opioid use, the observed association may be due in part to other time-varying confounding factors (e.g., treatment attendance). Further, the sample was homogeneous racially, with high levels of employment, so it may not be representative of all prescription opioid users with chronic pain. Finally, we cannot evaluate any potential medication effect, since all study participants were prescribed buprenorphine-naloxone.

This longitudinal study is the first examination of the association between pain severity and subsequent opioid use in patients with prescription opioid use disorder. Despite previous reports of no association between baseline pain and subsequent opioid use, our findings suggest that patients who experience flare-ups of pain during treatment are prone to relapse to opioid use. Understanding the mechanism by which pain flare-ups may lead to substance use would be clinically meaningful; we intend to examine pain variability over time in future studies. Identification of those who are at risk to use opioids may be facilitated by carefully monitoring patterns of pain intensity over time.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- Pain and opioid use has not been examined in this population of non-heroin users.
- Longitudinal analysis shows pain severity precedes opioid use.
- Patients with pain flare-ups during treatment are prone to opioid relapse.

TABLE 1

Barriers to and facilitators in using a cognitive-behavioral therapy (CBT) intervention to reduce youth anxiety, by most frequently endorsed themes among 43 providers

Factor	N	%
Client		
Barriers	41	95
Stressors and comorbidities	37	86
Motivation	25	58
Age	24	56
Facilitators	15	35
Motivation	9	21
Functioning	5	12
Parent support	4	9
Intervention		
Barriers	32	74
Structure	23	53
Exposures	12	28
Length	9	21
Facilitators	36	84
Treatment components	24	56
Structure	22	51
CBT effectiveness	9	21
Organizational		
Barriers	31	72
Setting	25	58
Lack of support	15	35
No child clients	5	12
Facilitators	36	84
Support	35	81
Setting	5	12
Autonomy	3	7

TABLE 2

Qualitative theme examples among providers of a cognitive-behavioral therapy for youths with anxiety

Factor and theme	Example
Client barriers	
Stressors and comorbidities	<p>"I don't really think that CBT works well with people [who] have multiple stressors because there [are] so many aspects going on that it's really hard to pinpoint one or two goals to work on. And I feel like even if you identify a goal, if there are so many stressors, by the next week there's another goal. So I don't feel like it works that well."</p> <p>"I'd say it is probably less effective because there's just constant crisis to the family. So it's hard to and it's a slower process because the crises need to be worked on as they happen, so you can't get to what your plan is every session."</p> <p>"I think the only thing is that the population that I have been working with [in] my career is primarily [the] low-income, Medicaid population, and [with] the intensity of some of their [other] issues, the anxiety doesn't always seem to be the biggest, most salient issue to treat; the trauma and other issues come first."</p> <p>"[For] a lot of clients that I see, their main diagnoses are oppositional defiant disorder (ODD) and attention-deficit hyperactivity disorder (ADHD). And some of them are diagnosed with posttraumatic stress disorder, some of them are diagnosed with anxiety, some of them are diagnosed with depression, but the majority of the clients I see are ODD and ADHD. So I would say [that for] the ones [who] are diagnosed with ODD, it's quite difficult because they don't want to do any type of work in school. So when I try to use CBT and do these different activities with them, they don't have the patience or the compliance to really be able to sit through an entire session."</p>
Motivation	"Well certainly the ... patient willingness to participate... We also treat a number of adolescents, and as those kids get older, they seem less willing to ... practice, especially the physical stuff like the breathing exercises or progressive muscle relaxation. I don't know if they just felt awkward, but they seem less willing to [do] that, so ... just my trying to explain what we were doing and [their] kind of accepting the modality was the most difficult thing."
Age	<p>"You know it's just hard to get it across [with] young children. I find that really hard." Another provider commented, "With the older youth [kind of] being more urban and hip-hop-ish. They don't [want to] do stuff that's corny, or ... it's considered childish or not cool."</p> <p>"It works very well with 3rd, 4th and 5th graders, so ... 9, 10, and 11 year-olds, but [at] 6, 7, and 8 it's more difficult—because they're not always aware of what the negative or anxious thoughts are. And they have a more difficult time labeling them."</p>
Client facilitators	
Motivation	"I guess from before when the client appears to be motivated and [wants] to work towards it, it works really well... You know if the client wants to, they respond to it really well ... so I guess, again, the motivation part."
Functioning	"Well I would say it's easier obviously if you have someone with reasonable functioning who can process and who can differentiate between their thoughts and their feelings."
Intervention barriers	
Structure	"Well personally, especially in the beginning, I do like it because it gives me a sense of what I should be doing, and it's very helpful. However, I think it can be hurtful if—I have to remind myself not to rely on that so much and that sometimes you need to alter things."
Exposures	"So I didn't really get to that with a lot of my kids. ... I don't think that I was able to do any of the actual exposures... But I think that is really an important piece of the process as long as you have done the base work for it, kind of prepping kids for that, but I don't think that I actually got to do that work with any of my kids [because they] fell off before we were able to get to that point. They either stopped coming or they weren't coming consistently enough for me to feel ok about doing an exposure with them and maybe not seeing them next week. I felt like it was really important if you were to start doing that work to know for sure that they were going to be there the next week for us to process it and ... you know, I'm thinking that was kind of an obstacle for them."
Intervention facilitators	
Treatment components	"For the people I worked with, it was really developing coping skills, ... and so I think that recognizing signs of anxiety and trying to problem solve around addressing those [problems] worked best... The first part, the psychoeducation and the recognition of what was going on with them, was helpful."
Structure	"I think in terms of being helpful, again, I like when you explain it to [students] how their thoughts are connected to how they feel and connected to how they behave, how it is all connected, I think a light bulb goes off. So I think it really kind of helps them take control of that and see how they are in control and they have power, and I think that that could really make some positive changes for some kids."

Factor and theme	Example
	<p>“For me, I love the fact that it was mapped out and felt organized—like right around the fourth session, you should have the family involvement, that kind of thing. I like the guidance that it gave me. It was clear, it mapped out for me, and I had the materials right there for me.”</p> <p>“I think the structure is beautiful... . It was very clear when it was laid out ... the first session you should be doing this, second session you should be doing this... . That helped me have a map.”</p>
Organizational barriers	
Setting	<p>“My thoughts are changed... . When I first received the training, I thought I would be able to incorporate it more easily into my specific job, in a school-based setting. But I tried to do that, and it wasn't always as successful as I wanted it to be. And then I felt like if I were to have the specified time, you know, one hour each week with the client, I would be able to do it much better. So really just the chaotic nature of the job that I have really impeded [my] being able to successfully do the sessions consecutively.”</p>
Lack of support	<p>“The support, the supervision, was lacking, so that made it more difficult to do a new practice that I wasn't familiar with. And there was not anything specific like policies or financial issues ... except for maybe buying of rewards and things like that. ... I was financially struggling with that. I did a lot of that on my own. So that was a challenge.”</p>
Organizational facilitators	
Support	<p>“[Management] definitely support[s] it... . Through supervision, they encourage the use of CBT, they provide written materials for my training purposes, they also teach and help role play different therapy situations, and then they also bring in speakers to provide ... training opportunities or group supervision where we will watch videotape and discuss different CBT strategies.”</p> <p>“Our supervisor actually went through the training as well. So she was really clear about [our] being able to talk about the training, and how things are going, and got supervision through her ... That was really helpful.”</p> <p>“My supervisor has been appreciative and supportive of my work with kids with anxiety, so that's increased how many kids I've worked with who have anxiety. [My supervisor] has been meeting with parents... . She will talk to parents about my work with the child and suggest that I have sessions with the child.”</p>
Setting	<p>“I think [CBT is easier to implement], even in the short time that I have been in my new position, because I have a greater aspect [of] the kids because I see them every day; even if I don't see them for treatment every day, they are in school every day, so it's a lot easier to implement it.” Another provider described her students as a “captive audience,” saying, “Because they're at school, they can't go anywhere. I don't have to rely on the parents bringing them on time, keeping the appointment, forgetting to pick them up, or picking them up late.”</p> <p>“I think because I work with kids who are in residential care, all of the policies and procedures support their treatment and their therapy. So their attendance is not an issue, their participation generally I have no problems with; we also have kind of a wraparound model where we use all the other supports—the group therapy, the family therapy, the psychoeducational skills group—as adjunctive therapies to the individual work, and that supports the CBT process.”</p>
Autonomy	<p>“Considering 90% of my work is self-employed, I get to do whatever I want. [But also at] the fee-for-service [facility], we are all CBT-gear, so I am pretty much my own boss. So I make up my own policies.”</p> <p>“In my full-time job ... I have a lot of flexibility to decide types of programs or methods I would like to use with kids. In my private practice, I have no boss, I get to use whatever I want.”</p> <p>“In terms of the administration, the nice thing is ... I'm supported in whatever I do. So it is kind of nice, and I can really be very creative in what I do with students, and no one objects.”</p>