



Published in final edited form as:

Subst Use Misuse. 2014 February ; 49(3): 303–314. doi:10.3109/10826084.2013.832328.

“This is Not Who I Want to be:” Experiences of Opioid-Dependent Youth Before, and During, Combined Buprenorphine and Behavioral Treatment

Sarah K. Moore¹, Honoria Guarino¹, and Lisa A. Marsch²

¹National Development and Research Institutes, New York, New York, USA

²Dartmouth College, Department of Psychiatry, Hanover, NH, USA

Abstract

Novel, qualitative data were collected from youth in treatment for opioid dependence (2009–2010) regarding their experiences with opioid dependence and combined behavioral–pharmacological treatment. Urban youth participants were recruited from a larger randomized controlled trial examining the relative efficacy of two tapers of buprenorphine–naloxone, combined with behavioral treatment (ages 13–24 eligible). Twenty-two youth participated in 1- to 1.5-hour semi-structured interviews. A grounded theory approach guided the analysis. The results have the potential to inform the development of efficacious treatments for this growing, yet understudied, group of youth. Study implications and limitations are noted, and future research is prescribed. (NIDA #1R01 DA018297).

Keywords

adolescent; buprenorphine; opioid-dependent; qualitative; treatment; young adult

Between 2000 and 2009, the percentage of people admitted to drug treatment for problematic opioid use (including both heroin and other opioids) in the United States increased from 17% to 21.4%. The change in treatment admissions is particularly startling for adolescents and young adults (ages 12–25). For this group, the percentage of youth seeking treatment for both categories of opioids increased significantly: heroin admissions increased from 16.6% in 2000 to 25.8% in 2009 and admissions for other opioids (inclusive of prescription opioids such as vicodin and oxycontin) increased from 15.5% to 34.5%. This enormous increase in treatment admissions for other opioids is largely due to the fact that prescription opioids are now the second most commonly misused drug among both adolescents and young adults (ages 18–25). In 2011, the annual self-reported prevalence of two of the most commonly abused prescription opioids was 1.8, 3.9, and 4.9% for oxycontin, and 2.1, 5.9, and 8.1% for vicodin among 8th, 10th, and 12th graders, respectively (Johnston, O’Malley, Bachman, & Schulenberg, 2012). Although the self-

Address correspondence to Sarah K. Moore, National Development and Research Institutes, 71 W. 23rd Street, New York, NY 10010, USA; moore@ndri.org.

Declaration of Interest

The authors report no conflict of interest. The authors alone are responsible for the content and writing of this paper.

reported prevalence of heroin use has leveled off in recent years, hovering below 1% for adolescents (Johnston et al., 2012), as well as young adults (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011), mean age at first use of heroin among recent initiates (aged 12–49) was significantly lower in 2010 (21.3 years) than in 2009 (25.5 years) (SAMHSA, 2011).

In the United States and many other countries, the standard of care for opioid-dependent adults is medication-assisted therapy due to a large body of evidence in support of the use of the full μ -opioid agonist, methadone, and the partial μ -opioid agonist, buprenorphine (Mattick, Kimber, Breen, & Davoli, 2008; Mattick, Breen, Kimber, & Davoli, 2009). Both methadone and buprenorphine have been found effective in reducing problematic opioid use among adults when used as maintenance therapy over extended periods of time. Despite its' documented effectiveness in adults, medication-assisted treatment for adolescents and young adults with opioid dependence is not widely used. According to U.S. federal regulations (21CFR; Part 291) (SAMHSA, 2001), youth under 18 must verify at least two prior documented treatment experiences at a chemical dependence withdrawal and stabilization facility or an inpatient facility prior to being eligible for methadone maintenance. Parental consent is also required, which sometimes presents another hurdle to medication-assisted treatment. Additional barriers include the lack or limited availability of methadone in many parts of this country and waiting lists in others (National Institutes on Drug Abuse, 2010).

To date, treatment options for youth with problematic opioid use have been limited. A recent summary of the treatment landscape for opioid-dependent adolescents (Subramaniam, Fishman, & Woody, 2009) identifies that the “usual care” for opioid-addicted youth consists of short-term detoxification followed by varying combinations of individual and group therapy. Care usually occurs in outpatient or residential treatment settings, and these programs on the whole have not been rigorously evaluated.

Expanding the potential treatment options for young opioid users, sublingual buprenorphine (Subutex[®]) and buprenorphine–naloxone (Suboxone[®]) were approved by the U.S. Food and Drug Administration in 2003 for the treatment of opioid dependence, including youth as young as 16 years of age. Office-based buprenorphine is widely available in New York City metropolitan area (the location of the study detailed herein), however, cost is recognized by treatment-seekers and providers as a potential barrier. Some estimates show that the monthly cost for buprenorphine–naloxone can be at least 10 times that for methadone (Jones et al., 2009). However, this factor is likely to shrink in the very near future now that two companies have been approved by the Food and Drug Administration to market generic buprenorphine–naloxone combinations as of March, 2013.

To date, there have only been two published controlled trials evaluating the efficacy of buprenorphine in treating opioid-dependent adolescents and young adults. Published in 2005, a report by Marsch et al. details a double-blind, double-dummy, parallel group, randomized controlled trial of opioid-dependent adolescents (age 13–18 eligible). In this study, 36 youth were randomly assigned to a 28-day detoxification with buprenorphine or clonidine. In addition to the medication, all participants received intensive behavioral therapy and vouchers (positive incentives) for opioid-negative urines, attendance, and

weekly assessments. Results demonstrated that overall, buprenorphine, when combined with intensive behavioral therapy, was more efficacious than clonidine in treating this sample of opioid-dependent adolescents on outcomes of treatment retention, opioid-negative urines, initiation of Naltrexone, and withdrawal.

In the second and more recent study, Woody et al. (2008) conducted a larger, multisite trial as part of the National Institute on Drug Abuse's Clinical Trials Network (CTN). In this study, 152 opioid-dependent, treatment-seeking youth (ages 15–21 eligible) recruited from six community-based treatment programs across the United States were randomly assigned to one of two conditions: buprenorphine–naloxone for 12 weeks, with a dose taper gradually reducing the amount of the drug at week 9, or a 14-day buprenorphine–naloxone dose taper. Additional services provided to both treatment conditions were weekly group and individual counseling (participants assigned to the 14-day taper were offered the opportunity to remain in treatment throughout the 12-week period). Results showed that during the first 12 weeks of treatment, those in the lengthier medication condition (12 weeks) had fewer opioid-positive urines, less injection drug use, and received less outside-study addiction treatment.

While much is known about adult heroin users (Zickler, 1999), the literature on opioid-dependent adolescents and young adults is just beginning to burgeon. A review published by Hopfer, Khuri., Crowley, and Hooks (2002) located only nine articles reporting on treatment studies or clinical characteristics of opioid-using adolescents or young adults, and seven of those studies were published in the 1970s. In the past decade, we have come to better understand the clinical characteristics of the current cohort of opioid-dependent youth (heroin: Clemmey, Payne, & Fishman, 2004; Crome, Christian, Green, 1998; Eaves, 2004; Gordon, 2002; Gordon, Mulvaney, & Rowan, 2004; Hopfer, Mikulich, & Crowley, 2000; Marsch et al., 2005; McCabe, Boyd, & Teter, 2005; Motamed, Marsch, Solhkhah, Bickel, & Badger, 2008; Perry & Duroy, 2004; and Pugatch et al, 2001/prescription opioids: Sung, Richter, Vaughan, Johnson, & Thorn, 2005). This emerging literature has shown that heroin-using youth typically start experimenting with substances as young as 10 years of age; report daily use and injection administration of heroin; and experience a number of legal and/or psychiatric problems. Frequently co-occurring disorders include depressive disorders, posttraumatic stress disorder, conduct disorder, and attention-deficit hyperactivity disorder. Youth who use opioids also often engage in a variety of delinquent activities, have numerous school-related problems, and report physical pain (Chakrabarti, Woody, Griffin, Subramaniam, & Weiss, 2010). In the few studies characterizing treatment-seeking prescription opioid users, these youth have been found to be generally white and from low-income families with limited parental involvement. In addition, youth who have friends who use illicit drugs have been shown to be at greatest risk for non-medical use of prescription opioids.

Qualitative investigations are particularly well suited to topics about which little is known. Despite the urgent need to better understand opioid-dependent youth, only a handful of qualitative investigations have been conducted with this population. Several such qualitative studies have focused on heroin use among Canadian, street-involved youth (e.g. Brands, Leslie, & Catz-Biro, 2005; Small, Fast, Krusi, Wood, & Kerr, 2009), while another detailed illicit methadone use in Dublin, Ireland youth accessing treatment for their opioid

dependence (Roche, McCabe, & Smyth, 2008). To our knowledge, only three qualitative studies have been published that focus on heroin use among adolescents and young adults in the United States (Gandhi, Kavanagh, & Jaffe, 2006; Guarino et al., 2009; Perry & Duroy, 2004). The first study (Perry & Duroy, 2004) included qualitative interviews to provide insight into the quantitative results and to describe the therapeutic community treatment experience of adolescent heroin and nonheroin users, aged 14 to 17 years. Assessing the youths' perceived need for treatment, participants were asked if they felt they had "hit bottom" and many answered affirmatively. The qualitative interviews identified the formation of social support networks within the treatment program as critical to the decision to remain in treatment for both groups of interviewees.

Gandhi et al. (2006) described the characteristics of young heroin users interviewed using a semi-structured questionnaire as part of a larger study of 18- to 25-year-old heroin users seeking detoxification with buprenorphine at a drug treatment center in Baltimore, Maryland. In terms of early life history, the vast majority (89%) had exposure to a drug and/or alcohol problem among family members or friends while growing up, prior to their own use. Most of the participants considered this an important factor in their initiating drug use. In addition, almost all of the participants (96%) reported that their families knew about their drug problem. Most participants reported that continuing help from their families made treatment possible.

Last, Guarino et al. (2009) conducted focus groups with clients, staff, and clients' parents in a novel methadone maintenance program for youth to better understand their perceptions of effective components of treatment for opioid-dependent adolescents and young adults. Findings demonstrated that: despite experimentation with many other (non-opioid) drugs, youth did not typically become addicted to any of the other drugs and thus their addiction to opioids took them by surprise; youth only reached the point where they truly wanted treatment when their lives "g[ot] really bad;" despite involvement in other substance abuse treatment programs, only long-term methadone maintenance had been successful for them; and, though often crediting methadone with saving their lives, most recommended it as a treatment of "last resort," to be used on a temporary basis only, after other forms of treatment had failed.

The present qualitative study was conducted as part of a larger clinical trial examining the relative efficacy of two dose tapers of buprenorphine–naloxone (Suboxone®). The main study was a double-blind, double dummy, parallel group, randomized controlled trial of 53 adolescent and young adult participants (ages 13–24 eligible, living in the greater New York City area). Youth were randomly assigned to a 28-day or 63-day detoxification with buprenorphine. In addition to receiving medication, participants in both groups were asked to attend bi-weekly intensive cognitive-behavioral therapy (delivered via a motivational-interviewing counseling style) and submit bi-weekly urine samples for 63 days. Vouchers (i.e. slips of paper indicating cash value to be redeemed for positive noncash rewards like movie passes, food, clothing etc.) for providing opioid-negative urines, attending the program and completing weekly assessments were contingently delivered to youth during therapy sessions. This study was designed to examine the role of buprenorphine along with behavioral interventions in the early stages of a treatment and recovery process for opioid-

dependent youth (given that this is an understudied area for this population of youth). Although the study involves a buprenorphine detoxification protocol, we view this work as producing data to inform a line of research designed to understand therapeutic models along the entire path of treatment and recovery support.

Youth were automatically discharged from the program if they missed three consecutive counseling sessions, urine sample collections, or medication-dosing visits. Otherwise, there were no negative sanctions for missed appointments or medication visits, or for submitting opioid-positive urine samples.

The paucity of scientific literature on opioid-dependent youth, as well as the difficulties experienced recruiting participants for the aforementioned trial, prompted the decision to collect qualitative, interview-based data to enable a better understanding of how to optimally tailor treatment to youths' individual needs. These data are intended to provide a rich set of clinically meaningful information that can both expand our understanding of the efficacy of the treatments under investigation, as well as inform future directions of clinical research with the population of opioid-dependent youth. The aims of this qualitative sub-study were to explore and describe the subjective experiences of opioid dependence and treatment for opioid dependence among youth.

MATERIALS AND METHODS

Participants

This report is based on a subsample of 22 adolescents and young adults (out of a total sample of 53 participants recruited and randomized into the main study) who met criteria for opioid-dependence, were between 13 and 24 years old, and consented to participate in the main study as well as this substudy. All 22 participants in the qualitative substudy were over the age of 18 at the time they were interviewed. Attempts were made to contact and conduct qualitative interviews with all 53 participants in the main study. The primary reasons for nonparticipation in the qualitative interviews were difficulties in contacting participants due to homelessness, incorrect phone numbers on file (i.e. numbers changed or disconnected subsequent to study participation), or repeatedly not reaching youth and leaving messages that were never returned. Only five people actively declined to be interviewed.

Procedures: Qualitative Substudy

The appropriate Institutional Review Boards and regulatory bodies approved both the main study and the qualitative substudy. Audiotaped, 1- to 1.5-hour qualitative interviews were conducted by a Ph.D. level researcher well trained in qualitative research. All youth were interviewed after participating in the main trial. Fourteen youth enrolled in the main trial after the qualitative substudy was initiated, while eight youth participated in the main study prior to the initiation of the qualitative substudy. Among the fourteen who enrolled in the main trial after the qualitative substudy had begun, interviews were conducted either within 3 months of completion of the main study (for those who completed treatment) or within 3 months following discharge (for those who did not complete treatment). For the eight youth who enrolled in the main trial prior to the start of the qualitative substudy, the time between

study participation and interview ranged from 3.5 months to 22 months, with an average of 12.5 months. Despite the limitations due to the passage of time and the potentially limited recall of nuances related to dependence and treatment, collecting qualitative data from prior participants as well as new participants allowed us to obtain a more comprehensive set of qualitative information. Participants received \$35.00 as compensation for their time to complete the qualitative interviews, which were conducted at places of mutual convenience for the participant and interviewer (e.g., cafes, participants' homes, local parks, etc.). Efforts were made to ensure confidentiality in public settings.

Qualitative Interview

The qualitative interview consisted of a set of open-ended, semi-structured questions reflecting the research aims. The interview guide included the following questions: (1) please describe how opioids affected your life prior to coming into our program; (2) help me understand what brought you to the point where you felt you needed to change your behavior around your opioid use; (3) please tell me about your motivation at the start of treatment. Were there things that enhanced your motivation? Hindered motivation?; (4) please give your reasons for selecting this particular form of treatment; and (5) describe your treatment experience in terms of your expectations coming in and your actual experiences. Scripted prompts were provided when participants seemed confused about a question or did not offer much of a response to initial questions.

Analysis

A grounded theory approach guided the content-based analysis. This type of approach is characterized by a focus on developing hypotheses through theoretical coding, after the data are collected. An outside consultant, hired by the research institute, transcribed the de-identified audio-taped interviews. Transcriptions were re-checked for accuracy by research staff, and two Ph.D. level research team members coded the open-ended questions: the Co-Principal Investigator, well-trained in qualitative methods, and an ethnographer. These research team members: independently reviewed several transcripts to identify patterns and develop initial code lists; met for consensus sessions to compare and revise codes; independently reviewed several additional transcripts with the revised code list; and met again to compare responses within and across codes. During consensus sessions, discrepancies were discussed and reconciled between the coders. A final code list emerged which was then used to review all other transcripts. No new codes emerged from this process. Quotations presented herein were chosen to reflect the views of the majority of opioid-dependent youth participating in the study. All participant names have been changed to ensure confidentiality.

RESULTS

Participant Characteristics

Almost all qualitative substudy participants were Caucasian (95%), with the exception of one young woman who described herself as Hispanic/Black, and 14 (63%) were male. These race and gender characteristics are consistent with other published reports involving the recent cohort of treatment-seeking youth dependent on opioids (Subramaniam & Stitzer,

2009) and reflect wider epidemiological trends in the New York City area where the majority of youth who misuse opioids are white males. Samples of opioid-dependent, treatment-seeking adults evidence more variability in terms of race (Wu et al., 2010).

At the time of their enrollment in the main trial, 16 interviewees (73%) were between 19 and 24 years of age, whereas the remainder fell between 16 and 18 years of age. (Despite a broader range of age eligibility, no youth aged 13–15 participated in the larger study.) The average age of the subsample was 20 years old. The vast majority ($n = 18$: 82%) used heroin and the other four participants used either both heroin and prescription opioids ($n = 2$), or only the latter ($n = 2$). Slightly over half (55%) used opioids via injection. Participants' daily opioid intake was categorized as either less than 3 bags of heroin (or equivalent in other opioids) daily or 3 bags or more of heroin (or equivalent in other opioids) daily; 64% (14) of the subsample used more than three or more bags of heroin (40–60 mgs heroin/bag on average, \$10/bag, potentially 50%–80% pure—approximations specified for location in which study was conducted), or other opioid equivalent, daily. Ten participants completed the entire 63-day treatment program (45%). Three interviewees (14%) did not continue treatment past induction day one. Finally, a majority of 13 participants (59%) had been randomized to the 28-day medication taper condition (see Table 1 for a comparison of characteristics of youth who participated in qualitative interviews with those of the total sample of trial participants).

The Lives of Opioid-dependent Youth Prior to Entering Treatment

Consequences Mount—These opioid-dependent youth reported that their lives were unraveling in the period just before they made the decision to enter the treatment program. Most described a litany of consequences of opioid use and generally felt, like Matt, that “there wasn’t like really, you know, the straw that broke the camel’s back—it was just a culmination of everything altogether.” The culmination amounted to many unintended consequences across life domains: educational (skipping school, failing classes, dropping out, loss of scholarships), financial (job loss, robbing strangers, stealing from friends and family, no money to spend on anything but opioids, homelessness), legal (arrests, probation, jail time, and generalized fear of such consequences), social, and physical (withdrawal, hepatitis C, sexual dysfunction, overdose, fist fights, and the risks to self when procuring opioids in dangerous places). As in other youth samples, it is largely fear of the symptoms of withdrawal that functions to maintain opioid use among these youth once recreational use becomes dependence (Gandhi et al., 2006). Most indicated that if they did not have opioids in their system they “could not function normally.” Alice said that “[withdrawal] is like experiencing what it might be like to be insane ... I totally hated it, and I wanted to use drugs so I wouldn’t feel it.”

Given the gravity of the consequences of opioid use experienced by these youth, it is unsurprising that relationships with family members were often described as “disintegrating.” Not all youth lived with parent(s); however, among those that did, parents noticed changes in youth and youth behaved in ways that drew attention (arguing, lying, stealing, not going to class, etc.). For Lydia, “obviously it negatively impacted my family. I was stealing. I pawned like wedding rings ... this just served as like a further wedge between

us.” In some instances, parents rallied behind their children, working hard to identify treatment programs. Most of those participants whose parents were aware of the extent of their opioid use made statements such as Frank, “she [participant’s mother] tried to help me a lot of times, and I just kind of rejected her.” However, several youth reported that family members were instrumental in helping them make the decision to get help. “I kept on hurting my family by lying to them, so preventing me from hurting them was my big motivation [to enter treatment].” [Steve]

The emotional consequences of participants’ opioid use were mixed. Some began using opioids to proactively self-medicate feelings they found difficult to manage (i.e. depression, anxiety, anger); in other words, opioids initially seemed a solution to a problem for some. When Anna was “younger, I was diagnosed with borderline. And all of that went away when I was using.” Her fiancé had similar experiences with heroin’s effect on his obsessive compulsive symptoms: “all my little like quirks and little things I always have to do, they always feel less important like when I’m high,” and anger: “I always get like temper problems, like I’d yell really easily... And that wouldn’t happen [when he did heroin].” Generally speaking, the beneficial consequences of opioid use were reported by youth early on in their use histories. The negative effects were detailed once use had progressed to dependence. By the time Alice “got to the end [ready for treatment again], it was like I need to be numb so that I don’t have to be so disgusted with myself and my life and what it’s become.” Others, like Matt, identified negative feelings as byproducts of their use: “it [daily use of opiates] really put me into like a dark place and I was very depressed and just upset with myself that, you know, I let it get to that point.” At the point at which youth contacted the program for help, all were some self-described version of “miserable” due to the catch-22 of efforts to curtail use aptly described by Anna: “once I stopped using, it all came back and, you know, threefold, it was a lot worse.”

Once opioid intake had progressed to dependence and daily use, almost all participants described opioid use as socially isolating. Descriptions of feeling almost incapable of relating to others are best represented by Frank who said that he “kind of felt like a monster ... I couldn’t talk to people.” Most were stealing from friends and family, which drove people away. Others were beginning to isolate to protect themselves and others. Frank said that “There was nobody I wanted around me cause I’d just fuck everybody over,” and Collin knew that when he was by himself “I [didn’t] feel as much the urge to use ... also I [didn’t] hurt as bad.” Thus, isolating oneself amounted to remaining in some semblance of control for the benefit of those they might harm, whether themselves or others. The shame of dependence that served to isolate her was plain for Alice when she highlighted that “anybody that didn’t approve of my lifestyle was no longer—was cut out.” Just prior to entering treatment, the majority had lost interest in social activities altogether and all they “wanted to do was drugs.” In so doing, Doug “got closer to a different group of people.” While this might sound social, Matt clarified that he “really didn’t have any friends, it was more people I got high with.”

And Life Telescopes—Participants detailed daily routines that engendered isolation. These routines were variously described by the youth as: “a pattern and no matter what time of day it is, it’s just this pattern that keeps repeating (Hugh);” “instead of seeking

fulfillment, fun, companionship, excitement through activities with friends, sports, school, whatever, it [opioid use] became the path of least resistance to get that feeling (Griffin);” and “every single day I would wake up and use and then figure out what hustles I needed to do to get money, or if I was working, I would have to make sure I had enough dope to get through the workday so I could make money so I could go get more dope for the next day (Alice).” When asked at what point Lydia felt she needed to change her behavior around her opioid use, she answered, “when it became not a supplement to something I did or enhance something I did. It became what I did, all I did, and all I thought about. It was just no life.” Once dependent, youths’ days were spent getting money, getting drugs, and getting high. Their lives had telescoped to a predictable routine that left little, if any, room for alternative interests.

The Process of Realizing Help is Needed

Ambivalence/Decisional Balancing—Ambivalence with respect to whether they were genuinely ready to get help pervaded the responses of these youth: “I didn’t want to stop doing drugs altogether, but heroin I just realized was almost too much of a responsibility (Anna);” “Every day, I’m like, damn, it would be really nice to get high, the high is so good. When you actually get high, it’s real good. But there’s just so many other things that I want right now more than that high (Alice);” “I felt like if I ended up in jail, I will probably kill myself [due to withdrawal associated with being cut-off from opioid source]. So I was like getting clean on my own accord is better than killing myself (Alice).” Frank put it most bluntly when he said, “I wasn’t really ready at all, but I just wanted change.” These manifest, verbal demonstrations of decisional balancing acts, or weighing the pros and cons of continued use, punctuate the interviews throughout participants’ responses to questions regarding readiness to change.

Loss of Control and Moments of Clarity—When these youth were asked what brought them to the point where they felt they needed to change their behavior around their opioid use, two seemingly conflicting themes emerged within individual interviews. Most “didn’t see where it all went wrong” but simultaneously spoke of how they “saw how it actually was.” Shelly captured the conflict in one sentence: “I can be seemingly extremely self-aware but at the same time still be doing the wrong thing.” When trying to summarize their lives under the influence of opioids just prior to seeking treatment, most youth attested to a loss of control: “it was such a daze,” “my goals just disappeared,” “it was never the day to stop and that’s how it ends up turning into a year, 2 years ... because it is never that day [the day to stop].”

Interwoven with these characterizations of a loss of control were statements attesting to moments of clarity or vision. For Lamont:

There was a time in my life where...I was able to find my next fix without actually doing that much harm to like society or to anybody ... But once those times were over *it was time to see the nasty side of myself* and there was no way of making money without harming anybody. I wasn’t the true Lamont I used to be, and you know, it bothered me *because I started realizing like this is not who I am, this is not who I want to be for the rest of my life*

... I was just getting tired and bored doing the same thing over and over again for like the past 3, 4 years, you know? [*italics added for emphasis*]

This passage reveals two themes that help make sense of participants' process of gaining self-control. The first noteworthy insight of Lamont's was that it eventually became time to "see" how his behavior affected others. Other youth similarly spoke of times when they "felt like people were looking at me like, 'damn, that kid is fucked up.'" Or in the case of Sue and her boyfriend, they themselves were looking at a friend "who was just really, really high [on heroin]" and they thought he looked "disgusting, and the way he was acting, he wasn't even himself." Sue concluded "wow, that's us a lot of the time." The theme of seeing one's addictive behavior, if but for a moment, pervades the youths' interviews and is significant in what it reveals about the process of getting to the point of asking for help. Lamont's sense that "this is not who I am" is reflected in the comments of several youth who spoke of having momentary glimpses of themselves, as if looking in from outside.

The second theme evidenced in Lamont's above-cited quotation and reflected across many other interviews is the use of the future tense or future-oriented thinking: "This is not who I want to be." They see themselves in the moment *and* struggle to envision this current self in the future. Caleb realized "I really can't be doing this for the rest of my life." Doug's wealthy friend was arrested for heroin possession and was swiftly rescued by bail, a good attorney, etc. Highlighting the power of this experience for him, Doug said "if I were to get caught, and get in a problem with the law, I'm screwed, my life is over. Somebody's not going to be able to bail me out ... If I go to jail ... — I realized how huge that was."

Being able to step outside and see the opioid-dependent self, if but for a moment, and to imagine how the routines engendered by opioid dependence fit with other aspects of one's life and future proved a crucial step in a process of realizing help was needed. This appears to be what the youth are describing when they speak, on the one hand, of not knowing how it all happened (denoting loss of control) and on the other hand, are able at discrete times to step outside of the immediacy and impulsivity of their using selves to envision that self in the future, understanding that continued daily use of opioids is incompatible with health, maintaining relationships with friends or family, staying out of jail, staying in school and countless other alternative interests.

Reasons for Selection of, and Experiences with, Behavioral Therapy Combined with Buprenorphine

After describing life prior to entering treatment, youth were then asked questions regarding their experiences with treatment. The following results detail reasons for the selection of, and experiences with, behavioral therapy combined with buprenorphine. Despite the oftendire nature of the descriptions of life prior to entering treatment detailed above, participant descriptions of actual experiences with treatment offer hope.

Buprenorphine: "Worked as Advertised"—Youth were asked about their reasons for selecting the particular form of treatment offered. A majority indicated that medication-assisted detoxification with buprenorphine was the most compelling treatment component offered and actual experiences did not disappoint: "You don't withdraw ... you take that and

it's like you've never taken an opiate in your life (Caleb);" and "It really helped me to stop and it made it very easy, you know, it was seamless (Matt)." Two youth reported they "didn't feel a thing" (i.e. unpleasant withdrawal symptoms continued). One young woman said that she had a "love-hate" relationship with buprenorphine. She loved its ability to effectively eliminate all withdrawal symptoms as well as cravings; however, because it is so effective, she felt it made continued heroin use more feasible in that she now had a solution to the negative side effects of opioid dependence.

Introducing another important reason why these youth sought buprenorphine, in particular, Sue clarified, "[because] it's not methadone, methadone is like liquid handcuffs, you're never going to get off of it. I don't see it as treatment." Many other youth agreed: "[methadone] ruins people. It's ten times worse [than heroin]." Echoing this notion of methadone being more difficult than heroin to kick, Elliot thinks "it's [buprenorphine] got all the benefits of methadone with ... not as much of the drawbacks. It provides you with the feeling that you're looking for without being harder to quit than the drugs that you're trying to replace." [Note: none of these youth had actually been in methadone treatment]. Embedded in these reflections on different medications were clear preferences for detoxification over maintenance. All of the youth reported that they were seeking freedom from dependence on any drug, and all but one had a strong preference for outpatient programming for the primary reasons of being able to maintain other aspects of one's life (e.g. school, work, etc.), and the increased privacy afforded by the outpatient modality.

Staff: "Professionalism and Friendliness"—When youth were asked to describe their treatment experience in terms of their expectations coming in and their actual experiences, the responses were near uniform. Although the majority of interviewees reported that the medication worked better than expected, equally salient for them was that their expectations of staff were resoundingly exceeded. One-third of the interviewees mentioned that their initial contact with the project's staff members during a phone screen was a reason for selecting this treatment program. Caleb said, "you know, that triggered it [decision to enter our program]—she's [research nurse] really nice, really helpful, like you know, even on the phone, she sounded like she really wanted to help." (Note: initial contact phone screens usually took about 20–30 min during which time staff collected information on eligibility, including how youth were currently feeling. Staff members were instructed to listen carefully, be empathetic, and convey a sense of urgency to schedule an intake as soon as possible.)

Once in the door, youth generally found the staff to be welcoming. For example, Hugh reported that he "had a good relationship with everyone in the program. They were all so friendly and you didn't feel like you came here as a junkie ... nobody ... treats you as if you're any less than them ... [I] didn't think that in the world of medicine, friendliness and professionalism could come together." Caleb felt that "in some cases, many cases, [staff] went above and beyond ... in the beginning I was, I was sick one day and missed an appointment, and [a research nurse] came in on her day off [to provide take-home medication allocated for that day]." Most striking was Adelaide's comment that she was more motivated to try to make this time in treatment work because "after going through the whole 6-hour session [induction], you kind of feel like you bonded with those people [staff]

... I could tell that you guys genuinely cared about my success and my progress and my life and I mean that makes all the difference in a program. I didn't want to let you guys down."

Vouchers: "It was Kind of Like Working"—After medication-assisted treatment with buprenorphine and the outpatient nature of the services offered, interviewees most frequently commented on the voucher-based component as a main reason for selecting this form of treatment. In one interviewee's words, "I was going to get paid to be clean!" Various descriptions as a good "idea" or "technique," the youth overwhelmingly appreciated the treatment component of contingently rewarding opioid-negative urines, clinic attendance, and assessment completion for total possible earnings of almost \$800.00. Many prefaced their remarks by noting that they "never did it for the money," but for Matt and others, "it was definitely a motivating factor;" "it felt like you were kind of working, like you weren't wasting your time ... someone agrees with you that it's [getting clean is] hard and feels the need to tell you you're doing a good job."

DISCUSSION

There are several important findings worthy of discussion: (1) participants described the decision to seek treatment in terms of a culmination of consequences; (2) the process of "seeing" oneself proved catalytic to the decision to seek treatment; (3) isolation prior to seeking treatment, described in great detail by most of the participants, served to anchor opioid dependence; (4) engagement with staff functioned to facilitate entry into treatment as well as treatment retention; and (5) buprenorphine was widely recognized as an effective treatment medication for both heroin and prescription opioids.

The first important finding is that there was "no straw that broke the camel's back" *per se*; rather, an accumulation of unintended, negative consequences of drug use impelled youth to get help. Thus, reaching "bottom" for these youth meant acknowledging the systemic nature of their opioid use and how it impacted a broad array of life domains. This pervasive theme is consistent with a behavioral economic understanding of self-control. Researchers studying choice several decades ago theorized that engaging in an activity depends on other available activities and their associated environmental constraints (Premack, 1965), as well as the chosen activity's reinforcement value relative to the reinforcement obtained from other activities (Herrnstein 1970). In other words, what we choose to do at any given moment is critically affected by the broader environmental and temporal context in which the behavior occurs. This finding has implications for treatment in that clinicians who have the opportunity to speak with opioid-dependent youth may help them move through stages of change by encouraging them to fully account for how their opioid dependence is embedded in all the different systems in which they participate. In addition, clinicians may help youth to understand how opportunities to engage in alternative activities are critically constrained by their choice to continue to use opioids.

The second important finding is also pertinent to the decision to enter treatment. In addition to taking into account the broader environmental context, when interviewees were asked to describe the point at which they felt they needed to change their behavior around their use, they describe having momentary glimpses of themselves, as if looking in from outside—or

from the vantage point of a separate self. These glimpses of the current self as beleaguered were often future oriented: “*this is not who I want to be.*” Youth looked into the future, (i.e. considered the temporal context) to envision how their drug use would fit with who they wanted to be, and what they wanted for themselves. According to relative addiction theory (part of the behavioral economic worldview), faulty perception of one’s own behavior is often the biggest obstacle to controlling behavior (Rachlin, 2000). This idea surfaces repeatedly in the interviews with youth. They “don’t know how it all happened,” and it is only when they can peer into the future and try to fit their drug use behavior into larger contexts that it becomes possible to begin to make a commitment to remaining abstinent.

Consistent with this idea that a more realistic perception of one’s behavior may lead to greater self-control, William Miller, an architect of the well-supported motivational interviewing counseling style (MI) for eliciting behavior change states:

At least two things happen when it [MI] is done well. First, I believe that the client is able to see, saliently, some of the consequences of his or her own behavior, as from the perspective of an observer. Call it shame or conscience or hidden observer, there is a conscious process of perceiving in a new way, of seeing, feeling, contingencies. Second, I believe that we also lend clients our perspective of hope for them... From the merged perspective of empathy, the person sees that something is possible, and the seeing begins to make it possible... It is somehow helping the client see that he or she can do it (Miller, 1998).

Although interviewees did not talk about the benefits of a supportive listener, they instead spoke of playing that role for themselves. They could “see” the possibilities for themselves. When substance-dependent youth enter treatment, they generally do so in response to external pressures from families, schools, or the legal system (Battjes, Onken, & Delaney, 1999). While acknowledging some pressure from friends and family, youth in the present study were primarily motivated to enter treatment as a result of active calculations of how drug use fit with their envisioned futures, i.e. they estimated the value (or price) of drug use relative to other reinforcers. The opioid-dependent youth in this study had begun to see how the costs of using opioids were outweighing the benefits. This finding suggests certain therapeutic techniques that may be useful with opioid-dependent youth; for example, clinicians may encourage young people to make friends with their future selves by writing to their present selves from the perspective of their envisioned future, or possible, selves (Markus & Nurius, 1986). In this way, the inconsistency between their dismay or disgust with their current selves and their hopes for their future selves may create cognitive dissonance, often a powerful agent for behavior change.

The third important finding is that the faulty perception of one’s own behavior mentioned above is driven by the drug use itself, as well as the isolation engendered by the drug use. Without other people around on a daily basis, the mirror youths’ social lives had provided to reflect back their own behavior was shattered. One of the central assertions of relative addiction theory is that lack of social support is crucial to the behavioral processes that lead to addiction (Rachlin, 2000); certainly, the isolation described by interviewees seems to have served to anchor their dependence. As these youth became more dependent, they gradually lost most, if not all, of their social support. Of relevance to this finding, there is evidence that

entry into treatment among injection drug users is significantly affected by whether they are living “alone.” In a study of 245 injection drug users attending a needle exchange program, those who lived alone were found to be 1.7 times less likely to enter treatment than those who were responsible for children or other adults, and 2.3 times less likely to enter treatment than those who were living with a sexual partner (Lloyd et al., 2005). Among persons dependent on alcohol, relapse has been found to be significantly more frequent among those with low social support (Vuchinich & Tucker, 1996). The present results suggest that increasing opioid-dependent youths’ social support may be a promising way to encourage their entry into and continuation of treatment, as well as a means of preventing relapse.

The fourth important finding is that for the youth in this study, engagement with staff was reported to be one of the most important reasons for selecting the treatment offered, as well as one of the most critical aspects of their treatment experience. For most isolated, opioid-dependent youth, reaching out to a treatment program is an enormous step, given that their social skills may not be as proficient as they may once have been, and even speaking with a stranger on the phone may ask much of them. Engagement has long been understood as a necessary precursor to any successful treatment protocol (Fiorentine, Nakashima, & Anglin, 1999). Interviewees appreciated staff for: the time they made available to explain what the youth might expect on a daily basis; helping them to understand what treatment is all about (as some were in treatment for the first time); being positive as opposed to punitive; being nonjudgmental; and for respecting confidentiality. While certainly not sufficient, engaging youth in treatment is a necessary early process, without which little progress can be made.

Engagement is important, but without effective treatments, opioid-dependent youth will likely find it extremely challenging to gain traction to change their behavior around their drug use. Among this sample, a fifth important finding is that interviewees lauded buprenorphine for its ability to reduce cravings, eliminate withdrawal symptoms, and “take [their] mind[s] off of it [opioid use].” Due to the neurochemical changes that accompany opioid dependence and the increasingly strong empirical support for medication-assisted treatment for opioid-dependent youth, it is likely that buprenorphine will become a more common intervention for the growing population of youth who seek treatment for their opioid dependence. Given the stigma associated with methadone maintenance treatment among youth in this sample and others, it is encouraging to learn how “miraculous” most found buprenorphine to be.

These 22 opioid-dependent adolescents represent only themselves. Despite this, useful knowledge has come from this study. Further investigation is recommended among different populations of opioid-dependent youth, e.g., homeless youth, youth in various cultural contexts. Although the purpose of qualitative research is not to achieve generalizability of findings, the small sample size must be noted as a limitation. In particular, the overrepresentation of treatment completers in the subsample skews the data in favor of those with potentially more favorable evaluations of treatment due to their success. On the other hand, these are the youth who could most fully evaluate the treatment offered due to their more complete experiences with the total treatment package. Balancing the completers, the subsample also included three youth who were retained only for the first day of medication induction. A related limitation is the fact that the study sample was recruited from a single

treatment program in one geographic area. Lastly, there is also the potential problem of social desirability bias. Despite strong exhortations by the interviewer to speak candidly about their experiences in treatment, it is possible that participants reported a rosier picture of their experiences in our program than was accurate.

The large increase in drug treatment admissions for problematic opioid use among adolescents and young adults points to the critical need to design effective treatments and to deliver them well. To do so, it is imperative to better understand the lives of these understudied youth who become opioid dependent. Hypothesis generation about the process of realizing help is needed (prompting treatment-seeking), as detailed in this discussion, may assist those who work with opioid-dependent youth by providing important insights into how to help young people move further along the stages of change.

In this study, social support emerged as a potentially critical factor encouraging both treatment-seeking, as well as treatment retention. Future research is needed to better understand how to improve youths' social support, particularly among family members, as well as how to support those who are isolated from their families due to their drug use, delinquency, and/or other socially marginalizing behaviors. The current generation of opioid-dependent youths' stigmatization of methadone maintenance treatment warrants further investigation particularly considering the medication's success in treating adults dependent on opioids.

The finding regarding perceptions of methadone highlights the importance of better understanding how adolescents and young adults dependent on opioids differ from their adult counterparts, if in fact they do. There is growing clinical evidence that adolescence represents a period of heightened biological vulnerability to addictive substances (Chambers, Taylor & Potenza, 2003) leading some to suggest that addiction is a developmental disorder (Volkow & Li, 2004). While there are no guidelines as to how pharmacological treatment for opioid-dependence should differ for youth versus adults, a developmental perspective seems critical to informing a pharmacotherapy decision for adolescents and young adults dependent on opioids (Stotts, Dodrill, & Kosten, 2009). Specifically, a broad assessment of a youth's life is necessary at intake due to the different transformations that may have played a part in the onset of misuse (biological—e.g., maturation of prefrontal cortex; psychological—e.g., ego development; social—e.g., parental control; and role—e.g., getting a job). The high prevalence of comorbid psychiatric disorders among these youth suggests that addressing comorbidity with substance use will likely lead to more comprehensive and effective care. Finally, an additional consideration with youth versus adults is the role parents may be able to play in treatment given that family therapies have emerged as “best practice” treatments in drug treatment for youth (Ozechowski & Liddle, 2000).

Data from this novel qualitative study thus offer valuable information that may inform clinical practice for this population, as well as future research efforts.

GLOSSARY

Behavioral Economics

The study of behavior allocation within a system of constraint and examination of conditions influencing the consumption of commodities

Buprenorphine

Partial opioid agonist meaning that although buprenorphine is an opioid, and thus can produce typical opioid agonist effects and side effects such as euphoria and respiratory depression, its maximal effects are less than those of full agonists like heroin and methadone

Dose taper

The act of gradually lowering the size or amount of a medication

Grounded theory

An inductive methodology involving the systematic generation of theory from systematic research

Motivational interviewing

An evidence-based practice in the treatment of individuals with substance use disorders involving a collaborative, person-centered form of guiding to elicit and strengthen motivation for change

Relative addiction theory

A part of behavioral economics that relies on processes of behavioral allocation rather than on internal physiological or cognitive mechanisms. The main assertion of relative addiction theory is that social support—the benefit obtained from social activity—is crucial to the behavioral processes that lead to addiction

References

- Battjes RJ, Onken LS, Delaney PJ. Drug abuse treatment entry and engagement: Report of a meeting on treatment readiness. *Journal of Clinical Psychology*. 1999; 55(5):643–657. DOI: 10.1002/(SICI)1097-4679(199905)55:5<643::AID-JCLP11>3.0.CO;2-S [PubMed: 10392794]
- Brands B, Leslie K, Catz-Biro L. Heroin use and barriers to treatment in street-involved youth. *Addiction Research and Theory*. 2005; 13(5):477–487. DOI: 10.1080/16066350500150624
- Chakrabarti A, Woody GE, Griffin ML, Subramaniam G, Weiss RD. Predictors of buprenorphine–naloxone dosing in a 12-week treatment trial for opioid-dependent youth: Secondary analyses from a NIDA clinical trials network study. *Drug and Alcohol Dependence*. 2010; 107:253–256. [PubMed: 19948382]
- Chambers RA, Taylor JR, Potenza MN. Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *American Journal of Psychiatry*. 2003; 160(6):1041–1052. [PubMed: 12777258]
- Clemmey P, Payne L, Fishman M. Clinical characteristics and treatment outcomes of adolescent heroin users. *Journal of Psychoactive Drugs*. 2004; 36:85–94. DOI: 10.1080/02791072.2004.10399726 [PubMed: 15152712]
- Crome IB, Christian J, Green C. Tip of the national iceberg? Profile of adolescent patients prescribed methadone in an innovative community drug service. *Drug Education/Prevention Policy*. 1998; 5:195–197. DOI: 10.3109/09687639809006685

- Eaves CS. Heroin use among female adolescents: The role of partner influence in path of initiation and route of administration. *The American Journal of Drug and Alcohol Abuse*. 2004; 30(1):21–38. DOI: 10.1081/ADA-120029864 [PubMed: 15083552]
- Fiorentine R, Nakashima J, Anglin MD. Client engagement in drug treatment. *The Journal of Substance Abuse Treatment*. 1999; 17(3):199–206. PII: S0740-5472(98)00076-2. [PubMed: 10531626]
- Gandhi DH, Kavanagh GJ, Jaffe JH. Young heroin users in Baltimore: A qualitative study. *The American Journal of Drug and Alcohol Abuse*. 2006; 32:177–188. DOI: 10.1080/00952990500479290 [PubMed: 16595322]
- Gordon SM. Surprising data on young heroine users in treatment. *Behavioral Healthcare Tomorrow*. 2002; 11(5):SR30. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12360789>.
- Gordon SM, Mulvaney F, Rowan A. Characteristics of adolescents in residential treatment for heroin dependence. *The American Journal of Drug and Alcohol Abuse*. 2004; 30(3):593–603. DOI: 10.1081/ADA-200032300 [PubMed: 15540495]
- Guarino HM, Marsch LA, Campbell WS, Gargano S, Haller DL, Solkhah R. Methadone maintenance treatment for youth: Experiences of clients, staff and parents. *Substance Use and Misuse*. 2009; 44(14):1979–1989. DOI: 10.3109/10826080802494800 [PubMed: 20001689]
- Herrnstein RJ. On the law of effect. *Journal of the Experimental Analysis of Behavior*. 1970; 13(2): 243–266. DOI: 10.1901/jeab.1970.13-243 [PubMed: 16811440]
- Hopfer CJ, Khuri E, Crowley TJ, Hooks S. Adolescent heroin use: A review of the descriptive and treatment literature. *Journal of Substance Abuse Treatment*. 2002; 23(3):231–237. PII: S0740-5472(02)00250-7. [PubMed: 12392810]
- Hopfer CJ, Mikulich SK, Crowley TJ. Heroin use among adolescents in residential treatment for heroin dependence. *American Journal of Drug and Alcohol Abuse*. 2000; 30(3):593–603. DOI: 10.1081/ADA-200032300)
- Johnston, LD., O'Malley, PM., Bachman, JG., Schulenberg, JE. Monitoring the future national results on adolescent drug use: Overview of key findings, 2011. Ann Arbor: Institute for Social Research, The University of Michigan; 2012. Retrieved from <http://www.monitoringthefuture.org/pubs/monographs/mtf-overview2011.pdf>
- Jones ES, Moore BA, Sindelar JL, O'Connor PG, Schottenfeld RS, Fiellin DA. Cost analysis of clinic and office-based treatment of opioid dependence: Results with methadone and buprenorphine in clinically stable patients. *Drug and Alcohol Dependence*. 2009; 99(1–3):132–140. [PubMed: 18804923]
- Lloyd JJ, Ricketts EP, Strathdee SA, Cornelius LJ, Bishai D, Huettner S, et al. Social contextual factors associated with entry into opiate agonist treatment among injection drug users. *American Journal of Drug and Alcohol Abuse*. 2005; 31(4):555–570. DOI: 10.1081/ADA-200068114 [PubMed: 16320434]
- Markus H, Nurius P. Possible selves. *American Psychologist*. 1986; 41(9):954–969. DOI: 10.1037/0003-066X.41.9.954
- Marsch LA, Bickel WK, Badger GJ, Stothart ME, Quesnel KJ, Stanger C, et al. Comparison of pharmacological treatments for opioid dependent adolescents: A randomized, controlled trial. *Archives of General Psychiatry*. 2005; 62:1157–1164. Retrieved from <http://archpsyc.jamanetwork.com/article.aspx?articleid=209002>. [PubMed: 16203961]
- Mattick RP, Breen C, Kimber J, Davoli M. Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. *Cochrane Database of Systematic Reviews*. 2009 Jul 8.(3):CD002209.doi: 10.1002/14651858.CD002209.pub2 [PubMed: 19588333]
- Mattick RP, Kimber J, Breen C, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *Cochrane Database of Systematic Reviews*. 2008 Apr 16. (2):CD002207.doi: 10.1002/14651858.CD002207.pub3 [PubMed: 18425880]
- McCabe SE, Boyd CJ, Teter CJ. Illicit use of opioid analgesics by high school seniors. *Journal of Substance Abuse Treatment*. 2005; 28(3):225–230. DOI: 10.1016/j.jsat.2004.12.009 [PubMed: 15857722]
- Miller WR. Toward a motivational definition and understanding of addiction. *The Motivational Interviewing Newsletter for Trainers*. 1998; 5(3):2–6.

- Motamed M, Marsch LA, Solkhah R, Bickel WK, Badger GJ. Differences in treatment outcomes between prescription opioid-dependent and heroin-dependent adolescents. *Journal of Addiction Medicine*. 2008; 2(3):158–164. DOI: 10.1097/ADM.0b013e31816b2f84 [PubMed: 21768987]
- National Institutes on Drug Abuse. Buprenorphine treatment: A training for multidisciplinary addiction professionals. 2010. Retrieved from <http://www.attcnetwork.org/explore/priorityareas/science/blendinginitiative/documents/TrainersManual.doc>
- Ozechowski T, Liddle HA. Family-based therapy for adolescent drug abuse: Knowns and unknowns. *Clinical Child and Family Psychology Review*. 2000; 3(4):269–298. [PubMed: 11225740]
- Perry PD, Duroy TLH. Adolescent and young adult heroin and non-heroin users: A quantitative and qualitative study of experiences in a therapeutic community. *Journal of Psychoactive Drugs*. 2004; 36(1):75–84. DOI: 10.1080/02791072.2004.10399725 [PubMed: 15152711]
- Premack, D. Reinforcement theory. In: Levine, D., editor. *Nebraska symposium on motivation*. Lincoln: University of Nebraska Press; 1965. p. 123-179.
- Pugatch D, Strong LL, Has P, Patterson D, Combs C, Reinart S, et al. Heroin use in adolescents and young adults admitted for drug detoxification. *Journal of Substance Abuse Treatment*. 2001; 13(3): 337–346. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/11693456>.
- Rachlin, H. The lonely addict. In: Bickel, W., Vuchinich, R., editors. *Reframing health behavior change with behavioral economics*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers; 2000. p. 145-164.
- Roche A, McCabe S, Smyth BP. Illicit methadone use and abuse in young people accessing treatment for opiate dependence. *European Addiction Research*. 2008; 14(4):219–225. DOI: 10.1159/000149631 [PubMed: 18679031]
- Small W, Fast D, Krusi A, Wood E, Kerr T. Social influences upon injection initiation among street-involved youth in Vancouver, Canada: A qualitative study. *Substance Abuse Treatment, Prevention, and Policy*. 2009; 4(8)doi: 10.1186/1747-597X-4-8
- Stotts AL, Dodrill CL, Kosten TR. Opioid treatment: Options in pharmacotherapy. *Expert Opinion in Pharmacotherapy*. 2009; 10(11):1727–1740.
- Subramaniam GA, Fishman MJ, Woody G. Treatment of opioid-dependent adolescents and young adults with buprenorphine. *Current Psychiatry Reports*. 2009; 11(5):360–363. DOI: 10.1007/s11920-009-0054-5 [PubMed: 19785976]
- Substance Abuse and Mental Health Services Administration (HHS). Opioid drugs in maintenance and detoxification treatment of opioid addiction. Final Rule, 21 CFR Part 291, 42 CFR, Part 8. 2001 Jan 21. (Docket No. 98N – 0617, RIN 0910 – AA52). Retrieved from <http://www.dpt.samhsa.gov/pdf/regs.pdf>
- Substance Abuse and Mental Health Services Administration. Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2011. NS-DUH Series H-41, HHS Publication No. (SMA) 11-4658 Retrieved from <http://www.samhsa.gov/data/NSDUH/2k10NSDUH/2k10Results.htm>
- Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Treatment Episode Data Set (TEDS). 2010. Retrieved from <http://www.dasis.samhsa.gov/webt/NewMapv1.htm>
- Sung HE, Richter L, Vaughan R, Johnson PB, Thorn B. Non-medical use of prescription opioids among teenagers in the United States: Trends and correlates. *Journal of Adolescent Health*. 2005; 37(1):44–51. DOI: 10.1016/j.jadohealth.2005.02.013 [PubMed: 15963906]
- Volkow ND, Li TK. Drug addiction: The neurobiology of behaviour gone awry. *Nature Reviews*. 2004; 5:963–970.
- Vuchinich, RE., Tucker, J. The molar context of alcohol abuse. In: Green, L., Kagel, JH., editors. *Advances in behavioral economics*. Volume 3. Substance use and abuse. Norwood, NJ: Ablex; 1996. p. 133-162.
- Woody GE, Poole SA, Subramaniam G, Dugosh K, Bogenschutz M, Abbott P, et al. Extended vs short-term buprenorphine–naloxone for treatment of opioid-addicted youth: A randomized trial. *Journal of the American Medical Association*. 2008; 300(17):2003–2011. DOI: 10.1001/jama.2008.574 [PubMed: 18984887]

Wu LT, Ling W, Burchett B, Blazer DG, Shostak J, Woody GE. Gender and racial/ethnic differences in addiction severity, HIV risk, and quality of life among adults in opioid detoxification: Results from the National Drug Abuse Treatment Clinical Trials Network. *Substance Abuse and Rehabilitation*. 2010; 1:13–22.

Zickler P. High-dose methadone improves treatment outcomes. *NIDA Notes: Focus on Treatment Research*. 1999; 14(5) Retrieved from <http://archives.drugabuse.gov/NIDANotes/NNVol14N5/HighDose.html>.

Biographies



Sarah K. Moore, Ph.D., MSW, is an independent researcher focused on adolescent and young adult opioid-using populations with a keen interest in developing an optimal model of care to address their multiplicative needs. She specializes in qualitative and mixed methodological approaches. Dr. Moore received her Ph.D. in Social Work from the University of Illinois at Chicago and completed a Postdoctoral Fellowship at National Development and Research Institutes (NDRI). At NDRI, she was a Co-Investigator and/or Project Director on multiple NIDA-funded projects involving behavioral-pharmacological interventions for opioid-dependent adolescents, computer-delivered substance abuse treatments for adolescents, as well as computer-delivered prescription opioid abuse prevention efforts with youth. Dr. Moore is additionally interested in the intersection of adolescents and young adults, chronic pain, and addiction. She currently consults for HealthSim, Inc., a group specializing in the research and development of intervention and prevention science products.



Honoria Guarino, Ph.D., specializes in qualitative, mixed-methods and ethnographic research regarding the social aspects of substance abuse and HIV/AIDS. Dr. Guarino received her Ph.D. in Anthropology from the University of Arizona. For the past 12 years, she has worked for National Development and Research Institutes directing numerous NIDA-funded research projects relating to issues of substance abuse and HIV/AIDS. Currently, she serves as Principal Investigator of a mixed-methods study to investigate the social contexts of drug use and HIV/HCV risk among young, opioid-using immigrants from the former Soviet Union and as Co-Investigator/Ethnographer for a study of nonmedical

prescription opioid use and associated patterns of HIV/HCV/STI risk among young adults in New York City. She also directs two clinical trials that have developed and are evaluating technology-based behavioral health interventions—one for chronic pain patients with aberrant opioid-taking behavior and one for opioid-dependent individuals in methadone maintenance treatment.



Lisa A. Marsch, Ph.D., is the Director of the Center for Technology and Behavioral Health (CTBH) at the Psychiatric Research Center at Dartmouth College and a faculty member of the Department of Psychiatry in the Geisel School of Medicine at Dartmouth. CTBH is a P30 “Center of Excellence” supported by the National Institute on Drug Abuse at the National Institutes of Health, composed of an interdisciplinary research team, focused on the development, evaluation, and strategic dissemination of technology-based therapeutic tools targeting substance use, HIV, and co-occurring behavioral health issues. These activities are designed to generate research findings that may lead to transformations in the delivery of evidence-based behavioral health care using technology (www.c4tbh.org). Dr. Marsch has also led a line of research focused on developing and evaluating models of combined behavioral and pharmacological treatments for opioid-dependent adolescents. She additionally conducts research focused on prevention of prescription opioid misuse among youth.

TABLE 1

Demographic comparisons

	Total trial sample (<i>n</i> = 53)	Qualitative subsample (<i>n</i> = 22)
Gender		
Male	58% (31)	63% (14)
Female	42% (22)	37% (8)
Age at intake		
13–18	36% (19)	17% (6)
19–24	64% (34)	73% (16)
Primary opioid at intake		
Heroin	84% (45)	82% (18)
Other	16% (8)	18% (4)
Route of administration		
Intravenous (IV)	58% (31)	55% (12)
Other (e.g. IN, smoke, oral)	42% (22)	45% (10)
Daily opioid intake		
< 3 bags heroin, or equivalent	72% (38)	36% (8)
3 bags heroin, or equivalent	28% (15)	64% (14)
Duration of retention in RCT		
63 Days	27% (14)	45% (10)
2–62 Days	64% (34)	42% (9)
Induction day only	9% (5)	13% (3)
Average # days retained	35.6	42.7
Treatment condition		
28 days (1-month taper)	53% (28)	59% (13)
63 days (2-month taper)	47% (25)	41% (9)