Published in final edited form as:

Psychol Addict Behav. 2012 December ; 26(4): 812–820. doi:10.1037/a0029107.

The Role of Perceived Belongingness to a Drug Subculture Among Opioid-Dependent Patients

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Abstract

Illicit drug use frequently occurs in a context of a drug subculture characterized by social ties with other drug users, feelings of excitement and effectiveness deriving from illicit activities, and alienation from mainstream society. Identification with this subculture is recognized anecdotally as a barrier to recovery, but clear quantification of individual differences in perceived belongingness to the drug subculture has been absent from the literature. The purpose of this study was to describe the development and psychometric properties of a brief self-report measure designed to assess this construct, the Belongingness to Drug Culture Questionnaire (BDCQ). Ninety-six opioid-dependent, methadone-maintained participants completed the BDCQ, related self-report measures, and assessment of drug use patterns. The BDCQ demonstrated high internal consistency ($\alpha = 0.88$) and was significantly associated with self-reported days of drug use in the past 30 days, desire to quit, impulsivity, psychopathy, and social, enhancement and coping drug use motives. These findings encourage continued psychometric evaluation of the BDCQ and study of the role of belongingness in the development and maintenance of substance use disorders.

Keywords

subculture; substance use; opioid dependence; belongingness; affiliation; identity

Belongingness—or the degree to which one identifies with particular persons or groups—has long been considered to be influential in the initiation of drug use, with research demonstrating that identification with peer groups, cultures, or communities can serve as either a risk or a protective factor for deviant behaviors (Battistich & Hom, 1997; Duncan, Boisjoly, Kremer, Levy, & Eccles, 2005; Nasim, Belgrave, Jagers, Wilson, & Owens, 2007). However, the impact of belongingness in later stages of drug use and abuse is less understood. The correlates of long-term illicit drug use, including alienation from family and mainstream society, unemployment, and risky behaviors (e.g., drug dealing, property crime, and violence) are associated with a drug use subculture that runs contrary to many of the values of mainstream culture. As individuals gain skills (e.g., finding drugs, making money through illicit means) in this culture and social connection to its members a perceived belongingness to this culture may develop. Moreover, chronic drug use may create a context

in which belonging to a subculture of drug use may supersede motivations or the perceived ability to belong to more mainstream, drug-free communities.

To date, discussion of belongingness to drug subculture has been mainly anecdotal (Hughes, 2007; Bell, 2010; Singer, 2006; Mullen & Hammersley, 2006; McIntosh & McKeganey, 2001). Treatment providers consider it essential to encourage patients to break their affiliation with drug subculture and to develop new lifestyle patterns more conducive to abstinence. This may include distancing oneself from established social networks, refraining from illicit and/or maladaptive behaviors that generate excitement or a sense of worth, and participating in a more traditional society. However, patients often feel marginalized from traditional society due to drug use and/or delays in the attainment of traditional role responsibilities or achievements. In short, individuals in treatment are encouraged to forgo the sense of identity that the social connection, excitement, and sense of competence and mastery that belonging to a deviant subculture provides, without necessarily being able to enter successfully into the dominant culture.

Although accounts of drug subculture are varied and complex, four clusters of cultural elements have been consistently identified across accounts of illicit drug subculture and communities: (1) alienation from mainstream society, (2) strong social ties with other drug users, (3) feelings of excitement/pleasure and (4) feelings of effectiveness/mastery deriving from illicit drug use and other associated risky behaviors. Taken together, these domains may comprise the core elements of an overarching construct of affiliation with drug culture.

First, as individuals form stronger ties to drug subculture, they are increasingly isolated from mainstream culture roles and society. For example, only a minority of heroin addicts are employed prior to or upon admission to treatment programs (estimated employment rates of 11–35%; Platt, 1995; Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2008). Users also face significant stigma from the mainstream culture, including drug-free family members and care providers (Mullen & Hammersley, 2006; McLaughlin & Long, 1996). For example, one study of perceived discrimination in a sample of 1008 illicit drug users found that over 75% of the sample had been rejected by family members and 23% had been prevented from obtaining medical care due to drug use (Ahern, Stuber, & Galea, 2007). Furthermore, a strong association has been established between illicit drug use and homelessness (Fountain, Howes, Marsden, Taylor, & Strang, 2003; Neale, 2001), which results in further alienation and marginalization from the larger society.

Second, strong social ties emerge among drug users. Drug use is a social activity; locating, purchasing, and consuming drugs is a bonding ritual for some (Neale, 2002). As use increases, one's social network shrinks and becomes populated mainly by other users (Van Der Poel & Van De Mheen, 2006). Qualitative accounts suggest that drug-using friends offer practical and emotional support; they may protect one another from overdose or share information about dealers (Neale, 2002). Although, as some suggest, these relationships may be founded mainly on mutual self-interest in obtaining drugs, several narratives suggest that acts of kindness and cohesiveness are not absent from the drug using community (Hanson, 1985; Neale, 2002; Singer, 2006). One study of social networks in individuals at-risk for HIV found that in a subsample of injection drug users, 64% of users reported overlap

between their “drug networks” and “social support networks” (Suh, Mandell, Latkin, & Kim, 1997).

Third, drug subculture offers shared value placed on the excitement and pleasure of drug use and the associated deviant behaviors. Among subcultures built around a specific drug, strong beliefs exist that one’s specific drug of choice is the “best high” (Golub et al., 2005). For example, interviews with heroin users describe a sense of tedium and boredom with neighborhood life that drives users to relapse (Mullen & Hammersley, 2006). Rosenbaum (1981) uses the terms “the high” and “the life” to describe two reinforcing aspects of use. “The high” reflects the immediate pleasurable effects of substance use, while “the life” reflects the fact that for many, life as a regular user offers something to look forward to and brings more meaning, excitement, and opportunity than a “straight” lifestyle.

Lastly, as individuals become entrenched in drug subculture, they may derive a sense of purpose and efficacy from success with the tasks associated with this culture (e.g., finding drugs, making money through illicit sources, avoiding being caught by authorities). One’s self identity becomes tied up in drug use such that even one’s positive sense of self derives from their drug habit or related illicit/maladaptive behaviors. In a series of qualitative interviews, heroin addicts describe how quitting resulted in a loss of focus and direction which was “akin to losing a job” (Mullen & Hammersley, 2006). For many, the “drug scene” may offer more opportunity for prestige and respect than the “straight” life (Neale, 2002; Hanson, 1985). Because many users have faced social exclusion and lack of opportunities *prior* to using drugs, delinquent behavior and drug use may provide a sense of mastery not afforded to them in the wider culture (Buchanan, 2004).

Overall, the literature suggests that key elements of drug subculture include alienation from mainstream society, strong social ties with other drug users, and feelings of excitement and worth deriving from illicit drug use and associated behaviors (e.g., obtaining drugs, engaging in theft or drug dealing). The presence of these four themes across narrative accounts, qualitative interviews, and clinical experience with individuals struggling with addiction suggest that they are common elements of many drug users’ experience. Importantly, belongingness to drug subculture is an individual difference variable that may impede engagement in and efficacy of treatment. For example, for opioid-dependent individuals, integration with a larger community (as measured by more positive perceptions of community and higher rate of employment) helps identify those who choose to seek treatment as compared to those who do not (Schwartz, Kelly, O’Grady, Mitchell, & Brown, 2011). In contrast, higher rates of drug use within one’s social network is associated with reduced rates of treatment seeking and poorer treatment outcome in samples of injection drug users (Booth, Corsi, & Mikulich, 2003; Brewer, Catalano, Haggerty, Gainey, & Fleming, 1998; Gogineni, Stein, & Friedmann, 2000; Lloyd et al., 2008; Schroeder et al., 2001). Hence, drug use, treatment engagement, and treatment response are contingent on social group affiliation; increased exclusion from the dominant culture and stronger membership in drug subculture are associated with more negative outcomes.

For individuals whose social network consists mostly of fellow drug users, who feel alienated from the larger community, and who derive strong feelings of mastery and

excitement from their drug use, the perceived rewards of continued drug use may outweigh those of treatment engagement and sustained recovery. Thus measuring individual differences in belongingness to drug subculture may provide important clinical information in populations of illicit drug users. The purpose of this study was to describe the development and psychometric properties of a self-rated measure called the Belongingness to Drug Culture Questionnaire (BDCQ).

The impetus to develop the BDCQ came from our clinical observation of the characteristics of a cohort of outpatients who continued to abuse drugs despite the combination of methadone maintenance treatment (MMT) and focused psychotherapy. These clinical observations were subsequently refined in relation to findings in the drug abuse literature (described above). Opioid replacement therapies are associated with positive outcomes from many patients; however, high rates of continued drug use, treatment drop-out, and subsequent relapse are also common (Kleber, 2008). Thus, the identification of barriers to treatment engagement and success is of particular importance in this population. Although belongingness to drug culture is likely elevated in non-treatment seeking illicit drug users, its measurement is especially relevant in treatment-seeking patients because it may elucidate characteristics that, when modified through treatment, may aid recovery. Accordingly, following early scale development, we recruited a sample of MMT patients as the initial validation sample for the BDCQ.

In the current study, the internal consistency reliability and the convergent and incremental validity of the BDCQ were examined in a sample of individuals currently undergoing methadone maintenance treatment for opioid dependence. To remain consistent with our theoretical characterization of belongingness to drug culture, items were developed based on the four conceptual categories described above (alienation, social connection, excitement, and effectiveness). We hypothesized that both total scale scores and scores within these four conceptual domains would demonstrate adequate internal consistency. We hypothesized that BDCQ total scores would be positively associated with recent drug use and regular drug use in close interpersonal relationships, as well as negatively associated with desire to quit. Additionally, we hypothesized that BDCQ scores would be related to measures of perceived belonging to an undefined social group, impulsivity, drug use motives, and psychopathy.

Method

Participants

The initial validation sample consisted of 96 opioid-dependent patients receiving methadone maintenance treatment (MMT) at one of two outpatient clinics in the Boston area. In order to meet eligibility criteria, participants were required to be at least 18 years of age, able to read and understand English, and currently receiving MMT. Details regarding the demographic characteristics of the study sample are presented in Table 1. The sample was 54% female and predominantly Caucasian (77%). Level of education varied, with approximately 16% with less than a high school degree, 54% with a high school degree (or equivalent), and 30% with more than a high school education. Participants had been receiving methadone and counseling treatment at their current clinic for an average of 33

months. Eighty-seven percent ($n = 83$) of participants reported that they had not worked in the past 30 days.

Procedures

Participants were recruited specifically for this study by posted signs in the methadone dosing area at the two participating methadone maintenance clinics. Following an explanation of study procedures, participants provided written informed consent and completed a packet of self-report questionnaires, and provided authorization for release of specific information from clinic files (see below). Participants received a \$10 gift card for completing all study questionnaires. The Boston University Institutional Review Board approved all procedures.

Measures

Belongingness to Drug Culture—The Belongingness to Drug Culture Questionnaire (BDCQ; Appendix A) is a self-report questionnaire measuring individual affiliation with drug subculture. Twenty-eight items were developed from the four conceptual categories of drug subculture reviewed above: (1) excitement related to drug seeking and use, (2) sense of effectiveness in obtaining drugs, (3) social connection with other drug users, and (4) alienation from traditional society. To ensure that the questions reflected generally accepted definitions of these constructs, some items were derived from scales of acculturation, sensation-seeking, and social support, but modified for relevance to the context of drug use and subculture. To maximize the applicability of the BDCQ to heterogeneous groups, the readability of items was assessed during scale development and items were adjusted accordingly to best approximate American Medical Association recommendations for the reading level of patient materials (Ad Hoc Committee on Health Literacy, 1999). Likewise, formatting and linguistic elements that may negatively influence comprehension level of items (e.g., reverse-scored items, linguistic difficulty; McHugh, Rasmussen, & Otto, in press; Shumway, Sentell, Unick, & Bamberg, 2004) were not included in this measure. Responses are rated on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). BDCQ total scores are calculated by summing all items.

Impulsivity—The UPPS Scale (Whiteside & Lynam, 2001) is a 44-item self-report measure of four personality factors hypothesized to underlie impulsive behaviors: sensation seeking, (lack of) premeditation, (lack of) perseverance, and urgency. The measure has demonstrated strong internal consistency reliability for each of the four subscales and has been linked to self-report of risky behaviors (e.g., Whiteside & Lynam, 2003). In the current sample, the UPPS subscale scores demonstrated high internal consistency reliability (sensation seeking $\alpha = 0.79$; premeditation $\alpha = .76$; perseverance $\alpha = .75$; urgency $\alpha = .82$).

Interpersonal belonging—The Interpersonal Needs Questionnaire (INQ; Van Orden, Witte, Gordon, Bender, & Joiner, 2008) is a 12-item self-report questionnaire designed to measure beliefs about the extent to which individuals feel connected to others. Using a 7-point Likert scale, individuals rate the degree to which each item is true for them. The INQ contains 2 subscales: perceived belongingness and perceived burdensomeness. Higher scores on the INQ reflect greater levels of “thwarted” belongingness and burdensomeness,

respectively. The INQ has been shown to have high internal consistency, and evidence for its construct validity is encouraging (Van Orden, et al., 2008; Van Orden, 2009). In the current sample, internal consistency was strong for both subscales ($\alpha = .85$ for belongingness and $\alpha = .78$ for burdensomeness).

Motives for drug use—The Drug Use Motives Questionnaire (DUMQ; Cooper, Russell, Skinner, & Windle, 1992) is a 15-item self-report inventory designed to provide an assessment of coping, social and enhancement motives for alcohol use. A modified DUMQ was used to assess non-alcohol drug use motives (as utilized by Mueser, Nishith, Tracy, DeGirolamo, & Molinaro, 1995). All three subscales demonstrated strong internal consistency in the current sample ($\alpha = .89$ for coping, $\alpha = .88$ for social, $\alpha = .83$ for enhancement).

Psychopathy—The Levenson Self-report Psychopathy Scale (LSRPS; Levenson, Kiehl, & Fitzpatrick, 1995) is a 26-item measure designed to measure psychopathic attitudes and beliefs based on Hare's Psychopathy Checklist (Hare, 1991). It has been strongly associated with more comprehensive self-reported and clinician-rated measures of antisocial tendencies in a number of populations ranging from college students to institutionalized criminal offenders, and has also been shown to predict antisocial behavior (Levenson, Kiehl, & Fitzpatrick, 1995; Seibert, Miller, Few, Zeichner, & Lynam, 2010; Brinkley, Schmitt, Smith, & Newman, 2001). In the current sample, internal consistency was adequate ($\alpha = .75$). We anticipated that psychopathy would be related to BDCQ scores because a number of traits characterizing psychopathy are also implicated in belongingness to drug culture, such as sensation-seeking, violation of social norms, and disregard for the law.

Social network drug use: Participants were asked to list the initials of up to 3 people they feel closest to, and to report whether each person uses illicit drugs regularly.

Desire to quit: Participants were asked to rate their desire to stop using drugs on a scale from 1–10, with 10 being the greatest desire, and 1 being the least.

Days of drug use: Number of days of illicit drug use in past 30 days was also collected via self-report.

Clinical record data: The following information was assessed from each participant's clinic record: 1) participants' oral toxicology test results for the past 3 months, and 2) date which participants initiated MMT. Oral swab drug tests are administered to patients on a random basis (15 or 24 times per year at each respective clinic). Due to limitations in the availability of these data, for 36 participants, drug test results were only available for one month prior to study participation. Given the presence of missing data and the infrequent nature of drug testing, the relationship of this data with BDCQ scores was considered a secondary analysis.

Readability: The ability of patients to read and comprehend measure items is a critical element of measure validity. Readability formulas provide an estimate of the reading grade level required to understand a text. Three common readability formulas were used to examine the reading grade level of the BDCQ: the Flesch Reading Ease formula (Flesch,

1948), the SMOG Readability formula (McLaughlin, 1969), and the FORCAST formula (Kern, Sticht, Welty, & Hauke, 1976). The results of these three formulas were averaged to provide an estimate of reading grade level. This was done to minimize the limitations of any one formula. Instructions and measure items were evaluated separately.

Statistical Analysis

Data analyses were conducted using SPSS version 16.0. Item selection was a two-stage process. First, in order to confirm that the BDCQ items adequately represented the four conceptual domains of belongingness to drug culture described in the introduction, item-domain correlations were conducted. All items with a corrected item-domain total correlation of $< .30$ were removed in an iterative fashion starting with the poorest performing item, as per the recommendation by Nunnally & Bernstein (1994). Second, to ensure the unifactorial relevance of the scale and to maintain the intended use of the scale relative to providing a single index of strength of belongingness, we removed all items with a corrected item-total correlation of $< .30$ in the same iterative manner. Inter-item consistency reliability (Cronbach's alpha) was calculated for total BDCQ scores and each conceptual domain based on the remaining items. Pearson correlations were conducted to evaluate the convergent and divergent validity of the BDCQ and other measures. Statistical significance was set at $p < .05$ for all analyses.

Results

Descriptive statistics for all measures are presented in Table 2. Four items (see Appendix B) were removed from the BDCQ due to corrected item-domain total correlations of less than 0.3. Two additional items were removed following this due to corrected item-total correlations of less than 0.3. All remaining items had standard deviations ranging from 1.70 to 2.36. The final 22-item scale (see Appendix A) had high internal consistency reliability ($\alpha = 0.88$) and item-total correlations ranging from 0.30 to 0.66. Internal consistency for the four conceptual domains of the BDCQ ranged from $\alpha = 0.58$ (alienation) to $\alpha = 0.78$ (effectiveness; see Table 4 for all values). The readability analysis provided support for good readability relative to recommended standards, with instructions written at a reading grade level of 5th grade and items at a level of 7th grade.

The inter-correlation matrix of total BDCQ scores and other study measures is presented in Table 5. BDCQ scores were significantly associated with self reported days of drug use in the past 30 days and a lower desire to quit. BDCQ scores were also associated with coping, enhancement, and social drug use motives. The BDCQ shared significant variance with both impulsivity (each of the four UPPS subscales) and the measure of psychopathy and was positively associated with greater levels of thwarted belongingness and burdensomeness as assessed by the INQ.

Given that BDCQ scores were significantly associated with self-reported drug use, but not with occasional clinic-administered random drug test results, we also examined consistency between the two drug use variables within subjects. Forty percent ($n = 38$) of participants reported at least one day of illicit drug use in the past month, and forty percent ($n = 38$) tested positive for illicit drug use in the past month. The concordance rate between past-

month drug use and toxicology results was 73% (see Table 3), a rate which is consistent with other studies (Darke, 1998). Of those who reported at least 1 day of illicit drug use in the past month, 10 (30%) had not received a positive drug test result in the previous month. Of individuals who reported no drug use over the past 30 days, 12 (25%) had tested positive for illicit drugs.

Discussion

The BDCQ appears to be an internally consistent measure that demonstrates favorable construct validity. In addition to high internal consistency for total scale scores, the items within the four conceptual domains also demonstrated generally adequate internal consistency. The items assessing “alienation” ($\alpha = .58$) had lower internal consistency than the other domains, which may reflect the heterogeneity of the items within this group (e.g. family rejection, perceived societal discrimination). Overall, these results warrant further exploration of the psychometric properties (e.g., latent factor structure) and clinical and research utility of the BDCQ.

As expected, the questionnaire was significantly and positively correlated with impulsivity, psychopathy, thwarted belongingness (to a general, unspecified group of “others”), and drug use motives, constructs which are theoretically related to the conceptualization of belongingness to drug culture. These associations were of low to moderate strength, suggesting that the BDCQ is adequately distinct from these measures. The highest association (reflecting 36% shared variance) was with the measure of psychopathy, perhaps indicating the degree of alienation or non-acceptance of dominant cultural values in favor of an illicit subculture membership. Psychopathy is itself associated with substance use and linked to poor treatment outcome (Alterman, Rutherford, Cacciola, McKay, & Boardman, 1998). As a related concept to psychopathy, assessment of the perceived belongingness to a drug subculture attends to potentially modifiable contextual factors that maintain patients’ drug use. It has been suggested that for drug-dependent individuals, many of the traits and behaviors assessed in antisociality and psychopathy measures might be better conceptualized as functional responses to and consequences of one’s environment rather than true psychopathy (Darke, Kaye, & Finlay-Jones, 1998). The current research extends this perspective, underscoring the role of a drug user identity that may be a useful target for treatment.

Individuals who scored higher on the BDCQ reported more frequent past-month drug use as well as lower desire to quit. Among the wide range of variables assessed that are thought to influence drug use, BDCQ scores were one of the few that were significantly associated with self-reported use. These results indicate that the BDCQ may be a useful clinical tool to identify those at risk for continued use during substance dependence treatment. Examination of BDCQ scores among non-treatment-seeking drug using individuals and prospective examination of belongingness as a barrier to treatment success will be important to understanding the value of this construct for understanding substance use disorders.

Several of our hypotheses were not confirmed. Total BDCQ scores did not correlate significantly with drug test results. One possible explanation is that drug tests at the

methadone clinics are administered approximately 1–2 times per month, which may not be frequent enough to serve as an adequate measure of drug use. In the current sample, 30% of individuals who reported using within the past month received negative drug test results for that month, suggesting that use is likely higher than drug tests results indicate. In addition, we anticipated that belongingness would be associated with social and enhancement motives for drug use, but did not hypothesize an association between the BCDQ and coping motives. Further evaluation of why belongingness is associated with coping motives (e.g., via greater negative affect or depressive symptoms) will help to understand this association.

The measure of peer use administered in this study asked participants to list their three closest relationships and whether or not each individual used drugs regularly. This peer use variable did not correlate significantly with BDCQ scores; however, it was significantly associated with self-reported drug use. This suggests that the BDCQ may not have captured important aspects of social network use that are tied to drug use. The social-related items such as “I belong when I am with other drug users” speak of other drug users in broad terms as a uniform population. These items may not acknowledge differences in attitudes toward drug users as a whole and peer users; participants could hold negative perceptions of drug users more generally that are inconsistent with their beliefs about their friends and family members who use illicit substances. More detailed evaluation of drug use within social networks is an important area for future research. In addition, treatments such as 12-step programs or job promotion (contingency management) interventions for drug abuse (DeFulio & Silverman, 2011; Wong & Silverman, 2007) may directly modify a patient’s social cohort, providing an additional context for examining the predictive significance of BDCQ in these programs as well as its modification by select treatments.

This study has a number of limitations. First, all participants were methadone-maintained opioid-dependent individuals; thus the extent to which these results can be generalized to non-treatment seeking drug users or those receiving other types of treatment is unclear. Because all participants were engaged in treatment, we could not assess the degree to which the BDCQ could identify those most likely to drop out of or otherwise refrain from treatment. This is an important target for future study. Additionally, the relatively high education level as well as the high proportion of Caucasian and female participants may limit the generalizability of the current results. Future studies should include program-wide implementation of BCDQ in order to avoid potential selection bias based on these characteristics.

Drug test results from the previous 3 months were available for only 60 participants, and were collected on a monthly schedule. Future examination of the BDCQ should examine its prospective prediction of drug use utilizing a higher density of objective drug measures. Additionally, it is important to note that our results also occur within the context of methadone clinic culture. While belonging to one culture does not preclude affiliation with another, it serves as a reminder that a number of cultures (whether ethnic, institutional, or other) may exert unique interactive effects on each individual. Finally, conclusions cannot be made regarding the factor structure of the BDCQ. Our results support the use of BDCQ total scale scores due to strong internal consistency; however, further research is needed to

explore whether the conceptual domains drawn from in the development of the measure reflect unique latent factors under the higher-order factor of belongingness, which may have utility as measure subscales.

The current study demonstrates that belongingness to drug culture may be importantly related to the course and treatment of substance dependence, and that the BDCQ may be a useful tool for clinical work and further study in this area. These results are in line with the growing literature arguing that treatment research must look beyond the physiological processes of addiction and overemphasis on the drug itself, and instead fully consider the context in which drug use occurs (Buchanan, 2004; Keane, 2007). Relatedly, research suggests that individual differences in “recovery capital,” the sum of one’s resources that can be used to recover from problematic substance use, are predictive of sustained recovery and life satisfaction in substance users (Cloud & Granfield, 2008; Laudet & White, 2008). Belongingness to drug culture may be one “ingredient” of negative recovery capital that may reduce motivation and engagement in treatment and ultimately, treatment success (Cloud & Granfield, 2008). Our initial findings encourage continued psychometric evaluation of the BDCQ as well as evaluation of the role of belongingness in the onset and maintenance of drug use disorders and its potential to be modified in treatment.

Acknowledgements

Effort on this project for Dr. Otto, Dr. McHugh, and Ms. Hearon was supported by DA17904. In the last 2 years Dr. Otto has received research support from Organon (Merck). No other author received industry support.

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Appendix A. 22-item BDCQ

Directions: Please read the items below and rate how much you agree with each of them.

1	2	3	4	5
---	---	---	---	---

6	7			
Strongly
Disagree		Neutral		Strongly
Agree
_____	1.	I belong when I am with other drug users.		
_____	2.	I am better than other people at finding drugs.		
_____	3.	I like the respect of my peers more than authorities.		
_____	4.	I can be myself when I am with other drug users.		
_____	5.	The people I use drugs with are like family to me.		
_____	6.	I am proud when I get drugs easily.		
_____	7.	I feel good about my ability to get drugs.		
_____	8.	I am excited when I am looking for drugs.		
_____	9.	I feel alive when I score drugs.		
_____	10.	I enjoy spending time with drug users more than with people who do not use drugs.		
_____	11.	I feel important when I am looking for drugs.		
_____	12.	I know ways to get drugs.		
_____	13.	People doubt me because of my drug use.		
_____	14.	I like that people call me to get drugs.		
_____	15.	I like to help people find drugs.		
_____	16.	My family rejects me.		
_____	17.	If I needed help with something, I would ask another drug user.		
_____	18.	I am treated badly (at the hospital, looking for jobs) because I use drugs.		
_____	19.	I feel bored when I am sober and not looking for drugs.		
_____	20.	I am excited to try a new drug.		
_____	21.	I can get a good deal on drugs.		
_____	22.	I like when I get away with something (screw the system).		

Item domains:

Alienation: Items 13, 16, 18

Social Connection: Items 1, 3, 4, 5, 10, 17

Excitement: Items 8, 9, 19, 20, 22

Effectiveness: Items 2, 6, 7, 11, 12, 14, 15, 21

Appendix B. Items removed from BDCQ (corrected item-subscale total or item-total correlation $r < .30$)

The people I use drugs with care about me.

I like when my drug use leads to scary situations.

I am glad I do not have a normal life style.

I would not fit well into a full time work life.

Non drug-users do not understand me.

Non drug-users are boring.

Table 1

Demographic characteristics of the sample of 96 opioid-dependent participants

Variable	Value
Gender, % female (n)	54.2 (52)
Age in Years, mean (SD)	39.6 (11.6)
Race, % (n)	
African American	9.4 (9)
American Indian	1 (1)
Asian	1 (1)
Caucasian	77.1 (74)
Hispanic	8.3 (8)
Other	3.1 (3)
Education Level, % (n)	
No Degree	15.6 (15)
High School Degree	54.2 (52)
Some college	20.8 (20)
Bachelor's degree	9.4 (9)
Marital Status, % (n)	
Single, without partner	33.3 (32)
Single, with partner, not cohabitating	20.8 (20)
Single, with partner, cohabitating	12.5 (12)
Married	9.4 (9)
Divorced	15.6 (15)
Widowed	3.1 (3)
Months at clinic, mean (SD)	33 (33.46)

Table 2

Mean scores for participants' drug use and questionnaire data

Variable	n	Mean (SD)
BDCQ (22-item total)	96	70.05 (25.13)
Self-reported days of drug use in past 30	92	4.70 (8.86)
Desire to Quit	93	9.35
Peer use (Proportion of closest peers using drugs regularly)	90	0.22 (.31)
Proportion of positive swabs (past 3 months)	60	0.40 (.47)
Proportion of positive swabs (past 1 month)	86	0.38 (.39)
DUMQ total	96	39.30 (12.3)
LSRPS total	96	57.44 (10.42)
INQ-b total	96	22.01 (10.83)
UPPS Sensation Seeking (mean item value)	95	2.62 (.63)
UPPS Premeditation (mean item value)	95	2.08 (.49)
UPPS perseverance (mean item value)	95	2.29 (.53)
UPPS urgency (mean item value)	95	2.85 (.56)

BDCQ, Belongingness to Drug Culture questionnaire; DUMQ, Drug use motives questionnaire; LSRPS, Levenson Self-report Psychopathy Scale; INQ-b, Interpersonal needs questionnaire, belonging subscale; UPPS, UPPS impulsivity scale

Table 3

Agreement between self-reported past month drug use and oral swab drug test results (administered approximately once per month)

Drug test results (past month)	Self-reported use (past month)		
	None	At least 1 day	Total
Negative	37	10	47
Positive	12	23	35
Total	49	33	82
Kappa: 0.45 95% CI: 0.25 to 0.65			

Table 4

Internal Consistency Reliability for BDCQ total and proposed subscales

Variable	Cronbach's alpha
Total BDCQ	.884
Alienation subscale	.576
Social connection subscale	.688
Excitement subscale	.725
Effectiveness subscale	.781

BDCQ, Belongingness to Drug Culture questionnaire

Table 5

Inter-correlations between BDCQ scores and all study measures

	BDCQ	% positive swabs	Self-reported use	Desire to Quit	Peer use	UPPS-SS	UPPS-U	UPPS-Pers.	UPPS-Premed.	LSRPS	DUMQ-C	DUMQ-E	DUMQ-S	INQ-B	Age	Sex
BDCQ	1	-.010	.294**	-.330**	.122	.230*	.323**	.301**	.321**	.612**	.387**	.426**	.227*	.351**	-.153	.152
% positive swabs ¹		1	.502**	-.276*	.162	.076	.161	-.088	-.060	.111	-.003	-.026	-.020	.046	.037	-.094
Self-reported use ²			1	-.134	.302	-.064	.077	.116	.040	.336	.087	.131	.060	.075	-.025	.010
Desire to quit ³				1	-.268*	-.103	-.117	-.231*	-.227*	-.350**	-.045	-.143	-.018	-.155	-.238	-.215
Peer Use ⁵					1	.003	-.009	-.031	.068	.222*	.088	-.008	-.007	.196	-.065	.153
UPPS-SS						1	.232*	-.180	-.111	.165	.082	.134	.162	.006	-.262*	.339*
UPPS-U							1	.292	.285	.255*	.180	.178	.210*	.412	-.171	.090
UPPS-Pers.								1	.609	.296**	.427**	.376**	.302	.455	.026	-.057
UPPS-Premed.									1	.331**	.384**	.416**	.348**	.430	-.145	-.041
LSRPS										1	.263**	.247*	.336**	.470**	-.261*	.156
DUMQ-C											1	.826**	.573**	.387**	-.193	-.025
DUMQ-E												1	.507**	.262**	-.116	-.152
DUMQ-S													1	.374**	-.152	-.099
INQ - b														1	-.128	.180
Age															1	.002
Sex																1

*
p < .05
**
p < .01

¹Proportion of positive drug tests in past 3 months (n=60)

²Self-reported days of use in past 30

³Desire to quit on 1–10 rating scale

⁴Self-reported days worked in past 30

⁵Proportion of up to 3 closest peers who use drugs regularly

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BDCQ, Belongingness to drug culture questionnaire; UPPS, UPPS impulsivity scale (SS: sensation seeking subscale, U: urgency subscale; Premed: premeditation subscale, Pers.: Perseverance subscale); LSRPS, Levenson self-report psychopathy scale; DUMQ, Drug use motives questionnaire (c: coping subscale, e: enhancement subscale, s: social subscale); INQ-b, Interpersonal needs questionnaire (dwarfed belonging subscale)