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COMPARING THE LIFE CONCERNS OF PRESCRIPTION OPIOID AND HEROIN USERS

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Abstract

This study explored life concerns of prescription opioid (PO) and heroin users. Persons entering opioid detoxification rated their level of concern about 43 health and welfare items. Using exploratory factor analysis and conceptual rationale, we identified ten areas of concern. Participants (n = 529) were 69.9% male, 87.5% non-Hispanic Caucasian, and 24.2% PO users. Concern about drug problems was perceived as the most serious concern, followed by money problems, relationship problems, mental health, and cigarette smoking. PO users expressed significantly lower concern about drug problems (p=.017) and transmissible diseases (p<.001), but were more concerned about alcohol use (p<.001) than heroin users. There were no significant differences with regard to the other 7 areas of concern. Recognition of the daily worries of opioid dependent persons could allow providers to better tailor their services to the context of their patients' lives.

Keywords

opioids; heroin; detoxification; self-reported health; health concerns

1.0 Introduction

The lives of opioid users are often chaotic, challenged by traumatic events, unemployment, housing and neighborhood problems, mental health disorders, stigma, relational disruptions, chronic health conditions, infectious disease risks, and acute medical problems associated with drug injection (Stein, 1999; Stein & Sobota, 2001), and an increased risk of premature death (Hser, Hoffman, Grella, & Anglin, 2001). Many opioid users cannot depend on the

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availability of basic necessities, and experience considerable instability in many aspects of their lives (Hubley & Palepu, 2007). The accumulation of these experiences may synergistically interact to undermine health and make the establishment of long-term treatment, both substance abuse and medical, difficult (Mark, Woody, Juday, & Kleber, 2001; Masson, et al., 2002; Senn, Carey, & Venable, 2010; Singer & Clair, 2003).

Medically-assisted inpatient drug withdrawal, or detoxification, is a common initial treatment for persons with opioid dependence attempting to halt their use of heroin or non-prescribed opioids (Carrier, et al., 2011; Mark, Dilonardo, Chalk, & Coffey, 2002; Substance Abuse and Mental Health Services Administration, 2004). The Substance Abuse and Mental Health Services Administration (SAMHSA) indicates that one quarter of all inpatient admissions for substance use treatment were to a detoxification facility, of which 33% were for opioid treatment (Substance Abuse and Mental Health Services Administration, 2004). Detoxification provides patients with a medically supervised protocol to mitigate drug withdrawal symptoms, begin counseling, and access additional treatment modalities after discharge (Center for Substance Abuse Treatment, 1995).

Inpatient substance abuse treatment may provide an opportunity to examine the range of life concerns impacting opioid dependent patients and how these may relate to aftercare planning following discharge from detoxification. The ability of opioid users to tolerate or manage their ongoing stressful circumstances varies, but recognition and assessment of life concerns could allow providers to better tailor their services to the context of their patients' lives. Researchers have previously catalogued the life concerns of other urban populations with multiple life and psychosocial challenges (Carey, Braaten, Jaworski, Durant, & Forsyth, 1999; Carey & Senn, 2013) and documented that health-related issues may not be salient. Surprisingly, there is no research about current life concerns among treatment seeking opioid dependent patients. This lack of information leaves substance abuse treatment providers without direction about issues that may influence persons continuing treatment after detoxification and from achieving long-term success.

The life concerns of heroin users and prescription opioid (PO) users may differ, perhaps due in part to differences in the demographic and clinical characteristics of the two groups. For instance, in a study of persons receiving methadone maintenance, PO users, as compared to heroin users, were older and had higher levels of employment (Brands, Blake, Sproule, Gourlay, & Busto, 2004), were more likely to report pain and more likely to receive psychiatric treatment (Wu, Woody, Yang, & Blazer, 2011). In another study recruiting persons seeking office-based buprenorphine care (Moore, et al., 2007), prescription drug abusers, again as compared to heroin users, were more likely to be hepatitis C virus negative, have fewer years of opioid use, and were less likely to have received substance abuse treatment. In a study of persons seeking short-term buprenorphine stabilization followed by a tapering discontinuation, PO users and heroin users were not different in terms of gender, education or marital status, although the PO group was more likely to be white and employed (Nielsen, Hillhouse, Thomas, Hasson, & Ling, 2013). Because heroin users are often drug injectors, this salient difference from PO users may also drive life concerns as they may have attendant health complications.

Therefore, the purpose of this study was (a) to conduct an exploratory factor analysis to inform the identification and categorization of relevant life concerns among opioid dependent patients in a detoxification program, (b) to compare life concerns of PO and heroin users, and c) to explore the association between demographic factors (e.g., age, gender, employment, race/ethnicity, homelessness, and education) and life concerns.

2.0 Materials and Methods

Between February 2013 and November 2013, consecutive persons seeking opioid detoxification were approached at the time of admission to Stanley Street Treatment Addiction and Recovery, Inc. (SSTAR) in Fall River, Massachusetts to participate in a survey research study. SSTAR's program, one of the largest in Southeastern New England, has 38 beds and is a 24-hour medically supervised treatment facility that provides evaluation and withdrawal management. Services are delivered by nursing and counseling staff under a physician-approved protocol with 24-hour physician and psychiatric consultation available. Eighty percent of admissions are related to opioid dependence, and the mean length-of-stay for these admissions is 5.9 days.

Out of a total of 721 patients admitted to SSTAR during the recruitment period, 157 sought alcohol detoxification and were not eligible for this study; 564 were opioid users who were 18 years or older, English-speaking, and able to provide verbal informed consent as approved by the Butler Hospital Institutional Review Board. Thirty-five refused study participation. The remaining 529 persons completed a face-to-face interview; no compensation was provided.

2.1 Measures

Our life concerns survey adapted items used previously with urban populations (Carey, Braaten, Jaworski, Durant, & Forsyth, 1999; Carey & Senn, 2013) and added to this list based on focus groups from the SSTAR detoxification program who identified a wider variety of concerns relevant to this population. We originally organized life concerns into five conceptual domains; physical health, mental health, economic concerns, concerns about community safety, and relationship concerns. The 43 survey items related to these domains were piloted for comprehension.

We asked each participant, "The following questions are related to concerns you may have about your health and welfare. Please rate how much the following are of concern to you." Responses were scored on a 0, "no concern," to 3 "serious concern" four-point scale.

We dichotomized the self-reported primary drug for which the participant sought detoxification as heroin use vs. use of prescription opioids. Other sample descriptors included age, gender, race or ethnicity, employment (part or full-time vs. unemployed), homelessness (any nights on street or in a shelter in the prior 90 days), and years of education. Participants were asked if they had attended an outpatient primary care visit in the past year.

2.2 Analytical Methods

We present means and percentages to describe the characteristics of the sample. We used Mplus version 5.1 (Muthen & Muthen, 2007) to conduct an exploratory factor analysis (EFA) of the 43 items representing the five original conceptual domains on which the questionnaire was organized. The model was estimated by maximum likelihood with robust standard errors (MLR). We evaluated models with 3 to 8 factors. We report incremental fit indexes such as the comparative fit index (CFI) and Tucker Lewis (TLI), information criteria (AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion)), the root mean square error of approximation (RMSEA), the probability that $RMSEA \leq .05$, and the standardized root mean square residual (SRMR). We also evaluated the models for substantive interpretability. We report geomin rotated factor loadings for the selected solution.

Based on the pattern of factor loadings and the semantic content of items we generated summated-rating scales representing identified constructs. We evaluated the semantic content of items with marginal loadings ($< .5$) or items that cross-loaded on multiple factors prior to generating the summated-rating scales. We report Cronbach's α as a measure of internal consistency. All scales were constructed as the mean of included items and range from 0 to 3 with a mid-point of 1.5. Scale means are presented to describe the relative degree to which participants perceive these issues as serious concerns. Three additional items, concern about drug problem, concern about smoking, and concern about alcohol use, did not load on any common factor but were retained in subsequent analysis because of their combination of, relevance to and high endorsement in this population. T-tests for differences in means were used to compare life concern domains between PO and heroin users. Finally, we summarize zero-order correlations between the concern domains identified here and participant demographic and clinical characteristics.

3.0 Results

3.1 Participants

Participants' ($n = 529$) mean age was $32.2 (\pm 8.9)$ years, 367 (69.9%) were male, 463 (87.5%) were non-Hispanic Caucasian, 12 (2.3%) were African-American, 34 (6.4%) were Hispanic, and 20 (3.8%) were of other racial or ethnic origins (Table 1). Sixty (11.3%) participants reported being employed either part- or full-time and they average $11.7 (\pm 1.9)$ years of education. Forty-five (8.5%) reported spending at least one night on the street or in a shelter in the 90-days prior to data collection and 284 (53.8%) said they had seen a primary care provider in the past year. Heroin was the primary drug from which 401 (75.8%) subjects were detoxing; 396 (75.6%) reported recent (past 4 weeks) injection drug use, 210 (39.7%) reported recent cocaine use, and 247 (46.7%) reported recent use of benzodiazapines. Heroin users were significantly younger ($31.4 (\pm 8.5)$ vs. $34.6 (\pm 9.7)$), and significantly less educated ($11.6 (\pm 1.8)$ vs. $12.0 (\pm 1.9)$) years. Heroin and PO users did not differ significantly with respect to the other background characteristics described in Table 1.

3.2 Exploratory Factor Analysis of Life Concerns Categories

Model fit statistics are presented in Table 2. CLI > .9 for models with 6 or more factors and TLI is > .9 only for models retaining 7 or 8 factors. The minimum BIC was observed for a 7-factor model, though AIC favors an 8-factor model. RMSEA is < .05 for models with 6, 7, or 8 factors, but the probability that RMSEA < .05 was only > .90 for models with 7 and 8 factors. Models with an SRMR < .08 are generally considered satisfactory. Substantively, results from an 8-factor model were consistent with the 7-factor model except that a single item (concern about cigarette smoking) loaded strongly on the additional factor. We therefore report results for the 7-factor model but retained single item measures of concern about drug use, smoking, and alcohol use because of their salience to this population, and thus consider 10 areas of concern.

Item means, the percentage reporting the issue is of “some” or “serious” concern, and rotated factor loadings > .3 are presented in Table 3. Within the original five domains, items are arrayed in descending order based on mean concern. An * next to a loading denotes items included in summated-rating scales. Items initially conceptualized under the umbrella of health concerns tended to form two distinct factors. Factor 1 is defined by three items and reflects concern about transmitted disease. Items loading most strongly on factor 2 are concerns about serious health problems. Items asking about concern about teeth and eyesight did not load strongly on this factor. Eight of the ten items included to assess concern about mental health loaded strongly on a common factor. Items selected to assess economic concerns generally loaded on two factors (i.e., 4 & 7); items loading on factor 4 reflect concern about money problems and being able to meet day-to-day expenses. Two-items asking about health insurance and being able to access health care loaded separately on factor 7. All four items included to assess concern about community safety loaded strongly on factor 5, and five of the six items included to assess relationship concerns loaded strongly on factor 6. Few items exhibited strong cross loadings across factors and a few items exhibited only weak loadings on any of the retained factors.

All measures summarized in Table 4 are expressed on a 0 – 3 metric consistent with the item scoring. The means provide an indication of the degree to which these issues concern persons in this cohort. In Table 4 concern domains are ranked from highest to lowest based on the mean. All summated rating scales exhibited good internal consistency reliability; alphas ranged from .81 for the 3-item scale assessing concern for transmitted disease, to .89 for the 4-item scale assessing concern with community safety (Table 4). Concern about drug problems was perceived to be the most serious issue in this cohort. Participants expressed high concern with money problems, relationship problems, mental health, and cigarette smoking. Participants expressed relatively low concern about community safety and serious physical illness. With the exception of the association between concern about drug problems and community safety, all measures were positively correlated.

3.3 Life Concerns by Opioid Type

Compared to PO users, heroin users had significantly ($t_{526} = -2.39, p = .017$) higher concern about drug problems, significantly ($t_{527} = 3.69, p < .001$) lower concern about alcohol-related problems, and significantly ($t_{527} = -4.84, p < .001$) higher concern about transmitted

disease (Table 5). Heroin users and PO users did not differ significantly with respect to the other areas of concern.

3.4 The Association between Demographics and Life Concerns

We also examined bivariate correlations between life concerns and demographic characteristics. These associations were generally weak and not significant statistically. Age was positively and significantly correlated with concern about serious physical illness ($r = .18, p < .01$) and alcohol problems ($r = .21, p < .01$). None of the concern indicators varied significantly by race/ethnicity. Males were significantly less concerned about mental health ($r = -.15, p < .01$) and money problems ($r = -.10, p < .05$) than females, but they were more concerned about health insurance ($r = .11, p < .01$). Persons who were employed either part- or full-time expressed significantly less concern about money problems than those not currently employed ($r = -.25, p < .01$).

4.0 Discussion

Based on exploratory factor analysis and theoretical rationale, we have described ten distinct life domains that are concerning to varying degrees among opioid dependent persons at the time they enter an inpatient detoxification program. Study participants reported, as expected, being concerned most of all and most consistently about drug use, but also had other serious life concerns. Other areas of high concern for this cohort were related to economics, relationship problems, mental health issues, and cigarette smoking. Heroin users expressed greater concern about drug-related problems and were more likely to have concerns about transmissible diseases and less likely to have concerns about alcohol use than PO users, but did not differ with regard to other concerns.

This is the first study classifying life concerns in drug users. The identified life concerns among opioid dependent patients are distinct from addiction severity indices (which typically measure drug consequences) or quality of life measures which focus on function and the interference with or limitation to certain activities. Life concerns too are a multidimensional construct, but capture subjective worries that are important to this population and may influence or interact with drug use behaviors, treatment decision-making, and ability to engage in treatment.

In this sample, heroin and PO users were not meaningfully different demographically, and both groups experience difficulties previously described in illicit opioid users. Given the low employment rates reported by study participants, economic problems would be expected. Opioid users are often socioeconomically disadvantaged and reside in low income neighborhoods, which can contribute to drug use (Williams & Latkin, 2007), however, employment can mitigate negative drug outcomes (Williams & Latkin, 2007). Until recently, employment also offered the most reliable source of health insurance, without which, preventive care or long-term substance abuse treatment is difficult to establish (Mark, et al., 2001; Masson, et al., 2002). Economic disadvantage also leads to chronic stress, which, in turn, may have a negative effect on health (Adler & Rehkopf, 2008; McEwen & Seeman, 1999).

Economic problems likely contribute to relationship problems. Housing problems, loss of children to social services, and legal issues are likely to compound family and relationship problems. In fact, stressful life events and poorer mental health are associated with lower relationship satisfaction among poorer individuals compared to more affluent participants in one study (Maisel & Karney, 2012). A study by Gallo et al., found low SES women were more likely to experience low perceptions of control and positive affect, and high levels of social strain in their daily lives, as compared to higher SES women (Gallo, Bogart, Vranceanu, & Matthews, 2005). Given the high level of concern reported in the current study for economic and relationship problems, this constellation of interrelated life problems is a potential barrier to sustained abstinence. Physicians believe unmet social problems are as important to address as medical needs in the care of patients (Robert Wood Johnson Foundation, December 2011). This may be especially important in this vulnerable population, where referral to job training, housing or utilities assistance, or assistance with relationship problems may have direct positive impacts on long term positive treatment outcomes.

Psychiatric comorbidity, specifically anxiety and depression, occurs at higher rates in drug dependent individuals (Kandel, Huang, & Davies, 2001). Among opioid-dependent individuals, clinical studies suggest that about half report lifetime depression, and nearly one-third have depressed mood at treatment intake (Rounsaville, Weissman, Crits-Christoph, Wilber, & Kleber, 1982). Perceived stress, often exacerbated by these conditions, contributes to ongoing substance use even among opioid users receiving long-term agonist treatment (Moitra, Anderson, & Stein, 2013). In keeping with other research looking at mental health diagnoses (Kobau, Safran, Zack, Moriarty, & Chapman, 2004), and mental health functioning (Grella & Lovinger, 2012) opioid dependent women expressed significantly greater concern about mental health than men.

Cigarette use is extremely prevalent among opioid users. Across studies, at least 80% of methadone treatment participants smoke, despite being aware of the attendant health risks (Clarke, Stein, McGarry, & Gogineni, 2001; Richter, Ahluwalia, Mosier, Nazir, & Ahluwalia, 2002; Richter, Gibson, Ahluwalia, & Schmelzle, 2001). With smoking rates far exceeding the general population, methadone-maintained, opiate-dependent smokers experience high rates of tobacco-related health consequences (Centers for Disease Control and Prevention, 2007; Hser, McCarthy, & Anglin, 1994; Hurt, et al., 1996; Nahvi, Richter, Li, Modali, & Arnsten, 2006; Okoli, et al., 2010; Richter, et al., 2001) Given that cigarettes smoking was identified by this opioid sample as one of the more concerning life domains, this patient population may be interested in quitting and receptive to cessation interventions. Future studies should develop effective and affordable approaches to help these at-risk patients quit smoking, perhaps by targeting this discrepancy between high concerns about smoking and low probability of quitting, as studies of cessation interventions in opioid dependent persons receiving methadone demonstrate very low quit rates (Stein et al, 2013; Stein et al, 2006)

Of interest, participants rated health issues significantly less concerning than economic issues. From a prevention perspective, issues of health and health behaviors should be addressed as early as possible to prevent disease. Thus, in addition to addressing patients'

concerns about the commonly endorsed dental and vision problems, practitioners may also need to provide psychoeducation about other conditions that are preventable through behavioral change. Alcohol use was more concerning to PO users. Heroin users were more likely to have concerns about drug use (which we speculate may be a marker for stigma, longer drug histories, and general health status) and transmissible diseases (particularly hepatitis C) because the majority of heroin users are drug injectors at higher risk for parenteral infections than PO users. In this socioeconomically disadvantaged sample, patients may not see themselves as able to prioritize health and health behaviors because of the other life challenges they face. In order to address medical issues, it may be necessary to first engage in a discussion related to more pressing concerns and take positive steps to help patients work to stabilize their psychosocial lives.

Drug treatment programs generally, and detoxification programs more specifically, may provide opportune settings in which to intervene with, and promote healthier behaviors among individuals who have multiple health and psychosocial challenges. In addition, evidence of health behavior clustering may increase support for the “bundling” of broader psychosocial and health promotion services with detoxification services. Bundling of health services may be time saving and appealing to patients, and may augment benefits beyond a single presenting problem, but only if patients see the need for such services (Ickovics, 2008). Nonetheless, it may be challenging to get patients attending short-term opioid detoxification to participate in aftercare without attention to other important life concerns that could interfere with follow-up drug treatment services. Alternatively, rather than trying to provide additional services during a brief detox stay, patients could be referred to primary care providers or to other sites for mental health and social services.

Our study had several limitations. We recruited from only one type of drug treatment program in one location. Second, our sample was primarily Non-Hispanic White and had little racial/ethnic variation. Third, we had few homeless persons: this subpopulation of drug users may rate their life concerns quite differently. Fourth, unlike existing health services research, we did not ask participants to report on their perceived unmet treatment needs, which may in future work be explored in relation to life concerns. Finally, we do not have objective data (e.g. from health records) regarding participants’ mental or physical health diagnoses, personal finances, or social support.

Relapse prevention efforts that include linking this underserved population with appropriate resources to help them manage their life concerns may be beneficial as they plan for aftercare following discharge from detoxification. Motivational interventions should include discussion of the many life issues of this population, and how such concerns may lead to ambivalence about seeking assistance with what might seem to clinicians to be pressing health-related conditions. Whether the modest differences between PO and heroin users in life concerns influence aftercare, long-term treatment choices, and outcomes remains to be investigated.

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References

- Adler NE, Rehkopf DH. U.S. disparities in health: descriptions, causes, and mechanisms. *Annu Rev Public Health*. 2008; 29:235–252.10.1146/annurev.publhealth.29.020907.090852 [PubMed: 18031225]
- Brands B, Blake J, Sproule B, Gourlay D, Busto U. Prescription opioid abuse in patients presenting for methadone maintenance treatment. *Drug and Alcohol Dependence*. 2004; 73(2):199–207. S0376871603002904 [pii]. [PubMed: 14725960]
- Carey MP, Braaten LS, Jaworski BC, Durant LE, Forsyth AD. HIV and AIDS relative to other health, social, and relationship concerns among low-income urban women: a brief report. *J Womens Health Gend Based Med*. 1999; 8(5):657–661. [PubMed: 10839652]
- Carey MP, Senn TE. Health and life concerns among patients attending a publicly funded sexually transmitted infection clinic. *J Public Health Manag Pract*. 2013; 19(1):E30–34.10.1097/PHH.0b013e31822d4bd5 [PubMed: 23169412]
- Carrier E, McNeely J, Lobach I, Tay S, Gourevitch MN, Raven MC. Factors associated with frequent utilization of crisis substance use detoxification services. *Journal of Addictive Diseases*. 2011; 30(2):116–122. 936254277 [pii]. 10.1080/10550887.2011.554776 [PubMed: 21491293]
- Center for Substance Abuse Treatment. TIP 19: Detoxification From Alcohol and Other Drugs: Treatment Improvement Protocol (TIP) Series 19. Rockville (MD): Substance Abuse and Mental Health Services Administration; 1995. DHHS Publication No. (SMA) 95-3046
- Centers for Disease Control and Prevention. State-specific prevalence of cigarette smoking among adults and quitting among persons aged 18–35 years--United States, 2006. *MMWR Morbidity and Mortality Weekly Report*. 2007; 56(38):993–996. [PubMed: 17898692]
- Clarke JG, Stein MD, McGarry KA, Gogineni A. Interest in smoking cessation among injection drug users. *The American Journal on Addictions*. 2001; 10(2):159–166. [PubMed: 11444157]
- Gallo LC, Bogart LM, Vranceanu AM, Matthews KA. Socioeconomic status, resources, psychological experiences, and emotional responses: a test of the reserve capacity model. *J Pers Soc Psychol*. 2005; 88(2):386–399. [PubMed: 15841865]
- Grella CE, Lovinger K. Gender differences in physical and mental health outcomes among an aging cohort of individuals with a history of heroin dependence. *Addict Behav*. 2012; 37(3):306–312.10.1016/j.addbeh.2011.11.028 [PubMed: 22154506]
- Hser YI, Hoffman V, Grella CE, Anglin MD. A 33-year follow-up of narcotics addicts. [Research Support, U.S. Gov't, P.H.S.]. *Archives of General Psychiatry*. 2001; 58(5):503–508. yoa20042 [pii]. [PubMed: 11343531]
- Hser YI, McCarthy WJ, Anglin MD. Tobacco use as a distal predictor of mortality among long-term narcotics addicts. *Preventive Medicine*. 1994; 23(1):61–69.10.1006/pmed.1994.1009 [PubMed: 8016035]
- Hubley AM, Palepu A. Injection Drug User Quality of Life Scale (IDUQOL): findings from a content validation study. *Health Qual Life Outcomes*. 2007; 5:46.10.1186/1477-7525-5-46 [PubMed: 17663783]
- Hurt RD, Offord KP, Croghan IT, Gomez-Dahl L, Kottke TE, Morse RM, et al. Mortality following inpatient addictions treatment. Role of tobacco use in a community-based cohort. *JAMA*. 1996; 275(14):1097–1103. [PubMed: 8601929]
- Ickovics JR. “Bundling” HIV prevention: integrating services to promote synergistic gain. *Prev Med*. 2008; 46(3):222–225.10.1016/j.ypmed.2007.09.006 [PubMed: 17964637]
- Kandel DB, Huang FY, Davies M. Comorbidity between patterns of substance use dependence and psychiatric syndromes. *Drug and Alcohol Dependence*. 2001; 64(2):233–241. S0376-8716(01)00126-0 [pii]. [PubMed: 11543993]

- Kobau R, Safran MA, Zack MM, Moriarty DG, Chapman D. Sad, blue, or depressed days, health behaviors and health-related quality of life, Behavioral Risk Factor Surveillance System, 1995–2000. *Health Qual Life Outcomes*. 2004; 2:40.10.1186/1477-7525-2-40 [PubMed: 15285812]
- Maisel NC, Karney BR. Socioeconomic status moderates associations among stressful events, mental health, and relationship satisfaction. *J Fam Psychol*. 2012; 26(4):654–660.10.1037/a0028901 [PubMed: 22686266]
- Mark TL, Dilonardo JD, Chalk M, Coffey RM. Trends in inpatient detoxification services, 1992–1997. *Journal of Substance Abuse Treatment*. 2002; 23(4):253–260. S0740547202002714 [pii]. [PubMed: 12495787]
- Mark TL, Woody GE, Juday T, Kleber HD. The economic costs of heroin addiction in the United States. [Research Support, Non-U.S. Gov't]. *Drug and Alcohol Dependence*. 2001; 61(2):195–206. [PubMed: 11137285]
- Masson CL, Sorensen JL, Batki SL, Okin R, Delucchi KL, Perlman DC. Medical service use and financial charges among opioid users at a public hospital. *Drug and Alcohol Dependence*. 2002; 66(1):45–50. S037687160100182X [pii]. [PubMed: 11850135]
- McEwen BS, Seeman T. Protective and damaging effects of mediators of stress. Elaborating and testing the concepts of allostasis and allostatic load. *Ann N Y Acad Sci*. 1999; 896:30–47. [PubMed: 10681886]
- Moitra E, Anderson BJ, Stein MD. Perceived stress and substance use in methadone-maintained smokers. *Drug Alcohol Depend*. 2013; 133(2):785–788.10.1016/j.drugalcdep.2013.08.010 [PubMed: 24011853]
- Moore BA, Fiellin DA, Barry DT, Sullivan LE, Chawarski MC, O'Connor PG, et al. Primary care office-based buprenorphine treatment: comparison of heroin and prescription opioid dependent patients. *J Gen Intern Med*. 2007; 22(4):527–530.10.1007/s11606-007-0129-0 [PubMed: 17372805]
- Muthen, L.; Muthen, B. MPlus User's Guide. 5. Los Angeles, CA: Muthen & Muthen; 2007.
- Nahvi S, Richter K, Li X, Modali L, Arnsten J. Cigarette smoking and interest in quitting in methadone maintenance patients. *Addictive Behaviors*. 2006; 31(11):2127–2134.10.1016/j.addbeh.2006.01.006 [PubMed: 16473476]
- Nielsen S, Hillhouse M, Thomas C, Hasson A, Ling W. A comparison of buprenorphine taper outcomes between prescription opioid and heroin users. *J Addict Med*. 2013; 7(1):33–38.10.1097/ADM.0b013e318277e92e [PubMed: 23222095]
- Okoli CT, Khara M, Procyshyn RM, Johnson JL, Barr AM, Greaves L. Smoking cessation interventions among individuals in methadone maintenance: a brief review. *Journal of Substance Abuse Treatment*. 2010; 38(2):191–199.10.1016/j.jsat.2009.10.001 [PubMed: 20015608]
- Richter KP, Ahluwalia HK, Mosier MC, Nazir N, Ahluwalia JS. A population-based study of cigarette smoking among illicit drug users in the United States. *Addiction*. 2002; 97(7):861–869. 162. [pii]. [PubMed: 12133125]
- Richter KP, Gibson CA, Ahluwalia JS, Schmelzle KH. Tobacco use and quit attempts among methadone maintenance clients. *American Journal of Public Health*. 2001; 91(2):296–299. [PubMed: 11211643]
- Robert Wood Johnson Foundation. Health Care's Blind Side: The Overlooked Connection between Social Needs and Good Health. Princeton, NJ: Dec. 2011
- Rounsaville BJ, Weissman MM, Crits-Christoph K, Wilber C, Kleber H. Diagnosis and symptoms of depression in opiate addicts. Course and relationship to treatment outcome. *Archives of General Psychiatry*. 1982; 39(2):151–156. [PubMed: 7065829]
- Senn TE, Carey MP, Venable PA. The intersection of violence, substance use, depression, and STDs: testing of a syndemic pattern among patients attending an urban STD clinic. *J Natl Med Assoc*. 2010; 102(7):614–620. [PubMed: 20690325]
- Singer M, Clair S. Syndemics and public health: reconceptualizing disease in bio-social context. *Med Anthropol Q*. 2003; 17(4):423–441. [PubMed: 14716917]
- Stein M. Medical consequences of substance abuse. *The Psychiatric Clinics of North America*. 1999; 22(2):351–370. [PubMed: 10385938]

- Stein MD, Caviness CM, Kurth ME, Audet D, Olson J, Anderson BJ. Varenicline for smoking cessation among methadone-maintained smokers: A randomized clinical trial. *Drug Alcohol Depend.* 2013; 133(2):486–493.10.1016/j.drugalcdep.2013.07.005 [PubMed: 23953658]
- Stein MD, Sobota M. Injection drug users: hospital care and charges. *Drug and Alcohol Dependence.* 2001; 64(1):117–120. S0376-8716(00)00235-0 [pii]. [PubMed: 11470348]
- Stein MD, Weinstock MC, Herman DS, Anderson BJ, Anthony JL, Niaura R. A smoking cessation intervention for the methadone-maintained. *Addiction.* 2006; 101(4):599–607.10.1111/j.1360-0443.2006.01406.x [PubMed: 16548939]
- Substance Abuse and Mental Health Services Administration. The DASIS Report: Admissions for detoxification, 2001. Rockville, MD: Office of Applied Studies; 2004.
- Williams CT, Latkin CA. Neighborhood socioeconomic status, personal network attributes, and use of heroin and cocaine. *Am J Prev Med.* 2007; 32(6 Suppl):S203–210.10.1016/j.amepre.2007.02.006 [PubMed: 17543712]
- Wu LT, Woody GE, Yang C, Blazer DG. How do prescription opioid users differ from users of heroin or other drugs in psychopathology: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *J Addict Med.* 2011; 5(1):28–35.10.1097/ADM.0b013e3181e0364e [PubMed: 21532972]

Highlights

- This is the first study classifying life concerns in drug users.
- After drug use, financial, relationship, and mental health problems are most common concerns
- Prescription opioid users less concerned about transmissible diseases than heroin users
- Asking about health concerns may plan effective relapse prevention and aftercare

Table 1

Background Characteristics by Primary Detox Opioid.

	Cohort (n = 529 ^a)	PRIMARY DRUG		t (p =) or χ^2 (p =)
		PO (n = 128)	Heroin (n = 401)	
Age	32.2 ($\pm$ 8.9)	34.6 ($\pm$ 9.7)	31.4 ($\pm$ 8.5)	3.62 (.000)
Gender (Male)	367 (69.9%)	88 (69.3%)	279 (70.1%)	0.03 (.863)
Ethnicity				
Non-Hispanic Caucasian	463 (87.7%)	111 (86.7%)	352 (88.0%)	1.13 (.248)
African-American	12 (2.3%)	3 (2.3%)	9 (2.3%)	
Hispanic	34 (6.4%)	6(4.7%)	28 (7.0%)	
Other	11 (2.8%)	8 (6.3%)	11 (2.8%)	
Employed (Yes)	60 (11.3%)	19 (14.8%)	41 (10.2%)	2.06 (.151)
Education	11.7 ($\pm$ 1.9)	12.0 ($\pm$ 1.9)	11.6 ($\pm$ 1.8)	2.31 (.021)
Homeless (Yes)	45 (8.5%)	11 (8.6%)	34 (8.5%)	0.00 (.968)
Seen PCP Last Year (Yes)	284 (53.8%)	78 (61.4%)	206 (51.4%)	78 (61.4%)
Recent Inj. Drug Use (Yes)	396 (75.6%)	44 (34.9%)	352 (88.4%)	148.5 (.000)
Recent Cocaine Use (Yes)	210 (39.7%)	47 (36.7%)	163 (40.7%)	0.63 (.429)
Recent Benzo. Use (Yes)	247 (46.7%)	67 (52.3%)	180 (44.9%)	2.17 (.141)

^aDue to item-specific missing data valid ns were 526 for age, 525 for gender, 528 for ethnicity, 524 for recent injection drug use, and 528 for visiting a PCP in the last year.

Table 2

Fit Statistics for Exploratory Factor Analysis Models (n = 529).

Factors	CFI	TFI	AIC	BIC	RMSEA (90%CI)	p = ^a	SRMR
3	.759	.720	59577.0	60482.5	.075 (.072; .077)	.000	.056
4	.822	.782	58907.0	59983.3	.066 (.063; .069)	.000	.043
5	.876	.840	58427.0	59670.2	.056 (.053; .059)	.000	.037
6	.907	.872	58141.5	59546.6	.050 (.047; .054)	.428	.032
7	.944	.919	57789.3	59352.5	.040 (.036; .044)	1.00	.026
8	.958	.935	57671.5	59388.4	.036 (.032; .040)	1.00	.024

^aProbability RMSEA <= .05.

Table 3

Item Means, Percent Rating the Issue as of Some or Serious Concern, and Geomin Rotated Factor Loading for The 7-Factor Exploratory Factor Analysis Model. Loadings < .30 are not Reported (n = 529).

ITEM ^a	Mean (SD)	% ^b	FACTOR							
			1	2	3	4	5	6	7	
Physical Health										
Drug Problems	2.82 (0.51)	96.6%	---	---	---	---	---	---	---	---
Cigarette Smoking	1.60 (1.18)	56.2%	---	---	---	---	---	---	---	---
Teeth Problems	1.29 (1.23)	45.2%	---	.362	---	---	---	---	---	---
Hepatitis C	1.12 (1.22)	37.5%	.635*	---	---	---	---	---	---	---
Alcohol Problems	0.78 (1.19)	25.9%	---	.324	---	---	---	---	---	---
Eye Problems	0.72 (1.02)	23.3%	---	.408	---	---	---	---	---	---
High Blood Pressure	0.59 (0.96)	17.2%	---	.614*	---	---	---	---	---	---
HIV/AIDS	0.58 (1.00)	17.2%	.885*	---	---	---	---	---	---	---
Arthritis	0.53 (0.94)	16.5%	---	.759*	---	---	---	---	---	---
Sexually Transmitted Infections	0.52 (0.95)	14.4%	.677*	---	---	---	---	---	---	---
Cancer	0.49 (0.91)	14.4%	---	.592*	---	---	---	---	---	---
Asthma	0.48 (0.88)	13.8%	---	.576*	---	---	---	---	---	---
Heart Disease	0.44 (0.88)	13.4%	---	.719*	---	---	---	---	---	---
Diabetes	0.43 (0.87)	13.2%	---	.783*	---	---	---	---	---	---
Mental Health										
Feeling Stressed Out	2.21 (0.97)	79.4%	---	---	.705*	---	---	---	---	---
Feeling Nervous or Anxious	1.91 (1.06)	67.2%	---	---	.770*	---	---	---	---	---
Feeling Depressed	1.80 (1.11)	63.3%	---	---	.835*	---	---	---	---	---
Family Related Stress	1.75 (1.17)	62.2%	---	---	.403	---	---	---	.303	---
Getting Enough Sleep or Rest	1.66 (1.21)	58.6%	---	---	.517*	---	---	---	---	---
Too Many Things to do (Overwhelmed)	1.60 (1.16)	56.7%	---	---	.529*	---	---	---	---	---
Feeling Lonely	1.43 (1.15)	48.4%	---	---	.752*	---	---	---	---	---
Feeling Angry	1.30 (1.12)	45.9%	---	---	.603*	---	---	---	---	---

ITEM ^a	Mean (SD)	% ^b	FACTOR						
			1	2	3	4	5	6	7
No Time to Relax or Socialize	0.95 (1.09)	29.3%	---	---	.497*	---	---	---	---
Getting Into conflicts or Fights	0.69 (0.99)	20.6%	---	---	---	---	---	---	---
<i>Economic Concerns</i>									
Not Having Enough Money for Basic Needs	1.99 (1.17)	68.9%	---	---	.245	.533*	---	---	---
Not Having a Steady Income	1.98 (1.21)	69.1%	---	---	---	.882*	---	---	---
Not Having a Job	1.94 (1.25)	66.4%	---	---	---	.835*	---	---	---
Not Having a Car or Reliable Transportation	1.62 (1.32)	55.6%	---	---	---	.476*	---	---	---
Not Having a Place to Live	1.36 (1.35)	44.9%	---	---	---	.318*	---	---	---
Not Having Enough Education	1.06 (1.15)	34.9%	---	---	---	---	---	---	---
Legal Problems (Jail, Probation, Fines, Etc.)	0.99 (1.24)	34.5%	---	---	---	---	---	---	---
Not Being Able to Get Health Care	0.91 (1.23)	30.3%	---	---	---	---	---	---	1.160*
Not Having Health Insurance	0.88 (1.24)	29.2%	---	---	---	---	---	---	.599*
<i>Community Concerns</i>									
Violence in My Community	0.45 (0.87)	13.5%	---	---	---	---	.874*	---	---
Discrimination	0.38 (0.81)	11.6%	---	---	---	---	.778*	---	---
Gangs in My Community	0.36 (0.84)	11.8%	---	---	---	---	.866*	---	---
Not Feeling Safe	0.34 (0.76)	9.9%	---	---	---	---	.705*	---	---
<i>Relationship Concerns</i>									
Losing People Who are Important to Me	2.02 (1.13)	72.0%	---	---	---	---	---	.600*	---
Being Cut Off From My Family	1.70 (1.27)	58.9%	---	---	---	---	---	.857*	---
Having No One Trust Me	1.63 (1.28)	54.9%	---	---	---	---	---	.719*	---
Having No Friends That I Can Trust	1.51 (1.27)	51.5%	---	---	---	---	---	.689*	---
Being Completely Alone	1.44 (1.26)	48.9%	---	---	.327	---	---	.607*	---
Not Being Allowed to See My Children	1.29 (1.42)	44.3%	---	---	---	---	---	.349	---

* Items Retained in Summated-Rating Indexes.

^a Within domains, items were ordered from highest mean concern to lowest mean concern.

^b Percentage describing the issue as being of some or serious concern.

Table 4

Summary Description of and Inter-Correlations Among Measures of Concern (n = 529).

Concern ^a	# Items	α	Mean (SD)	1.	Product-Moment Correlations ^b						2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Drug Problems	1	NA	2.82 (0.51)	1.00															
2. Money Problems	5	.83	1.78 (0.98)	.23	1.00														
3. Relationship Problems	5	.88	1.66 (1.02)	.22	.56	1.00													
4. Mental Health	8	.88	1.61 (0.81)	.22	.52	.60	1.00												
5. Cigarette Smoking	1	NA	1.60 (1.18)	.19	.24	.25	.30	1.00											
6. Health Insurance	2	.86	0.90 (1.15)	.10	.36	.32	.24	.12	1.00										
7. Alcohol Problems	1	NA	0.78 (1.19)	.13	.19	.18	.25	.32	.12	1.00									
8. Transmitted Disease	3	.81	0.74 (0.90)	.17	.37	.35	.32	.28	.26	.25	1.00								
9. Serious Physical Illness	6	.86	0.49 (0.70)	.10	.22	.32	.35	.30	.29	.37	.52	1.00							
10. Community Safety	4	.89	0.38 (0.72)	.05 ^b	.30	.32	.32	.24	.32	.26	.39	.48	1.00						

^a Areas of concern were ranked from highest to lowest based on the mean.^b All bivariate associations, except for that between concern for drug problems and concern for community safety, were statistically significant at the .05 level.

Table 5Means ($\pm$ SD) of Life Concerns by PO Use vs. Heroin Use

Life Concern	PO User (n = 128)	Heroin User (n = 401)	t (p =)
Drug Problems	2.73 ($\pm$ 0.58)	2.85 ($\pm$ 0.48)	-2.39 (p = .017)
Money Problems	1.71 ($\pm$ 0.91)	1.80 ($\pm$ 1.00)	-0.95 (p = .344)
Relationship Problems	1.59 ($\pm$ 0.95)	1.68 ($\pm$ 1.04)	-0.90 (p = .369)
Mental Health	1.62 ($\pm$ 0.79)	1.61 ($\pm$ 0.82)	0.11 (p = .909)
Cigarette Smoking	1.57 ($\pm$ 1.23)	1.61 ($\pm$ 1.17)	-0.27 (p = .787)
Health Insurance	0.86 ($\pm$ 1.14)	0.91 ($\pm$ 1.16)	-0.46 (p = .643)
Alcohol Problems	1.11 ($\pm$ 1.35)	0.67 ($\pm$ 1.12)	3.69 (p < .001)
Transmitted Disease	0.41 ($\pm$ 0.64)	0.84 ($\pm$ 0.95)	-4.84 (p < .001)
Serious Physical Illness	0.49 ($\pm$ 0.61)	0.50 ($\pm$ 0.73)	-0.12 (p = .906)
Community Safety	0.33 ($\pm$ 0.62)	0.40 ($\pm$ 0.75)	-0.98 (p = .326)