Published in final edited form as:

Am J Addict. 2019 July ; 28(4): 270–276. doi:10.1111/ajad.12884.

Worries about Discontinuing Buprenorphine Treatment: Scale Development and Clinical Correlates

Michael D. Stein, M.D.^{1,2}, Micah T. Conti, B.A.¹, Debra S. Herman, Ph.D.^{1,3}, Bradley J. Anderson, Ph.D.¹, Genie L. Bailey, M.D.^{3,4}, Donnell Van Noppen, B.A.¹, and Ana M. Abrantes, Ph.D.^{1,3}

¹Behavioral Medicine and Addictions Research, Butler Hospital, Providence, RI, 02906

²Boston University School of Public Health, Boston, MA 02118

³Warren Alpert Medical School of Brown University, Providence, RI, 02912

⁴Stanley Street Treatment and Resources, Inc., Fall River, Massachusetts 02720

Abstract

Background and Objectives: Despite the benefits of maintenance buprenorphine treatment for opioid use disorder (OUD), many individuals report an interest in discontinuing the medication, while also expressing worries about tapering. The purpose of this study was to develop a measure of worries about buprenorphine discontinuation (“Off Bupe”) and determine the demographic and clinical characteristics associated with these worries.

Methods: Between May 2017 and May 2018, we surveyed adults in an outpatient primary care buprenorphine program (n=138). Reliability and validity of the Off Bupe measure were examined.

Results: Participants averaged 39 years of age, 54% were male, average duration of buprenorphine was 189 weeks and 85.5% reported eventually wanting to discontinue buprenorphine, although fewer than 10% were actively tapering. We derived two scales, withdrawal symptom worry (10 items, $\alpha = .94$) and relapse worry (7 items, $\alpha = .88$). Worry about symptoms was positively associated with current buprenorphine dose ($p = .016$), physical discomfort avoidance ($p < .001$), and inversely associated with self-efficacy to quit buprenorphine ($p < .001$) and distress tolerance ($p < .001$). Worry about opioid relapse was associated positively with age ($p = .019$), current buprenorphine dose ($p = .004$), physical discomfort avoidance ($p < .001$) and impulsivity ($p = .002$), and inversely associated with self-efficacy to quit buprenorphine ($p < .001$).

Discussion and Conclusions: Psychometric evaluation of the “Off Bupe” scale demonstrated its content and construct validity, and internal reliability.

Scientific Significance: The scale might help individuals with OUD and their providers identify concerns about discontinuing buprenorphine.

Corresponding Author: Michael D. Stein, M.D., Professor of Health Law, Policy & Management, Boston University, School of Public Health, 715 Albany Street, Boston, MA 02118, Ph: (617) 414-0319, mdstein@bu.edu.

Declaration of Interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

Keywords

Buprenorphine; opioid detoxification; withdrawal; psychometric evaluation

1.0 Introduction

In the last decade, opioid misuse and its health and social sequelae have increased significantly and caused one of the most significant public health crises in American history¹. The economic burden to society due to loss in workplace productivity, health care costs, and criminal justice involvement, and the personal costs to family and social relationships have been tremendous².

Medication treatment (MT) for opioid user disorder (OUD) provides patients with the best chance at long-term survival with this chronic condition³. The medications methadone and buprenorphine have been found to significantly reduce the risk of overdose death⁴ and provide patients with a sense of stability⁵. Additionally, methadone, buprenorphine, and naltrexone have all been found to improve patients' quality of life⁶. Buprenorphine/naloxone, the first of these medications to be prescribed in medical office settings in the United States, was introduced as a safer, more convenient alternative to methadone with a low side effect burden⁷. Buprenorphine allows individuals with OUD to improve quality of life, relationships, and psychological functioning⁸, and individuals who receive long-term treatment report high satisfaction with their treatment^{6,7}.

Despite the many benefits of MT, some people report feeling stuck in treatment and view continued "dependence" on medication as a barrier to fully engaging in society^{5,9}. Persons with OUD often feel stigmatized by friends, family, pharmacists, and the 12-step community¹⁰ for their use of maintenance MT, since it is frequently viewed as precluding complete opioid abstinence^{9,11–13}. Despite its benefits¹⁴ and cost-effectiveness, maintenance buprenorphine treatment takes time and money (e.g., appointment attendance, medication co-pays, transportation costs¹⁵).

Not surprisingly, some studies have found that the majority of persons receiving buprenorphine treatment report a high level of interest in discontinuing the medication^{16–18} or a desire to only remain on the medication for a short duration¹⁹. Tapering off buprenorphine following long-term maintenance is relatively rare and no specific patient characteristics have been associated with successful discontinuation²⁰. There are guidelines for taper schedules^{21,22} but empirical testing of these schedules is still in the initial stages. Of additional clinical import, there is a growing group of persons interested in transitioning from buprenorphine to extended-release naltrexone²³, the newest maintenance treatment for OUD. The transition to an opioid-free state is difficult and may limit the efficacy of naltrexone²⁴.

Further complicating such decision-making is that most individuals who discontinue methadone or buprenorphine either return to treatment, or if they do not, return to illicit opioid use, encounter legal difficulties, and have high risk of death, particularly with the infiltration of fentanyl into the opioid supply²⁵. Even when buprenorphine discontinuation is

planned as a dosing taper, relapse rates are very high²⁶. Discontinuation produces opioid withdrawal symptoms and many people express concern about the anticipated severity of this discomfort; and in the context of trait impulsivity²⁷, may lead to increased risk for relapse as individuals use to relieve this discomfort^{28,29}. It is unsurprising that many patients cite withdrawal, loss of stability, and increased pain as barriers to medication discontinuation^{5,11,16}, which is why we examine patient self-perceived tolerance of discomfort and distress, as well as impulsivity, as possibly related to buprenorphine discontinuation.

Being able to identify individuals' concerns about withdrawal symptoms and risk for relapse associated with discontinuing buprenorphine may be important in tailoring aftercare approaches for persons with OUD. For example, individuals concerned about an increase in their pain may benefit from learning about non-opioid pain management interventions, while those expressing concerns about relapse may benefit from increased engagement in counseling or intensive-outpatient programs. Previous research has been conducted with individuals maintained on methadone who exhibit a fear of discontinuation, with three major components being fear of relapse, fear of withdrawal symptoms, and fear of acquiring HIV^{30,31}. Such fears have been associated with fewer attempts to discontinue the medication and may be a barrier to some individuals successfully stopping methadone maintenance^{32,33}. Yet, the need for daily dosing, greater associated stigma, and increased mortality risk due to respiratory depression make methadone maintenance treatment programs quite different than office-based buprenorphine treatment³⁴. Therefore, understanding factors that may contribute toward decisions regarding buprenorphine discontinuation are necessary to examine as well. Recent attempts to identify the discontinuation concerns of persons receiving buprenorphine maintenance have not been made in a standardized, reproducible way, and prior work in this area is limited by retrospective analysis or reliance on anecdotal accounts of small samples of patients. For example, Winstock and colleagues (2011) conducted a study of 56 patients receiving buprenorphine treatment (and 89 on methadone) in a publicly-funded opioid substitution program in Australia, concerns regarding discontinuation of opioid medication were asked with only 3 questions – concerns about heroin relapse, withdrawal discomfort, and increased pain¹⁶.

The purpose of this study was to develop a measure of worries about buprenorphine discontinuation. To do this, we used prior work conducted with individuals in methadone maintenance^{30–33} to inform a set of related questions that were administered to people receiving buprenorphine treatment. Psychometric evaluation of this measure involved identifying its factor structure and examining its content validity, construct validity, and internal reliability. In addition, in an attempt to identify patient characteristics that could either aid or impede the discontinuation process and might contribute to future intervention development, we examined various demographic and clinical characteristics associated with worries about buprenorphine discontinuation in this sample of individuals with OUD.

2.0 Methods

2.1 Recruitment

Between May 2017 and May 2018, 141 consecutive patients at Stanley Street Treatment and Resources, Inc. (SSTAR) in Fall River, Massachusetts were asked to participate in a survey research study. Eligible persons were 18 years or older, English-speaking, enrolled in buprenorphine maintenance for at least three consecutive months, and able to provide informed consent as approved by the Butler Hospital Institutional Review Board. Three persons refused study participation and 138 persons completed a face-to-face, 15- minute interview administered by a non-treating member of the research team. Participants received a five dollar gift card as reimbursement for their time.

At SSTAR's buprenorphine maintenance program, patients are assigned a nurse case manager and alternate appointments between their buprenorphine physician prescriber and buprenorphine nurse. Weekly attendance at both medication management appointments and manual-guided group therapy is required for at least the first eight weeks of buprenorphine maintenance. If adherent to the program's expectations and abstinent from illicit opioid use (confirmed by urinalysis testing), patients may graduate to biweekly or monthly appointments.

2.2 Measures

In addition to age, sex, race/ethnicity, and years of education, the following variables were assessed:

2.2.1. Experiences with Opioids.—Respondents were asked what their primary opioid was before being prescribed buprenorphine. Two categories were defined: prescription opioids (Vicodin, Oxycontin, Percocet, morphine, codeine) and heroin. They also responded “yes” or “no” to ever experiencing opioid withdrawal. Those answering “yes” were asked to rate how uncomfortable their symptoms were at their worst, from 0 to 10, where 0 was defined for participants as “not bad at all,” and 10 as “I couldn’t tolerate it.”

2.2.2. Opioid Treatment History.—Respondents were asked about their duration of buprenorphine treatment at SSTAR, current and highest doses of buprenorphine, and plans for continued buprenorphine treatment. Respondents were provided with three options about their plans: “I have no plans to ever come off;” “I’d like to come off eventually, but have no particular date in mind;” and “I’m currently trying to reduce my dose to come off buprenorphine completely.” Participants rated their confidence in being able to get off buprenorphine completely on a scale ranging from 0–10.

2.2.3. Worries about Stopping Buprenorphine.—Respondents were asked to reflect on worries about completely stopping their buprenorphine prescription. They rated how true each of 19 statements was for them from 0 “Not at all true/ Not a worry for me” to 5 “Very true/ Very much a worry for me.” Based on past research with patients enrolled in methadone maintenance^{30–33}, we surmised worry about buprenorphine termination would fall into two categories: worry about withdrawal symptoms and worry about relapse.

Qualitative work with persons receiving buprenorphine at this site prior to final scale administration was used to capture additional patient worries about discontinuation, ascertain understanding of the final questions administered, and adjust question wording for clarity. Worry about withdrawal symptoms included items such as: “I don’t want to feel like I am jumping out of my skin,” and “I won’t be able to manage the anxiety.” Worry about relapse included items such as: “I’m confident that I could stick with my goal of staying off buprenorphine” and “I won’t be able to refuse opiates offered to me.” We considered whether to include items related to the consequences of relapse (e.g., overdosing due to fentanyl laced substance; violating probation, etc...) but as these could be numerous and very specific to individuals, we decided to not include them.

2.2.4. Impulsivity.—The personality trait of impulsivity (i.e., acting without thinking; making quick decisions without considering consequence³⁵ has been found to be predictive of opioid use relapse²⁷. Respondents completed a five-item impulsivity scale³⁶ ($\alpha = .85$) that assesses risk-taking disposition.

2.2.5. Discomfort.—Respondents were administered the 5-item Discomfort Intolerance Scale³⁷, and asked to rate how they generally felt on a series of statements from 0 “Not at all like me” to 6 “Extremely like me.” There are two subscales: A 2-item index assessing ability to tolerate discomfort and physical discomfort ($\alpha = .83$) and a 3-item index assessing avoidance of physical discomfort ($\alpha = .63$)

2.2.6. Distress Tolerance.—Using the 15-item Distress Tolerance Scale³⁸ respondents were asked to think of times when they have felt distressed or upset and to describe their beliefs about feeling distressed or upset. Higher scores on all 15 items ($\alpha = .94$) are consistent with higher distress tolerance.

2.3 Analysis

We present descriptive statistics to summarize the characteristics of the sample. We used exploratory factor analysis (EFA) to evaluate the dimensional structure of analyzed items. We considered several criteria when determining the number of factors to retain in the final model; these included Velicer’s minimum average partial (MAP), Horn’s parallel analysis, BIC for a maximum likelihood factor analysis, and an examination of the scree plot. We present promax rotated factor loadings for a 2-factor solution based on iterated principal factor analysis. We present only loadings $> .25$. Finally, to evaluate construct validity we report the product-moment correlations of final indices with expected correlates.

3.0 Results

3.1 Participant Characteristics

Participants averaged 38.6 (± 9.7) years of age, 53.6% were male, 88.4% were non-Latino White, and mean years of education were 12.1 (± 1.9) (Table 1). Eighty-two persons (59.4%) reported heroin was their primary opioid prior to treatment and 56 (40.6%) reported prescription pills. Mean length of buprenorphine treatment was 189.2 (± 172.0 , Median = 112.5, range = 12 – 832) weeks and mean dose was 15.0 (± 5.1) mg. About 76.1% said they

would eventually like to get off buprenorphine, 9.4% said they were currently trying to reduce their dose with the goal of discontinuation, and only 14.5% said they had no plans to ever come off buprenorphine. On average, participants rated their confidence in being able to get off buprenorphine completely at 6.3 ($\pm$ 3.3) on a scale ranging from 0–10. They rated opioid withdrawal severity when last stopping opioid use at 9.10 ($\pm$ 1.6; median = 10) on the same scale. Descriptive statistics for impulsivity, discomfort tolerance, and distress intolerance indices are also reported in Table 1; all were calculated as the mean score of items comprising the index.

3.2 OFF Bupe Factor Structure and Internal Reliability

Velicer's MAP, Horn's parallel analysis, BIC for maximum likelihood solutions, and an examination of the scree plot consistently suggested a 2-factor solution. Table 2 gives promax rotated factor loadings for an iterated principal factor solution. Most items loaded strongly on a single factor. Cross-loadings were generally weak. Items loading on Factor 1 generally assessed worry about withdrawal symptoms and items loading on Factor 2 generally assessed worry about relapse. Two items, "I don't know what medicine to ask my doctor for that could help with my symptoms" and "I don't know the best way to taper off buprenorphine," exhibited somewhat weaker loadings on Factor I. Item analysis indicated that both items decreased internal consistency reliability. Based on both empirical and substantive considerations, these items were deleted from the final summated-rating indexes. Internal consistency reliabilities were .94 for the final 10-item worry about withdrawal symptoms index and .88 for the 7-item worry about relapse index.

3.3 Off Bupe Content and Construct Validity

Unadjusted associations are reported in Table 3. Worry about withdrawal symptoms was positively associated with current buprenorphine dose, inversely associated with self-efficacy to quit buprenorphine, inversely associated with physical discomfort tolerance, and positively associated with physical discomfort avoidance. Worry about withdrawal was inversely and significantly associated with the distress tolerance total scale.

Worry about opioid relapse was associated positively with age and current buprenorphine dose (Table 3). Relapse worry was inversely associated with self-efficacy to quit buprenorphine, positively correlated with impulsivity, inversely associated with physical discomfort tolerance, and positively associated with physical discomfort avoidance. Relapse worry was inversely and significantly associated with the distress tolerance total scale score.

4.0 Discussion and Conclusions

While the great majority of long-term buprenorphine recipients in this cohort reported a desire to eventually stop treatment, fewer than one in ten were actively tapering. Our findings suggest that worry about both the symptoms related to opioid withdrawal and the risk of relapse following termination may both be contributing to the observation. Our Off Bupe scale provides a robust measure of such concerns. Persons with greater discontinuation worry had higher levels of worry about general physical discomfort, mental distress, and greater impulsivity was associated with high levels of relapse worry³⁹.

Only a small minority of individuals in long-term buprenorphine treatment successfully taper off⁴⁰. In contrast, only 15% of our sample was planning to stay on buprenorphine indefinitely, leaving a large group of people taking buprenorphine who will eventually consider and seek support in coming off their medication. Our results suggest that even the consideration of tapering off buprenorphine can provoke a number of worries. Therefore, approaches that can help plan for this discomfort may be helpful to these individuals by potentially increasing self-efficacy for discontinuation. We also found persons who believe they can tolerate physical discomfort or general distress have less concern over withdrawal symptoms. Worry about withdrawal is associated with lower self-efficacy about discontinuing. Whether such perceived ability to tolerate withdrawal symptoms predicts steady and successful tapers can be tested in future work. Regardless, our Off Bupe measure has the potential to be used as one of a number of predictive factors to determine whether someone might successfully discontinue buprenorphine (alongside psychiatric comorbidity and measures of continued cravings and illicit drug use while taking buprenorphine). In addition, increased provider awareness of patient worries about tapering might lead to sympathetic clinical discussions and/or adjunctive treatment during the discontinuation process.

Although longer periods of treatment, and therefore presumably life amelioration, lowers relapse risk over time, following buprenorphine termination, patients are at increased risk for relapse⁶. Persons with greater relapse worry had higher levels of concern with general physical discomfort and mental distress as well. Worry about relapse was positively correlated with greater impulsivity, perhaps rightly, as patients may believe opioid cravings will return and it will be difficult to refuse offers of drug use. Indeed, impulsivity is a risk for relapse among individuals with substance use disorders, including those with OUD²⁷.

Our study had limitations. First, we do not know what bias we may have introduced by enrolling a nonprobability sample of individuals using buprenorphine from a single site, most of whom were not actively tapering. Relatedly, the development of this scale was based on prior work with methadone maintenance programs – which, as discussed above, possess key differences from office-based buprenorphine programs. Second, test- retest validity of the scale was not performed to assess response stability. Third, we do not know the predictive validity of the Off Bupe measure; future studies can use the measure to learn whether it predicts those who successfully discontinue buprenorphine medication. Fourth, we did not ask about previous withdrawal experience of participants. Fifth, we did not inquire whether those who were tapering were being supervised by clinicians or were tapering on their own. Sixth, we measured several control variables using one-item questions and we did not assess broader measures of interpersonal relationships which may moderate levels of worry. Finally, expectations may be important. If patients believe that discontinuing buprenorphine is not a worthwhile goal, their ratings of worry about withdrawal and relapse may be affected. Clinicians who continually discourage persons from tapering off buprenorphine may have an impact on assessments and we did not measure participants' perceptions of provider attitudes. Future studies may also consider assessing clinician perceptions regarding patients' fears about buprenorphine discontinue and determine the extent to which clinician and patient views are aligned on this topic.

5.0 Scientific Significance

In addition to worries about withdrawal symptoms and relapse, there are many reasons patients may want to be abstinent from opioids rather than continue buprenorphine maintenance. As noted, patients often feel stigmatized by friends, family, pharmacists, and the 12-step community¹⁰, they may want improved pain control, and ongoing treatment involves time and money¹⁵. Yet for many long-term buprenorphine patients, halting medication may be ill-considered given the many benefits of treatment.

But in light of the opioid epidemic still facing the United States, health systems are increasingly encouraging the reduction of opioid dosing more generally and, for certain patients, opioid treatment discontinuation. The worries captured in the withdrawal and relapse worry subscales of Off Bupe, developed here for individuals in buprenorphine maintenance, may be pertinent to other populations of long-term opioid recipients without histories of addiction where tapers may be occurring more commonly.

Acknowledgements

Funding: This study was funded by the National Institute on Drug Abuse [grant number R21 DA041153] in a grant to Drs. Michael Stein and Ana Abrantes. NIDA had no role in the study design, in the collection, analysis and interpretation, in the writing of the report, or in the decision to submit the article for publication. Trial registered at clinicaltrials.gov; Clinical Trial # NCT03077932.

7.0 References

1. Gomes T, Tadrous M, Mamdani MM, Paterson J, Juurlink DN. The burden of opioid-related mortality in the united states. *JAMA Network Open* 2018;1(2):e180217. [PubMed: 30646062]
2. Degenhardt L, Whiteford HA, Ferrari AJ, et al. Global burden of disease attributable to illicit drug use and dependence: findings from the Global Burden of Disease Study 2010. *Lancet* 2013;382(9904):1564–1574. [PubMed: 23993281]
3. Volkow ND, Koob GF, McLellan AT. Neurobiologic Advances from the Brain Disease Model of Addiction. *N Engl J Med* 2016;374(4):363–371. [PubMed: 26816013]
4. Otiashvili D, Piralishvili G, Sikharulidze Z, Kamkamidze G, Poole S, Woody GE. Methadone and buprenorphine-naloxone are effective in reducing illicit buprenorphine and other opioid use, and reducing HIV risk behavior--outcomes of a randomized trial. *Drug Alcohol Depend* 2013;133(2):376–382. [PubMed: 23916321]
5. Notley C, Blyth A, Maskrey V, Pinto H, Holland R. Exploring the Concepts of Abstinence and Recovery Through the Experiences of Long-Term Opiate Substitution Clients. *Subst Abuse* 2015;36(2):232–239. [PubMed: 25127184]
6. Ponizovsky AM, Margolis A, Heled L, Rosca P, Radomislensky I, Grinshpoon A. Improved quality of life, clinical, and psychosocial outcomes among heroin-dependent patients on ambulatory buprenorphine maintenance. *Subst Use Misuse* 2010;45(1–2):288–313. [PubMed: 20025454]
7. Muller AE, Bjornestad R, Clausen T. Dissatisfaction with opioid maintenance treatment partly explains reported side effects of medications. *Drug Alcohol Depend* 2018;187:22–28. [PubMed: 29626742]
8. Weiss RD, Potter JS, Griffin ML, et al. Long-term outcomes from the National Drug Abuse Treatment Clinical Trials Network Prescription Opioid Addiction Treatment Study. *Drug Alcohol Depend* 2015;150:112–119. [PubMed: 25818060]
9. Jarvinen M, Andersen D. The making of the chronic addict. *Subst Use Misuse* 2009;44(6):865–885. [PubMed: 19444727]
10. Wakeman SE, Rich JD. Barriers to Medications for Addiction Treatment: How Stigma Kills. *Subst Use Misuse* 2018;53(2):330–333. [PubMed: 28961017]

11. Bentzley BS, Barth KS, Back SE, Aronson G, Book SW. Patient Perspectives Associated with Intended Duration of Buprenorphine Maintenance Therapy. *J Subst Abuse Treat* 2015;56:48–53. [PubMed: 25899872]
12. Kennedy-Hendricks A, Barry CL, Gollust SE, Ensminger ME, Chisolm MS, McGinty EE. Social Stigma Toward Persons With Prescription Opioid Use Disorder: Associations With Public Support for Punitive and Public Health-Oriented Policies. *Psychiatr Serv* 2017;68(5):462–469. [PubMed: 28045350]
13. Kulesza M, Larimer ME, Rao D. Substance Use Related Stigma: What we Know and the Way Forward. *Addictive Behaviors, Therapy & Rehabilitation* 2013;2(2).
14. McKeganey N, Morris Z, Neale J, Robertson M. What are drug users looking for when they contact drug services: abstinence or harm reduction? *Drugs: Education, Prevention and Policy* 2004;11(5):423–435.
15. 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 Alcohol Depend* 2009;99(1–3):132–140. [PubMed: 18804923]
16. Winstock AR, Lintzeris N, Lea T. “Should I stay or should I go?” Coming off methadone and buprenorphine treatment. *Int J Drug Policy* 2011;22(1):77–81. [PubMed: 20956077]
17. Woodcock EA, Lundahl LH, Greenwald MK. Predictors of buprenorphine initial outpatient maintenance and dose taper response among non-treatment-seeking heroin dependent volunteers. *Drug Alcohol Depend* 2015;146:89–96. [PubMed: 25479914]
18. Teruya C, Schwartz RP, Mitchell SG, et al. Patient perspectives on buprenorphine/naloxone: a qualitative study of retention during the starting treatment with agonist replacement therapies (START) study. *J Psychoactive Drugs* 2014;46(5):412–426. [PubMed: 25364994]
19. Gryczynski J, Mitchell SG, Jaffe JH, O'Grady KE, Olsen YK, Schwartz RP. Leaving buprenorphine treatment: patients' reasons for cessation of care. *J Subst Abuse Treat* 2014;46(3):356–361. [PubMed: 24238714]
20. Dakwar E, Kleber HD. Naltrexone-facilitated buprenorphine discontinuation: a feasibility trial. *J Subst Abuse Treat* 2015;53:60–63. [PubMed: 25819700]
21. Hundley L, Spradley S, Donelenko S. Assessment of outcomes following high-dose opioid tapering in a Veterans Healthcare System. *J Opioid Manag* 2018;14(2):89–101. [PubMed: 29733095]
22. Ling W, Hillhouse M, Domier C, et al. Buprenorphine tapering schedule and illicit opioid use. *Addiction* 2009;104(2):256–265. [PubMed: 19149822]
23. Lee JD, Nunes EV Jr., Novo P, et al. Comparative effectiveness of extended-release naltrexone versus buprenorphine-naloxone for opioid relapse prevention (X:BOT): a multicentre, open-label, randomised controlled trial. *Lancet* 2018;391(10118):309–318. [PubMed: 29150198]
24. Bisaga A, Mannelli P, Yu M, et al. Outpatient transition to extended-release injectable naltrexone for patients with opioid use disorder: A phase 3 randomized trial. *Drug Alcohol Depend* 2018;187:171–178. [PubMed: 29674251]
25. Magura S, Rosenblum A. Leaving methadone treatment: lessons learned, lessons forgotten, lessons ignored. *Mt Sinai J Med* 2001;68(1):62–74. [PubMed: 11135508]
26. Dunn KE, Sigmon SC, Strain EC, Heil SH, Higgins ST. The association between outpatient buprenorphine detoxification duration and clinical treatment outcomes: a review. *Drug Alcohol Depend* 2011;119(1–2):1–9. [PubMed: 21741781]
27. Goldstein RZ, Volkow ND. Dysfunction of the prefrontal cortex in addiction: neuroimaging findings and clinical implications. *Nat Rev Neurosci* 2011;12(11):652–669. [PubMed: 22011681]
28. Dunn KE, Saulsgiver KA, Miller ME, Nuzzo PA, Sigmon SC. Characterizing opioid withdrawal during double-blind buprenorphine detoxification. *Drug Alcohol Depend* 2015;151:47–55. [PubMed: 25823907]
29. Koob GF. Negative reinforcement in drug addiction: the darkness within. *Curr Opin Neurobiol* 2013;23(4):559–563. [PubMed: 23628232]
30. Gentile MA, Milby JB. Methadone maintenance detoxification fear: a study of its components. *J Clin Psychol* 1992;48(6):797–807. [PubMed: 1333492]

31. Raczynski JM, Wiebe DJ, Milby JB, Gurwitch RH. Behavioral assessment of narcotic detoxification fear. *Addict Behav* 1988;13(2):165–169. [PubMed: 3369324]
32. Eklund C, Hiltunen AJ, Melin L, Borg S. Abstinence fear in methadone maintenance withdrawal: a possible obstacle for getting off methadone. *Subst Use Misuse* 1997;32(6):779–792. [PubMed: 9178443]
33. Schumacher JE, Milby JB, Fishman BE, Huggins N. Relation of detoxification fear to methadone maintenance outcome: 5-year follow-up. *Psychol Addic Behav* 1992;6(1):41–46.
34. Mattick RP, Breen C, Kimber J, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *Cochrane Database Syst Rev* 2014(2):CD002207. [PubMed: 24500948]
35. Moeller FG, Barratt ES, Dougherty DM, Schmitz JM, Swann AC. Psychiatric aspects of impulsivity. *Am J Psychiatry* 2001;158(11):1783–1793. [PubMed: 11691682]
36. Cherpitel CJ. Substance use, injury, and risk-taking dispositions in the general population. *Alcohol Clin Exp Res* 1999;23(1):121–126. [PubMed: 10029212]
37. Schmidt NB, Richey JA, Fitzpatrick KK. Discomfort intolerance: Development of a construct and measure relevant to panic disorder. *J Anxiety Disord* 2006;20(3):263–280. [PubMed: 16564432]
38. Simons JS, Gaher RM. The Distress Tolerance Scale: Development and Validation of a Self-Report Measure. *Motivation and Emotion* 2005;29(2):83–102.
39. Loree AM, Lundahl LH, Ledgerwood DM. Impulsivity as a predictor of treatment outcome in substance use disorders: review and synthesis. *Drug Alcohol Rev* 2015;34(2):119–134. [PubMed: 24684591]
40. Weinstein ZM, Gryczynski G, Cheng DM, et al. Tapering off and returning to buprenorphine maintenance in a primary care Office Based Addiction Treatment (OBAT) program. *Drug Alcohol Depend* 2018;189:166–171. [PubMed: 29958128]

Table 1.

Background Characteristics (n = 138).

	n (%)	Mean ($\pm$ SD)	Median	Range
Age		38.59 ($\pm$ 9.68)	37	23 – 62
Gender (Male)	74 (53.6%)			
Non-Latino White	122 (88.4%)			
Education (Years)		12.07 ($\pm$ 1.90)	12	4 – 16
Primary Opiate (Heroin)	82 (59.2%)			
Weeks on Buprenorphine		189.20 ($\pm$ 171.96)	112.5	8 – 832
Buprenorphine Dose (mg)		15.00 ($\pm$ 5.12)	16	2 – 24
Buprenorphine Plan				
No Plan to Ever Stop	20 (14.5%)			
Would like to Stop Eventually	105 (76.1%)			
Currently Trying to Reduce	13 (9.4%)			
Quitting Self-Efficacy		6.34 ($\pm$ 3.33)	7	0 – 10
Withdrawal Severity		9.29 ($\pm$ 1.64)	10	0 – 10
Impulsivity		2.22 ($\pm$ 0.85)	2.20	1 – 4
DIS Physical discomfort Tolerance		3.32 ($\pm$ 1.87)	3.50	0 – 6
DIS Physical discomfort Avoidance		3.23 ($\pm$ 1.56)	3.50	0 – 6
DTS Total		3.32 ($\pm$ 1.03)	3.33	1 – 5

Table 2.

Promax Rotated Factor Loadings for an Exploratory Factor Analysis Using Iterated Principal Factor Analysis. Loadings < .25 are Not Reported (n = 138).

Items.	Withdrawal Worry	Relapse Worry
I don't want the bone and muscle aches that happen during withdrawal.	0.94	
I don't want to experience the flu-like symptoms that happen during withdrawal.	0.91	
I don't want to be sick to my stomach from withdrawal.	0.9	
I don't want to feel like I am jumping out of my skin.	0.84	
I don't want to feel physically sick.	0.74	
I don't want to feel jittery.	0.74	
I don't want to experience difficulty sleeping.	0.72	
I won't be able to manage the anxiety.	0.69	
I don't want to be irritable with other people and know that I will be.	0.67	
I won't be able to function.	0.67	0.27
I don't know what medicine to ask my doctor for that could help with my symptoms. ^a	0.52	
I don't know the best way to taper off buprenorphine. ^a	0.41	
The cravings will be too much for me to handle.	0.27	0.68
I won't be able to refuse opiates offered to me.		0.83
I won't be able to do it on my own.		0.59
I am afraid that I will relapse back to opiates.		0.83
I'm confident that I could stick with my goal of staying off buprenorphine.		0.76
I'll end up drinking or using some other drug to deal with withdrawal.		0.63
It will be easy to control my urges for opiates once I'm off buprenorphine.		0.76

^aExcluded from final indexes.

Table 3.

Product Moment Correlations of Physical and Relapse Worries about Quitting Buprenorphine with Demographic Characteristics, Buprenorphine Use History, and Expected Correlates (n = 138).

	Withdrawal Fear	Relapse Fear
	r (p =)	r (p =)
Age	0.07 (.424)	0.20 (.019)
Gender (Male)	−0.12 (.156)	−0.04 (.638)
Non-Latino White	−0.14 (.101)	−0.14 (0.090)
Education (Years)	−0.04 (.615)	0.00 (.959)
Log (Weeks on Buprenorphine)	0.07 (.436)	−0.18 (.035)
Current Buprenorphine Dose	0.21 (.016)	0.25 (.004)
Self-Efficacy to Quit Buprenorphine	−0.39 (<.001)	−0.77 (<.001)
Withdrawal Severity	0.16 (.061)	0.11 (.212)
Impulsivity	0.07 (.406)	0.26 (.002)
DIS Physical discomfort Tolerance	−0.23 (.006)	−0.27 (.001)
DIS Physical discomfort Avoidance	0.38 (<.001)	0.39 (<.001)
DTS Total	−0.43 (<.001)	−0.49 (<.001)