Mental Health and Psychosocial Needs of Patients Being Treated for Opioid Use Disorder in a Primary Care Residency Clinic

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Abstract

Purpose: Primary care is an ideal setting to deliver efficacious treatments for opioid use disorder (OUD). Primary care providers need to be aware of other concerns patients with OUD might have in order to provide comprehensive care. This study describes the prevalence of mental health, comorbid substance use, and psychosocial concerns of patients seeking treatment for OUD in primary care and their relation to 6-month treatment retention. **Methods:** Patients (N = 100; *M* age = 34.9 years (SD = 10.8), 74% white, 46% female) with OUD who were starting treatment with buprenorphine at an academic family medicine residency clinic completed surveys of mental health concerns (depression, anxiety, trauma), psychosocial needs (food insecurity, income, transportation, employment), and demographic variables. Chart reviews were conducted to gather information on comorbid substance use, mental health diagnoses, and 6-month treatment retention. **Results:** Mental health symptoms were highly prevalent in this sample (44% screened positive for anxiety, 31% for depression, and 52% for posttraumatic stress disorder). Three-quarters reported use of illicit substances other than opioids. Many patients also had significant psychosocial concerns, including unemployment (54%), low income (75%), food insecurity (51%), and lacking reliable transportation (64%). Two-thirds (67%) of the sample were retained at 6 months; patients who previously used intravenous opioids were more likely to discontinue treatment (*P* = .003). **Conclusions:** Many patients receiving treatment for OUD have significant mental health problems, comorbid substance use, and psychosocial concerns; interestingly, none of these factors predicted treatment retention at 6 months. Primary care clinics would benefit from having appropriate resources, interventions, and referrals for these comorbid issues in order to enhance overall patient well-being and promote recovery.

Keywords

buprenorphine, social determinants of health, substance use, family medicine

Opioid use disorder (OUD) has captured national attention, as the rate of opioid-involved drug overdose has increased 6-fold since 1999. Approximately 130 Americans die every day as the result of an opioid overdose.[1] Medications for opioid use disorder (MOUD) such as methadone, buprenorphine, and naltrexone have been associated with significant reductions in overdose and serious opioid-related acute care use, compared with other treatments.[2] However, relatively few patients are treated with a MOUD.[3] Buprenorphine has the potential to improve access to OUD treatment because it can be prescribed and monitored in primary care settings and has the potential to reduce overdose rates with a short abstinence period (12-48 hours) and relatively few adverse reactions.[4,5] Indeed, patients experience less stigma when OUD is treated in primary care versus specialty treatment settings, and may thus be more willing to engage in and continue treatment.[4,6,7] Furthermore, having primary care physicians manage OUD facilitates greater continuity and

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comprehensiveness of care,[8,9] and presents opportunities for coordination with social services and attention to social determinants of health (eg, unemployment, homelessness, food insecurity).[10,11]

Evidence reveals that patients with OUD often struggle with comorbid psychiatric conditions. For example, 65% of patients with OUD have at least 1 mental health disorder, a risk that is 6.7 times higher than in the general population.[12] Estimates of the prevalence of comorbid psychiatric disorders in the literature range from 23%[13] to 90%,[14] with most reported to be 45% to 80%.[9,15-19] In addition to anxiety and affective disorders,[14,20-22] patients with OUD experience high rates of posttraumatic stress disorder[23] and sexual or physical abuse.[18] Given the large overlap between mental illness and substance use disorders, one may posit that having comorbid diagnoses may be a risk factor for early treatment discontinuation. However, the research evidence is mixed; some studies have found no association between mental health and substance use disorders and treatment retention.[18] Conversely, some have found that having a mental health diagnosis was associated with greater likelihood of being retained in treatment,[15] and others have found that having a psychiatric comorbidity and comorbid substance use was associated with treatment noncompliance.[17]

Other factors, such as social determinants of health, including employment and housing status, income level, and access to healthy food and reliable transportation, may also affect treatment retention. These psychosocial needs are integral to patient health and functioning, particularly among patients with OUD. For example, 60% to 70% of patients with OUD are unemployed,[13,17,18,22-25] and 60% earn less than $10 000 annually.[25] Approximately 25% to 30% of patients receiving MOUD report homelessness and/or housing instability, factors that reduce the likelihood of seeking treatment.[19,21,25] These statistics are particularly concerning since patients with unmet psychosocial needs may have difficulty staying engaged in treatment; however, this has yet to be fully explored in patients with OUD receiving treatment in primary care settings.

Primary care–based buprenorphine treatment is widely recognized as a realistic and scalable solution to increasing access to MOUDs, and research indicates a growing trend toward such models of care.[2,26,27] As primary care clinics continue to increase availability of treatment for OUD, there is a critical need for primary care physicians to more comprehensively understand the patient population seeking their support during treatment and recovery. Assessing patients seeking treatment for OUD can better inform health care providers on what additional supports and care patients may need to enhance recovery. Utilizing standardized screening measures and medical provider progress notes, the current study aims to describe the prevalence and severity of mental health and psychosocial needs in new patients receiving treatment for OUD in a primary care setting.

Furthermore, a secondary aim of this study explores whether mental health, comorbid substance use, and psychosocial concerns are related to early retention (6 month) in treatment. A significant limitation of the existing literature is that nearly all studies have used retrospective chart review designs; data were extracted from medical records at the end of the study.[15,17,18] This study uses a prospective cohort design to assess mental health symptoms, comorbid substance use, and psychosocial needs at the beginning of treatment to examine early treatment retention in a primary care–based MOUD treatment program.

Method

Participants and Procedure

Participants (N = 100) were patients receiving MOUD at Broadway Family Medicine (BFM), located in a socioeconomically depressed area of Minneapolis, Minnesota. BFM is a family medicine residency training clinic affiliated with the Department of Family Medicine and Community Health at the University of Minnesota. The MOUD program draws patients from the greater metropolitan, Minnesota, and western Wisconsin areas. Patients were included if they were (a) at least 18 years old and (b) starting buprenorphine between June 2018 and August 2019. Clinic staff (a licensed alcohol and drug counselor, care coordinator, or project coordinator) approached patients during their induction clinic visit and asked if they would be willing to complete a survey with demographics, social determinants of health, and mental health screening instruments. If patients did not have time to complete the survey that day, they were allowed to complete it at their next follow-up appointment (which usually happened within 5-7 days). Patients were offered a $5 gift card for completing the survey. This study was approved by the University of Minnesota Institutional Review Board, based on its use of data gathered for program evaluation (quality improvement).

Measures

Demographic and Social Characteristics. Patients provided demographic information, including gender, age, race/ethnicity, marital status, employment status, income, and typical mode of transportation.

Substance Use and Mental Health History. Information regarding substance use and mental health history were gathered from the medical record. At buprenorphine initiation visits, physicians used a standardized electronic health record (EHR) template to elicit information from patients about their substance use (including opioids [route of administration, type of opioid used, and previous quit attempts] and other illicit substances), previous mental

health diagnoses, and other addictive behaviors (eg, self-reported addictions to food, sex, gambling, games). Results from the first urine toxicology screen were also gathered from the EHR. A member of the study team extracted information from the EHR after the patient's visit.

Depressive Symptoms. The 9-item Patient Health Questionnaire (PHQ-9) measures depressive symptoms.[28] Participants rate the extent to which they are bothered by a series of 9 symptoms (eg, "little interest or pleasure in doing things") over the past 2 weeks on a scale ranging from 0 (not at all) to 3 (nearly every day). Higher scores correspond to greater depressive symptoms. Previous investigations have found that higher scores on the PHQ were related to greater likelihood of having any depressive disorder.[28] A score of 10 or greater is considered a positive screen for depression, corresponding to moderate or severe depressive symptoms.

Anxious Symptoms. The 7-item Generalized Anxiety Disorder (GAD-7) questionnaire was used to measure anxious symptoms.[29] Patients rate the extent to which they experienced the 7 symptoms (eg, "feeling nervous, anxious, or on edge") over the past two weeks on a scale from 0 (not at all) to 3 (nearly every day). Items are summed for a total score, with higher scores corresponding to greater anxious symptoms. A score of 10 or more is considered a positive screen for anxiety, corresponding to moderate or severe anxious symptoms.

Trauma Symptoms. The 5-item Primary Care PTSD Screen for DSM-5 (PC-PTSD-5) was used to measure trauma symptoms.[30] Patients first report whether they have ever experienced a traumatic event (yes or no). If yes, patients report if they experience any of 5 trauma symptoms in the past month using a yes or no response (eg, having nightmares or intrusive thoughts). The number of positive responses are summed for a total score. A score of "3" or higher is considered a positive screen for trauma that warrants further evaluation of possible posttraumatic stress disorder; the measure has been found to have high diagnostic accuracy.[30]

Food Insecurity. Patients rate the extent to which they experience food insecurity in the past month on 2 items: "I worried whether our food would run out before we got money to buy more" and "The food we bought just didn't last and we didn't have money to get more."[31] Patients use response options of often, sometimes, never, or don't know. Patients who respond affirmative to either question (ie, often or sometimes) are considered to have a positive screen for food insecurity. This screener has been shown to have 97% sensitivity to food insecurity.[31]

Treatment Retention. Treatment retention was defined as having an active prescription for buprenorphine/naloxone at six months post treatment initiation. Buprenorphine/naloxone prescription history was extracted from the EHR.

Data Analysis

Data were analyzed using Statistical Analysis Software (SAS) 9.4. Descriptive statistics were used to describe the sample. Patients who were retained at 6 months were compared with those who had discontinued at 6 months on primary study variables, including symptoms of depression, anxiety, and trauma; opioid type (heroin, prescription opioids, or both); route of opioid administration (oral, intravenous, smoking, and/or intranasal); self-reported comorbid substance use; employment status (unemployed vs other); food insecurity; and reliable transportation. Independent-samples t tests were used to compare continuous variables, and χ^2 tests of independence or Fisher exact tests (for comparisons with cells smaller than n = 5) were used for categorical variables. Finally, logistic regression was used to predict treatment discontinuation at 6 months, controlling for demographic variables. Predictors that were significant in the bivariate analyses (or approached significance) were retained in the logistic regression.

Results

Demographic characteristics are presented in Table 1. Patients, were, on average, 34.9 years old (SD = 10.8 years), predominantly white, single, underemployed or unemployed, and low income. For most patients, their first visit at the clinic was for buprenorphine initiation (n = 70, 70%). Three-quarters of patients (n = 75, 75%) had previously received buprenorphine. Approximately 43% of patients (n = 40) reported using heroin, 28% (n = 26) reported prescription opioid use, and 29% (n = 27) reported both heroin and prescription opioid use. Participants used a variety of routes of administration, with intravenous (n = 46, 49%) and oral (n = 45, 48%) routes being most commonly used, followed by intranasal (n = 30, 32%) and smoking (n = 12, 13%). Most patients had made previous attempts to discontinue their opioid use (n = 74, 85%). For patients who provided information about treatment, 53% (n = 37) were currently involved in a formal substance use treatment program.

Mental Health

Mental health symptoms (as reported on psychological screeners at the initiation visit) and diagnoses (based on EHR review) are reported in Table 2. Nearly half (44%) of the patients had a positive screen for anxiety, corresponding to moderate or severe anxiety symptoms, and 69% reported a history of an anxiety diagnosis. About one-third (31%) had a positive screen for current

Table 1. Patient Characteristics (N = 100) at the Beginning of a Medication-Assisted Treatment (MAT) Program.

Variable	N (%)
Age, y, mean ± SD	34.9 ± 10.8
Gender	
Male	51 (51)
Female	46 (46)
Other	3 (3)
Race	
White	74 (74)
Black or African American	9 (9)
American Indian/Alaskan Native	6 (6)
Mixed race or other	11 (11)
Hispanic or Latino (n = 90)	7 (7.8)
Marital status (n = 99)	
Currently married or living together	23 (23.2)
Never married	49 (49.5)
Separated	4 (4.0)
Divorced	22 (22.0)
Widowed	1 (1.0)
Employment status	
Employed full-time	14 (14)
Employed part-time	7 (7)
Retired	1 (1)
Disabled	15 (15)
Student	6 (6)
Unemployed	54 (54)
Homemaker	3 (3)
Education (n = 99)	
Less than high school	8 (8.1)
High school/GED	36 (36.4)
Some college	35 (35.4)
2-year college degree	10 (10.1)
4-year college degree	8 (8.1)
Graduate or professional degree	2 (2)
Income, $	
<10 000	50 (50)
10 000-29 999	25 (25)
30 000-49 999	16 (16)
≥$50 000	6 (6)

depression, corresponding to moderate or severe depressive symptoms. Nearly three-quarters (74%) reported a history of a depression diagnosis.

Most (81%) patients indicated on the screener that they had experienced a traumatic event, and more than half (52%) screened positive for probable PTSD. However, only 25% reported a PTSD diagnosis to the primary care provider at the initiation visit.

Substance Use and Addictive Behaviors

Many patients reported using substances other than opioids (see Table 3). During the initiation visit, the majority of patients reported using tobacco (86%) and many patients

Table 2. Mental Health Symptoms and Diagnoses Among Patients Receiving MOUD.[a]

Measure	n (%)	Mean	SD	Actual range
Depressive symptoms (PHQ-9)	31 (31)	8.2	6.0	0-27
Anxious symptoms (GAD-7)	44 (44)	9.0	6.4	0-21
Experienced a traumatic event	81 (81)			
Trauma symptoms (PC-PTSD-5; n = 81)	52 (52)	2.8	2.0	0-5
Family history of mental illness	66 (73)			
Previous diagnosis of mental illness	89 (90)			
ADHD	18 (18)			
Anxiety	69 (69)			
Bipolar disorder	12 (12)			
Depression	72 (72)			
Eating disorder	1 (1)			
PTSD	25 (25)			
Psychosis	4 (4)			
Personality disorders	4 (4)			

Abbreviations: MOUD, medications for opioid use disorder; PHQ-9, 9-item Patient Health Questionnaire; GAD-7, 7-item Generalized Anxiety Disorder questionnaire; ADHD, attention deficit hyperactivity disorder; PTSD, posttraumatic stress disorder; PC-PTSD-5, Primary Care PTSD Screen for DSM-5.
[a]For the PHQ-9, GAD-7, and PC-PTSD-5, n (%) refers to the proportion of positive screens in the sample. For the PHQ-9, a positive screen included scores ≥10. For the GAD-7, a positive screen included scores ≥10. For the PCL-5, a positive screen included scores ≥3.

reported drinking alcohol (37%). Three-quarters (75%) reported previous use of illicit substances, other than opioids, which was supported by their urine toxicology results. Nearly half (43%) reported also using methamphetamine and the same number reported using cannabis. Many reported use of cocaine or crack cocaine (31%). In addition to substance use, nearly a third (31%) reported having other addictive behaviors, including food, sex, shopping, internet/video games/television, or stealing.

Psychosocial Concerns

Half (51%) of patients reported on the screeners that they were food insecure. Only 36% reported that they had their own reliable transportation. Thirty-one percent reported they used public transportation; 28% reported they used medical cabs or rides; 18% relied on someone else to drive them places; and 6% reported they had their own transportation, but it was not reliable.

Predictors of Treatment Retention at 6 months

Mental health concerns, comorbid substance use, and psychosocial concerns were examined in relation to treatment retention at 6 months (see Table 4). Intravenous opioid use was the only predictor of retention at 6 months, $\chi^2(1) = 9.0$, $P = .003$. Patients who had previously injected opioids had

Table 3. Comorbid Substance Use and Addictive Behaviors Reported in Initiation Visit With Primary Care Physician.

Variable	n	%
Family history of substance use disorders	73	80
Alcohol use	36	37
Tobacco use	83	86
Self-reported substance use (any)	75	75
Benzodiazepines	8	8
Cannabis	43	43
Cocaine or crack	31	31
Hallucinogens	10	10
Methamphetamine	43	43
MDMA	8	8
Addictive behaviors	31	31
Food	2	2
Gambling	12	12
Internet, video games, or television	4	4
Sex or pornography	10	10
Shopping	6	6
Stealing	3	3
Urine drug screen results (positive screen)		
Amphetamine	15	15
Barbiturate	1	1
Buprenorphine	64	64
Benzodiazepine	17	17
Cocaine	7	7
Cannabis	25	25
Methamphetamine	14	14
Methadone	3	3
Morphine	21	21
Oxycodone	6	6

Abbreviations: MDMA, 3,4-methylenedioxy-methamphetamine.

a higher likelihood of discontinuing MOUD treatment at 6 months. There was a trend that unemployment was also related to retention; patients who were unemployed were more likely to discontinue treatment than patients with other occupational statuses (employed full or part time, retired, or students), $\chi^2(1) = 3.4$, $P = .06$. No other mental health symptoms, comorbid substance use, or psychosocial concerns were related to treatment retention at 6 months. After controlling for age, sex, race, and unemployment, intravenous drug use remained a significant predictor of treatment discontinuation at 6 months, Odds ratios (ORs) = 3.57, 95% CI [1.26, 10.1], $P = .017$. There was no longer a trend for unemployment after controlling for demographics and intravenous opioid use, OR = 1.39, 95% CI [0.50, 3.86], $P = .53$.

Discussion

Our sample of 100 new patients receiving MOUD in a family medicine residency clinic reported considerably high levels of comorbid mental health and psychosocial concerns including depression, anxiety, and PTSD. These findings are consistent with the previous research that has documented high rates of comorbid mental health conditions in people with OUD,[16,32,33] as well as those specifically seeking MOUD treatment in primary care.[19,34]

In addition to comorbid mental health concerns, about one-third of our patients were engaging in other addictive behaviors (eg, gambling), and many were experiencing challenging social determinants of health. Consistent with other studies,[25] over half of our patients were unemployed, had less than $10 000 annual income, and were food insecure. These findings are concerning, given the poverty threshold for an individual in 2019 was $12 490,[35] and the overall poverty rate for Minnesota hovers around 10.5%.[36] The rate of poverty and food insecurity in our patient sample is approximately 5 times the rate for the general population of Minnesota.[37,38] Food insecurity has not been extensively studied, but studies of pregnant women receiving MOUDs found comparably high rates.[39,40] Furthermore, only one-third of the sample reported that they had their own reliable transportation; some evidence suggests that providing transportation can improve treatment retention.[41] There is likely a reciprocal relationship between psychosocial concerns and substance use; patients in low socioeconomic situations may be more susceptible to use disorders and use disorders may lead to socioeconomic difficulties.[42]

Interestingly, the only variable that predicted retention in treatment at 6 months was intravenous opioid use, with patients who reported using intravenous opioids having greater risk of early dropout from treatment. Conversely, the type of opioids used (heroin, prescription opioids, or both) was not related to treatment retention. Previous studies have found that patients who used heroin were less likely to complete treatment and had shorter treatment durations than patients who used prescription opioids.[15,43] Patients who abuse prescription opioids had fewer years of opioid use compared with patients who used heroin.[43] It may be that patients who inject opioids have progressed into a more severe substance use disorder,[44] and they may need additional supports to remain in treatment.

It is important for physicians to be aware of the complex psychosocial, economic, and mental health concerns of many patients receiving MOUDs. Physicians should consider how MOUD can be one piece of an overall treatment plan, and may want to collaborate with interdisciplinary team members, care coordinators, community resource partners, and treatment centers to address broader issues. It is well known that mental health conditions are related to considerably increased morbidity and mortality, so incorporating their treatment as part of comprehensive OUD care is warranted. Few studies have examined trauma histories and PTSD in patients seeking MOUD in primary care. With over 80% of our sample having experienced a traumatic

Table 4. Baseline Differences in Patients Receiving Medication-Assisted Treatment (N = 100) Who Were Retained or Discontinued Treatment at 6 Months.

	Retained (n = 69), n (%)	Discontinued (n = 31), n (%)	*P*
Mental health			
Depressive symptoms (PHQ-9), mean ± SD	8.3 ± 6.2	8.1 ± 5.9	.86[a]
Anxious symptoms (GAD-7), mean ± SD	9.3 ± 6.5	8.4 ± 6.0	.54[a]
Trauma symptoms (PCL-5; n = 81), mean ± SD	2.8 ± 2.0	3.9 ± 1.9	.73[a]
Substance use			
Opioid type (n = 93)			.57
Heroin	26 (41)	14 (48)	
Prescription opioids	20 (31)	6 (21)	
Both	18 (28)	9 (31)	
Route of opioid administration			
Oral	32 (51)	13 (42)	.42
Intravenous	24 (38)	22 (71)	.003
Intranasal	23 (37)	7 (23)	.17
Smoke	8 (13)	4 (13)	.25[b]
Comorbid substance use			
Benzodiazepines	6 (9)	2 (6)	.30[b]
Cannabis	26 (38)	17 (55)	.11
Cocaine or crack	18 (26)	13 (42)	.11
Hallucinogens	7 (10)	3 (10)	.28[b]
Methamphetamine	26 (38)	17 (55)	.11
MDMA	6 (9)	2 (6)	.30[b]
Psychosocial needs			
Unemployed	33 (48)	21 (68)	.06
Has own reliable transportation	26 (38)	10 (33)	.60
Food insecure	36 (52)	15 (48)	.73

Abbreviations: PHQ-9, 9-item Patient Health Questionnaire; GAD-7, 7-item Generalized Anxiety Disorder questionnaire; PC-PTSD-5, Primary Care PTSD Screen for DSM-5. MDMA, 3,4-methylenedioxy-methamphetamine.
[a]Differences between patients who were retained versus discontinued were compared using an independent-samples *t* test.
[b]Differences between patients who were retained versus discontinued were compared using a Fisher's exact test. All other comparisons were made using χ^2 tests of independence.

event and over half screening positive for PTSD, trauma-informed care principles should be infused in all aspects of treatment.[45] If the current finding of patients who engage in intravenous opioid use is replicated, exploration of specific supports for this typology of patient may be useful to increase retention in treatment and successful recovery.

Despite the clear need for managing comorbid mental health concerns in patients seeking treatment for OUD, there is no clear guidance on best practices. Several behavioral approaches have been tried to address comorbid mental health concerns in primary care–based MOUD programs with disappointing findings.[46-48] Most of the studies used urine toxicology outcomes, and many of the interventions were focused on the addiction rather than the mental health issues. The considerable socioeconomic barriers faced by over half of our sample are noteworthy, and comparable to similar research examining the social determinants of health among these patients.[19] It will be important to explore and evaluate new methods of supporting patients with these significant psychiatric and

psychosocial concerns, such as with care coordinators who can help patients navigate challenges like food insecurity, unemployment, and lack of transportation.

Limitations of our study include data from a single site, and the limits to generalizability due to our primarily white (74%), low income, and largely unemployed sample in an urban setting. Although data were primarily self-report, our ability to converge data from multiple sources (self-report surveys, medical record progress notes, urine screens) was a considerable strength. This study also used a prospective cohort design, which improves upon previous research relying on retrospective chart reviews. Although this design establishes temporal precedence, causality still cannot be determined. In addition, this study did not have a comparison group; it is not known whether patients in the clinic not receiving treatment for OUD would have similarly high rates of psychosocial needs or mental health concerns. Finally, we did not perform complete psychiatric assessments, relying instead on brief but well-validated screeners.

Several lines of future research emerge from this study, including examining how these psychiatric and psychosocial variables predict retention in MOUD programs. The extent to which ongoing MOUD treatment is associated with reduction in mental health symptoms and improvements in broader quality of life (eg, food security) should also be explored in future research. Although assessment and treatment of comorbid mental health conditions will be essential, research examining the broader psychosocial needs of patients starting MOUD in primary care should merit equal attention. The life-affecting social determinants of health (e.g., housing and food instability, community violence, adverse childhood experiences) warrant further study and clinical attention in the OUD field. Finally, future research needs to examine these variables with other samples and settings, such as rural settings and other treatment settings, such as emergency departments or specialty treatment centers, and should continue to expand the array of outcome variables that are important in this population (eg, interaction with the legal system, parenting, and relationships).

Declaration of Conflicting Interests

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