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Opioid Use Disorder among Community Mental Health Clinic Clients: Prevalence, Characteristics and Treatment Willingness

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Abstract

Objective: The goal of this study was to understand prevalence of co-occurring opioid use disorder and willingness to engage in treatment among clients of 8 Los Angeles County Department of Mental Health outpatient clinics.

Methods: Adults presenting for an appointment over a 2-week period were asked if they would like to complete an anonymous health survey. Clients who indicated opioid use in the past year were offered a longer survey which assessed probable opioid use disorder. Willingness to take a medication and receive any treatment also were assessed.

Results: 3,090 clients completed screening. 8% had a probable prescription (Rx) opioid use disorder; 2% had a probable heroin use disorder. 52% with Rx opioid use disorder were female compared to 30% with heroin use disorder. Of those with Rx opioid use disorder, 43% were Black, 33% were Hispanic and 12% were White; of those with heroin use disorder 24% were Black, 22% were Hispanic, and 39% were White. Those with Rx opioid use disorder were less familiar with medications for opioid use disorder than those with heroin use disorder (81% and 45%, respectively), and less likely to have received treatment (22% and 41%, respectively) and to have taken medication (18% and 41%, respectively). The strongest predictor of willingness to take a medication was believing that it would help stop opioid use (β=13.54, p<0.01 (buprenorphine)); β= β=15.83, p<.01 (long-acting injectable naltrexone)).

Conclusion: Findings highlight the need to identify people with opioid use disorder and educate clients in mental health settings about medications.

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INTRODUCTION

Untreated substance use disorders are prevalent and can have devastating consequences for people with co-occurring mental illness. In 2019, of 51 million Americans with any mental illness, 9.5 million (29%) had a co-occurring substance use disorder.[1] Co-occurring substance use disorders and mental health disorders are associated with increased morbidity and mortality, homelessness and incarceration, and poor treatment outcomes.[2–6] Long-term use of prescription opioids is common in individuals with mental illness and is a risk factor for heroin use and the development of opioid use disorder.[7–9] People with mood and anxiety disorders are two times as likely to use opioid medications than people without mental health problems and are more than three times as likely to use them nonmedically.[10,11] Despite the availability of effective treatment,[12–14] substance use disorders among those with mental illness largely go untreated.[15,16] In 2019, among 3.6 million people with any mental illness, 51% did not receive any treatment for their substance use disorder or mental illness.[1]

FDA-approved medications for opioid use disorder have demonstrated effectiveness for individuals with opioid use disorder including those with mental illness.[9,12–14,17,18] Once initiated, both extended-release naltrexone (NLAI) and buprenorphine have demonstrated efficacy.[18]

In mental health settings, psychosocial treatment and recovery support may be available for people with substance use disorders, but medications for opioid use disorder generally are not.[19,20] Because individuals with co-occurring disorders are more likely to receive mental health treatment than substance use treatment,[1] mental health settings are an important medication access point.[31] Increasing access to medication for opioid use disorder in mental health settings requires addressing both the supply of and the demand for treatment.[21] On the supply side, clinics and providers must have adequate capacity[22] and organizational readiness.[23] On the demand side, prevalence and barriers to access, including client beliefs and perceptions of their need and willingness for treatment, must be understood.[24] To date, there has been little research on either supply or demand for medication for opioid use disorder in public mental health settings. Understanding opioid use disorder prevalence and preferences among people who receive services in these settings is crucial for increasing opioid use disorder medication uptake. In this article we report results from a client waiting-room survey conducted in 8 Los Angeles County Department of Mental Health (LACDMH)-operated outpatient clinics to answer three questions: (1) What is the estimated prevalence of opioid use disorder among community mental health clients? (2) Are clients with opioid use disorder willing to take medication for opioid use disorder? (3) Are clients with opioid use disorder willing to receive opioid use disorder medication and other services as part of their mental health treatment?

METHODS

Study Setting

This study was conducted in 8 of 25 outpatient clinics directly operated by the LACDMH. LACDMH provides treatment to over 250,000 individuals annually, serving an ethnically,

racially, and geographically diverse population across LAC. LAC spans 4,084 square miles and is the most populous county in the United States, with over 10 million residents. To maximize diversity, we selected clinics in each of the County's 8 Service Planning Areas. This work was conducted as part of a larger study to develop an implementation toolkit for integrating pharmacotherapy for opioid use disorders into public mental health settings.[25]

Clients and Procedures

Adults in the waiting room for a mental health appointment at participating clinics over a two-week period between April 2019 and February 2020 were asked by a research assistant if they would like to complete an anonymous, tablet-based, self-administered health survey. They were told they might qualify to take a longer survey based on their answers. Clients whose responses indicated heroin use or nonmedical use of prescription opioids in the past year were offered the full survey. Clients who took the screener were offered a one-dollar incentive; those who completed the full survey were offered a fifteen-dollar gift card and pamphlets on opioid use disorder. All procedures were approved by the research institution's and LACDMH's human subjects research committees.

Measures

Opioid use disorder prevalence.—We assessed probable current opioid use disorder using the NIDA-modified ASSIST, which has good concurrent, construct, predictive and discriminative validity. Elevated scores are concordant with an opioid use disorder diagnosis.[26]

Characteristics of people with co-occurring opioid use disorder.—The screener contained items on demographics (age, sex, gender, race/ethnicity) and reason for clinic visit (bipolar disorder, depression, anxiety, schizophrenia, PTSD, another problem), and assessed nonmedical use of prescription pain medications, heroin/opium, alcohol, marijuana, methamphetamine, and cocaine in the past year. The full survey asked about housing/homelessness and assessed moderate or severe use of the substances above as well as pain intensity and the worst and least pain in the last 24 hours (on a scale from 0–100, with 0 being the least pain and 100 being the worst).

Opioid use disorder medication knowledge and attitudes, substance use disorder history, and treatment willingness.—We assessed willingness to take medication for opioid use disorder by asking about familiarity with and opinions about these medications from the Opinions about Medication Assisted Treatment Questionnaire;[27,28] substance use treatment history (ever received any treatment/medication for an opioid use disorder, reasons for not receiving treatment); willingness to take buprenorphine or NLAI; willingness to receive medication (buprenorphine or NLAI) as part of opioid use disorder treatment; willingness to receive any opioid use disorder treatment at a specialty substance use disorder clinic, and willingness to receive any treatment as part of mental health treatment, all on a scale from 1–100, with 1 being the least and 100 the most willing).[29,30] Questions about oral naltrexone were not included due to low rates of patient acceptance and adherence.[31]

Analysis

We conducted univariate analyses to examine opioid use disorder prevalence, as well as distribution, central tendencies, and dispersion of variables for clients who screened positive for a probable opioid use disorder (i.e., a score > 3 for heroin/opium or nonmedical use of prescription opioids). Next, we conducted chi-square tests on categorical and dichotomous variables and two-sample t-tests on continuous variables to examine differences between clients with a probable prescription (Rx) opioid use disorder and those with a probable heroin use disorder (with or without a Rx opioid use disorder). Bivariate Ordinary Least Squares (OLS) linear regression models were used to explore predictors of four variables: (1) willingness to take buprenorphine; (2) willingness to take NLAI; (3) willingness to receive treatment for opioid use disorder at a specialty substance use disorder clinic; and (4) willingness to receive opioid use disorder care as part of treatment at the mental health clinic. Predictor variables tested in bivariate models were age, sex/gender, race/ethnicity, reason for clinic visit, pain level, ever received opioid use disorder treatment, ever took substance use disorder medication, belief in the effectiveness of buprenorphine or NLAI, and type of opioid use disorder (Rx or heroin). Due to collinearity between familiarity with each medication and believing the medication was effective, familiarity was not included in the model. Finally, we fit four multivariate regression models to the data, including all predictor variables from bivariate OLS regression analyses that were significant at $p \leq 0.2$. This is consistent with variable selection procedures aimed at reducing the number of variables included in the multivariable regression model while taking into consideration that some variables not significant (at $p<.05$) still could be significant when combined with other variables.[32,33] To assess clinic differences, we ran intraclass correlations between each outcome and clinic; because there was not a significant relationship between clinic and any variable, we did not include a “clinic” variable in the models. All analysis was done in Stata 16.

RESULTS

Characteristics of clients with opioid use disorder

Of 5,012 clients approached, 3,090 clients completed the screener, 406 qualified for the full survey, and 340 completed it. Of clients who took the screener, 309 (10%) had a probable opioid use disorder; 258 (8%) had a probable Rx opioid use disorder only, and 51 (2%) had a probable heroin use disorder either alone or with a Rx opioid use disorder. The sample of those who completed the screener was comparable in age, gender, and race/ethnicity to the composition of the 8 clinics and to LACDMH directly operated clinics (Table 1).

Table 2 shows characteristics of all clients with a probable opioid use disorder and by type of disorder. Although a higher proportion of individuals in each demographic category had a probable Rx opioid use disorder than a heroin use disorder, females comprised a larger proportion of those with Rx opioid use disorder than those with heroin use disorder (49% and 25%, respectively) and males comprised a larger proportion of those with heroin use disorder than those with Rx opioid use disorder (71% and 48%, respectively). Black/African American clients comprised a larger proportion of those with probable Rx opioid use disorder than those with heroin use disorder (43% and 24%, respectively) as did Hispanic/

Latino clients (33% and 22%, respectively), while a larger proportion of White clients had heroin use disorder (39%) than a Rx opioid use disorder (12%). Of note, compared with the larger DMH client community shown in Table 1, Black/African American clients were disproportionately affected by Rx opioid use disorder, representing 23% of the overall DMH client population but 43% of those with RX opioid use disorder. Additionally, 15% of all African Americans screened had a probable opioid use disorder, compared with 8% of Whites and 8% of Hispanics. Those with probable heroin use disorder had higher rates of injection drug use in the last year and higher rates of use of other substances than those with probable Rx opioid use disorder. There were no significant differences between the two groups related to the reason for their clinic visit. Those with probable Rx opioid use disorder reported significantly higher pain “right now” and higher “least amount of pain in the past 24 hours” than those with heroin use disorder.

Opioid use disorder medication treatment history, familiarity, beliefs, willingness

The majority (78%) of clients with probable Rx opioid use disorder reported never receiving treatment, while this was true for less than 40% of those with heroin use disorder (see Table 3). Of those who had not received treatment but wanted it, the top two reasons for not receiving treatment among those with Rx opioid use disorder were “believing I could handle it without treatment” (37%) and “didn’t think I needed it” (35%), and the top two reasons for those with heroin use disorder were “not being able to afford treatment” (52%) and “believing I could handle it without treatment” (38%).

Most with probable Rx opioid use disorder reported they had never taken a medication for opioid use disorder (82%), while among those with heroin use disorder, 61% had received medication including methadone (47%), buprenorphine (35%), and/or NLAI (7%). Thirty-four percent of those with probable heroin use disorder reported they were currently taking a medication for their opioid use disorder compared with 9% of those with Rx opioid use disorder.

Most of those with probable Rx opioid use disorder were not familiar with buprenorphine (76%) or NLAI (81%), while for those with heroin use disorder, 82% reported being “somewhat” or “very” familiar with buprenorphine, and 52% reported being “somewhat” or “very” familiar with NLAI (Table 4). Fewer clients with Rx opioid use disorder than those with heroin use disorder agreed or strongly agreed that either buprenorphine (25%) or NLAI (20%) could help people stop using, compared with those with heroin use disorder (67% and 49%, respectively).

Overall, those with probable heroin use disorder provided significantly higher ratings than those with Rx opioid use disorder on willingness to: take buprenorphine, take NLAI, receive any opioid use disorder treatment in a specialty program, and receive opioid use disorder treatment as part of mental health treatment (Table 4).

Multivariate Regression Analyses

Willingness to take buprenorphine—Predictors in this model ($R^2 = 0.099$) were: age, sex, opioid use disorder type, ever received opioid use disorder treatment, pain level,

and belief that buprenorphine can help people stop using. Significant predictors were agreement that buprenorphine can help people stop using (β=13.54, p=0.003); pain level (with increased pain associated with greater willingness) (β=0.193, p=0.003); and younger age (β=−0.331, p=0.026).

Willingness to take NLAI—Predictors in this model (R^2 = 0.100) were: sex, opioid use disorder type, ever received opioid use disorder treatment, pain level, and belief that NLAI can help people stop using. Significant predictors were agreement that NLAI can help people stop using (β=15.83, p<0.001) and pain level (β=0.175, p=0.005).

Willingness to receive opioid use disorder treatment at a specialty clinic—Predictors in this model (R^2 = 0.059) were: sex, opioid use disorder type, pain level, and ever received Rx opioid use disorder treatment. The only significant predictor was pain level (β=0.166, p=0.011).

Willingness to receive opioid use disorder treatment as part of mental health treatment—Predictors included in this model (R^2 = 0.058) were: sex, opioid use disorder type, pain level, and ever received Rx opioid use disorder treatment. Significant predictors were having a heroin use disorder (compared to having a Rx opioid use disorder) (β=13.61, p=0.026) and ever having received Rx opioid use disorder treatment (β=10.36, p=0.043).

DISCUSSION

To characterize demand for medications for opioid use disorder in public mental health clinics, we conducted a waiting room survey to assess probable opioid use disorder prevalence, characteristics of people with opioid use disorder, and willingness to receive opioid use disorder treatment. We found that opioid use disorder is highly prevalent, with 10% of 3,090 waiting room clients having a probable opioid use disorder: 8% with a Rx opioid use disorder and 2% with a heroin use disorder. By comparison, about 0.8% of people in the general population are thought to have any opioid use disorder.[34] Our data also show that of those with probable Rx opioid use disorder, 78% have never received any opioid use disorder treatment compared with 39% of those with a heroin use disorder, suggesting more efforts are needed in mental health settings to identify and treat individuals who have nonmedical Rx opioid use. In addition, more than half of clients with a probable opioid use disorder are also using alcohol in risky amounts; more than half are using marijuana and about a third are using cocaine and/or methamphetamine, with higher rates among those with a heroin use disorder, indicating the need for full assessment.

In our sample, prevalence of heroin use disorder is higher among men than Rx opioid use disorder, consistent with the general population,[35–37] while a slightly higher proportion of women have probable Rx opioid use disorder. This is important because providers may not suspect Rx opioid use disorder among women and women also are less likely than men to access opioid use disorder treatment.[38]

There are notable differences by race/ethnicity in this study, with heroin use disorder more common among Whites, and substantially more Blacks, followed by Hispanics having Rx

opioid use disorder than Whites. Blacks in this sample are disproportionately affected by Rx opioid use disorder, representing 43% of those with an Rx opioid use disorder but only 23% of mental health system clients. In the general population, heroin use disorder is more common among Whites,[39] while nonmedical Rx opioid use is more evenly distributed, at 3.9% of Whites and Hispanics and 3.5% of Blacks. Understanding these differences may assist in opioid use disorder identification and delivery of appropriate treatment. Historically Whites have seen higher rates of opioid-involved overdose deaths, but recent data show that the increase in overdose deaths among Blacks in the U.S. outpaces that of Whites,[40] with overdose deaths similar for Whites and Blacks in central urban areas.[41] Whites and those living in high-income areas receive buprenorphine treatment for opioid use disorder at much higher rates than Black and Hispanic individuals.[42–44]

In our analysis, those either with a probable Rx opioid or heroin use disorder are more willing to take buprenorphine or NLAI if they believe the medication can help people stop using opioids. This suggests that education about treatment effectiveness is an important first step. Additionally, given low rates of use of medication for opioid use disorder among people of color and historical medical mistrust,[45,46] attention must be paid not only to strategies for educating clients but also clinic- and system-level strategies to educate providers and lessen stigma.

Those reporting higher pain are more willing to take buprenorphine or NLAI, regardless of disorder type. Pain overall was moderate across both groups, but higher among those with a probable Rx opioid use disorder. Many people with Rx opioid use disorder report substantial pain, with pain often being the reason they initiate prescription opioids,[47,48] emphasizing the need to assess for opioid use disorder among individuals with chronic pain, and to address pain management for those with Rx opioid use disorder.[49,50] Providing treatment for comorbid pain and opioid use disorder is challenging,[50] and is an area in need of specialty training programs.[50]

The primary predictor of willingness to receive treatment in a mental health clinic was having a probable heroin use disorder (compared to a Rx opioid use disorder) and having taken medications for opioid use disorder in the past. Although the number of people with heroin use disorder was relatively low in this sample compared with those with Rx opioid use disorder, these findings are consistent with national data indicating higher treatment seeking among those with heroin use disorder compared to Rx opioid use disorder.[39] This likely is due to greater identification of heroin use disorder by clients and providers and the challenge identifying and addressing Rx opioid use disorder among those with comorbid pain. These results highlight the need for a broader view of opioid use disorder that considers Rx opioid and heroin use disorder, chronic pain, and education about available treatment within mental health settings.

LIMITATIONS

Despite purposive sampling to maximize diversity, neither clinics, clients, nor time periods for the study were randomly selected. Additionally, there may have been selfselection bias, as not all clients agreed to participate. Further, the sample does not include people who are

on medication for opioid use disorder or those who have not used opioids in the past year. Thus, opinions of those being successfully treated are missed. Finally, the ASSIST, while congruent with opioid use disorder diagnosis, is not a diagnostic measure.

CONCLUSIONS

Our findings suggest high prevalence of opioid use disorder —Rx opioid use disorder in particular—among people receiving care in outpatient community mental health clinics in Los Angeles County and highlight the need for systematic identification and treatment. There are racial/ethnic differences in prevalence, with a higher prevalence of Rx opioid use disorder than heroin use disorder among Black and Hispanic than White clients, disproportionate prevalence of Rx opioid use disorder among Black clients compared the proportion of all clients in the LACDMH system, and higher percentage of Blacks having an opioid use disorder compared with Hispanics or Whites. Given disparities in access to medications for opioid use disorder among people of color and increasing overdose deaths among Blacks, these findings emphasize the importance of increasing access to treatment. Offering treatment in community mental health settings could increase uptake of medications for opioid use disorder, reduce racial disparities in treatment, and improve outcomes for people with co-occurring disorders.

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Highlights

- Among community mental health clinic clients, probable prescription opioid use disorder prevalence is 8% and probable heroin use disorder prevalence is 2%
- Those with probable prescription opioid use disorder are less likely to have received treatment than those with probable heroin use disorder
- The belief that medications for opioid use disorder help stop opioid use and increased pain predict willingness to take these medications
- Black clients in this sample are disproportionately affected by prescription opioid use disorder

Table 1:

Sample Characteristics Compared with Study Clinics and County System

	LA County System Directly Operated Clinics (N=55,561)		8 Study Site Clinics (N=18,432)		Screener Sample (N = 3,090)	
	N	**Percent**	**N**	**Percent**	**N**	**Percent**
Age, mean ±SD	43.35+15.77		45.50+14.42		42.7±12.4	
Gender						
Male	26,480	46	8,924	48	1,400	45
Female	30,637	53	9,463	51	1,633	53
Transgender	160	<1	45	<1	25	1
Other	45	<1	14	<1	10	<1
Non-binary					22	1
Race/Ethnicity						
White	11,073	19	3,631	20	619	20
Black/African American	13,212	23	5,176	28	816	26
Hispanic/Latino	21,038	37	6,362	35	1,165	38
American Indian/Alaska Native	267	1	78	<1	38	1
Asian/Pacific Islander	2767	5	501	9	103	3

*Source: LA County Department of Mental Health Administrative Data System from 32 directly operated, non-field-based clinics that serve primarily adults

Table 2.

Characteristics of Clients with Probable Opioid Use Disorder (N = 309)[a]

	All (N = 309)		Probable Rx Opioid Use Disorder Only (N = 258)		Probable Heroin Use Disorder (± Rx) (N = 51)		
	N	%	N	%	N	%	p
Age (M±SD)	44.4±12.6		44.8±12.7		42.7±12.4		0.292
Gender							0.008
Male	161	52	125	49	36	71	
Female	140	45	127	49	13	26	
Other	8	3	6	2	2	4	
Race/Ethnicity							<0.001
White	50	16	30	12	20	39	
Black/African American	124	40	112	43	12	24	
Hispanic/Latino	95	31	84	33	11	22	
Other/Multiple	40	13	32	12	8	16	
Opioid injection							<0.001
Never	194	63	186	72	8	16	
Not in past year	20	7	13	5	7	14	
In past year	95	31	59	23	36	71	
Alcohol (5+ men, 4+ women per day)							0.079
No	125	41	110	43	15	29	
Yes	184	60	148	57	36	71	
Marijuana							0.002
No	140	45	127	49	13	26	
Yes	169	55	131	51	38	75	
Methamphetamine							<0.001
No	204	66	197	76	7	14	
Yes	105	34	61	24	44	86	
Cocaine							<0.001
No	209	68	192	74	17	33	
Yes	100	32	66	26	34	67	
Reason for mental health appointment							0.538
Bipolar disorder	49	16	39	15	10	20	
Depression	100	32	88	34	12	24	
Schizophrenia / Schizoaffective disorder	45	15	37	14	8	16	
Anxiety	39	13	33	13	6	12	
PTSD	35	11	30	12	5	10	
All other diagnoses	41	13	31	12	10	20	
Homeless (no regular place to stay in last 2 months)							0.605
No	190	62	157	61	33	65	
Yes	119	39	101	39	18	35	

	All (N = 309)		Probable Rx Opioid Use Disorder Only (N = 258)		Probable Heroin Use Disorder (± Rx) (N = 51)		
	N	%	N	%	N	%	p
Pain duration							0.691
No pain	37	12	31	12	6	12	
About a week or less	30	10	22	9	8	16	
About a month	38	12	32	12	6	12	
Between one and six months	17	6	14	5	3	6	
More than six months	173	56	148	57	25	49	
Don’t know	14	5	11	4	3	6	
Pain intensity							
Pain right now (M±SD)	54.2±29.0		55.6±29.3		46.7±26.0		0.043
Worst pain last 24 hours (M±SD)	58.3±29.7		59.1±30.2		54.0±27.4		0.264
Least pain last 24 hours (M±SD)	49.3±28.9		50.9±29.1		41.7±26.7		0.038

[a]Means were compared by t tests, and proportions were compared by chi-square tests

Table 3.

Substance use treatment history [a]

	All (N = 309)		Probable Rx Opioid Use Disorder Only (N = 258)		Probable Heroin Use Disorder (N = 51)		
	N	%	N	%	N	%	p
Ever received substance use disorder treatment							
Never	220	71.20	200	77.52	20	39.22	<0.001
Residential	53	17.15	28	10.85	25	49.02	<0.001
Outpatient drug rehab	49	15.86	25	9.69	24	47.06	<0.001
Outpatient mental health clinic	58	18.77	38	14.73	20	39.22	<0.001
Emergency room	49	15.86	29	11.24	20	39.22	<0.001
Doctor's office	58	18.77	34	13.18	24	47.06	<0.001
Prison or jail	32	10.36	16	6.20	16	31.37	<0.001
Ever wanted treatment for opioid use but did not receive it	67	21.68	46	17.83	21	41.18	<0.001
Of those who wanted treatment but did not receive it, reasons for not it (check all that apply [†]) (N=67)							
Could handle it without treatment	25	37.31	17	36.96	8	38.10	0.929
Didn't think I needed it	18	26.87	16	34.78	2	9.52	0.031
Couldn't afford it	21	31.34	10	21.74	11	52.38	0.012
Didn't know where to get treatment	15	22.39	9	19.57	6	28.57	0.412
Didn't find the treatment desired	13	19.40	8	17.39	5	23.81	0.538
Wasn't ready to stop using	10	14.93	7	15.22	3	14.29	0.921
Didn't think treatment could help	7	10.45	5	10.87	2	9.52	0.867
Didn't have the time	7	10.45	5	10.87	2	9.52	0.867
Medication Ever Taken [†]							
None	232	75.08	212	82.17	20	39.22	<0.001
Buprenorphine/Naloxone	24	7.77	6	2.33	18	35.29	<0.001
Long-Acting, Injectable Naltrexone	9	2.91	5	1.94	4	7.84	0.022
Methadone	36	11.65	12	4.65	24	47.06	<0.001
Other	10	3.24	6	2.33	4	7.84	0.042
Don't Know	20	6.47	18	6.98	2	3.92	0.417
Currently Taking Medication [†]							
None	270	87.38	236	91.47	34	66.67	<0.001
Buprenorphine/Naloxone	10	3.24	3	1.16	7	13.73	
Long-Acting, Injectable Naltrexone	2	0.65	2	0.78	0	0.00	
Methadone	13	4.21	5	1.94	8	15.69	
Other	6	1.94	4	1.55	2	3.92	
Don't know	8	2.59	8	3.10	0	0.00	

[a] Proportions were compared by chi-square tests

[†] Values do not sum to 100% because participants could select more than one response option.

Table 4.

Opioid use disorder medication familiarity, beliefs, and willingness to engage in treatment [a]

	All (N = 309)		Probable Rx Opioid Use Disorder Only (N = 258)		Probable Heroin Use Disorder (N = 51)		
	N	%	N	%	N	%	p
Familiarity with Buprenorphine							<0.001
Not at all	204	66.02	195	75.58	9	17.65	
Somewhat	67	21.68	46	17.83	21	41.18	
Very	38	12.30	17	6.59	21	41.18	
Familiarity with NLAI							<0.001
Not at all	232	75.08	209	81.01	23	45.10	
Somewhat	41	13.27	28	10.85	13	25.49	
Very	36	11.65	21	8.14	15	29.41	
Believe Buprenorphine Can Help People Stop Using							<0.001
Strongly disagree	31	10.03	24	9.30	7	13.73	
Disagree	34	11.00	32	12.40	2	3.92	
Agree	75	24.27	52	20.16	23	45.10	
Strongly agree	23	7.44	12	4.65	11	21.57	
Don’t know	146	47.25	138	53.49	8	15.69	
Believe NLAI Can Help People Stop Using							<0.001
Strongly disagree	35	11.33	27	10.47	8	15.69	
Disagree	36	11.65	32	12.40	4	7.84	
Agree	62	20.06	43	16.67	19	37.25	
Strongly agree	15	4.85	9	3.49	6	11.76	
Don’t know	161	52.10	147	56.98	14	27.45	
Readiness for Treatment							
Willing to take Bup (M±SD)	43.8±32.1		41.2±30.6		57.2±35.9		0.001
Willing to take NLAI (M±SD)	41.4±30.5		39.8±29.5		49.9±34.2		0.029
Willing to receive tx in specialty Program (M±SD)	48.3±32.5		45.0±31.5		65.0±32.3		<0.001
Willing to receive tx as part of mental health treatment (M±SD)	51.5±33.3		48.4±32.5		67.2±32.8		<0.001

[a] Means were compared by t tests, and proportions were compared by chi-square tests

NLAI = naltrexone long-acting injection