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Correlates of Homelessness among Patients in Methadone Maintenance Treatment

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Abstract

Background—Although homelessness and opioid use disorder are important public health issues, few studies have examined their co-occurrence.

Objectives—The aim of this study was to evaluate the correlates of homelessness among patients enrolled in low-barrier-to-treatment-access methadone maintenance treatment (MMT) programs for opioid use disorder.

Methods—Demographic, diagnosis-related, and treatment-related correlates were assessed by self-report for one hundred and sixty-four patients in MMT. Correlates of past-month homelessness were investigated with logistic regression.

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Declaration of Interests

There are no relevant conflicts of interest.

Results—24% of patients reported homelessness in the past month. Bivariate analyses initially identified seven statistically significant ($p<0.05$) correlates of homelessness: gender; Latinx ethnicity; symptoms of depression, anxiety, and somatization; self-criticism; and duration of MMT. In the final logistic regression model, which included significant independent variables from the bivariate logistic regressions, patients in MMT who were homeless (versus domiciled) were more likely to be male (OR 2.54; CI 1.01–6.36) and report higher symptoms of depression (OR 1.07; CI 1.01–1.15).

Conclusions—Low-barrier-to-treatment-access programs can attract people who are homeless with opioid use disorder into MMT. These programs also have an important public health role in addressing both depression and opioid use disorder among people who are homeless.

Keywords

Opioid; methadone; depression; homelessness; gender

INTRODUCTION

The current opioid crisis is driven in part by untreated opioid use disorder (OUD) (1) (2). Methadone maintenance treatment (MMT) is an evidence-based, life-saving treatment for individuals with OUD (3). Although MMT access is a public health priority (3) (4), most programs have continued to limit treatment capacity and prospective patients incur wait times that often exceed a month (i.e., time between first face-to-face appointment and treatment entry). Individuals who are homeless or with few financial resources are less likely to withstand these wait times (5). Few studies have systematically examined the correlates of homelessness among patients in MMT programs that operate low-barrier-to-treatment-access models that are designed to reduce wait time and facilitate scale-up.

In the general population, the estimated rate of homelessness is 17 in 10,000 (6). Homelessness is associated with higher rates of mortality (7) (8), depression, and other psychiatric disorders (9) (10). Homelessness is particularly prevalent among individuals with substance use disorders, with up to 47% of injection drug users reporting homelessness (11). While the presence of a substance use disorder increases the risk of homelessness (12) (13), the converse has also been documented (14). Among intravenous drug users, homelessness has been associated with longer time to cessation of drug use and shorter time to relapse following drug use cessation (15). While homelessness is associated with lower MMT retention and adherence (16) (17) (18), tailored interventions to improve these outcomes have yielded mixed results (19) (20). Independent of homelessness, MMT patients are complex and face unique treatment barriers since they have high rates of psychological distress, physical pain, and trauma (21) (22) (23).

To address the gap in the literature outlined above, we examined the demographic, diagnosis-related, and treatment-related correlates of patients enrolled in a low-barrier to MMT access program called the “open-access model.” Eligible patients are enrolled rapidly in treatment irrespective of ability to pay and provided multiple psychosocial treatment options (24). During the first 9 years of implementation (2006–2015), the patient census increased 183% (1431 to 4051)—compared with the 37% increase nationwide (25)—

without decrements to rates of retention, opioid-negative drug tests, or mortality (24). Given prior findings of higher rates of depression among homeless compared to domiciled individuals in the general population, we hypothesized that homelessness would be associated with higher levels of depressive symptoms among patients in MMT (9) (10). We used two measures to comprehensively assess depression in this patient population: one screened for clinically significant thresholds of depressive symptoms, the other for personality vulnerability factors related to depression (26) (27).

METHODS

Patient recruitment, study procedures, and setting

We recruited study participants between January 2014 and March 2015 from the patient population of the APT Foundation (APT), a not-for-profit organization providing substance use disorder treatment based in New Haven, Connecticut, with a census of approximately 4,500 MMT patients¹. We posted fliers at 3 clinics offering MMT saying “Want to help us improve methadone treatment? Tell us about your experiences at APT!” Eligibility criteria included English proficiency and current receipt of MMT at APT, irrespective of duration. Similar programming and procedures are followed at the 3 clinics, where patients are assigned based primarily on proximity. APT does not have any referral arrangements with organizations that serve homeless individuals; nor are its programs located adjacent to homeless shelters. We compensated participants \$15 for their involvement.

Participants attended in-person, individual sessions with a research assistant who administered the survey battery. All patients who met with the research assistant completed the study. Responses from patients’ surveys were not linked to their electronic medical record. We used de-identified data for all subsequent analysis and evaluation. The Board of Directors of APT approved this study and the Human Investigations Committee of Yale School of Medicine exempted it from review.

Variables and survey instruments

Demographics—Participants provided information on their age, sex, race, Latinx status, height and weight, educational attainment, employment status, marital status, religiosity, and housing status. Race (majority/minority), education (high school diploma/no diploma), employment (working/not working), marital status (married or cohabitating/other status), religiosity (religious/not religious) were dichotomized. Participants were categorized as homeless if they answered positively to: “In the past 4 weeks, have you been without a permanent address that you call home?”

Diagnosis-related Characteristics—Participants provided information about their a) age of regular opioid use (“What age were you when you started using opiates [e.g., heroin, Oxycontin, Percocet] 3 or more times a week?”), b) age of onset of opioid addiction (“What age were you when you first became addicted to opiates [e.g., heroin, Oxycontin, Percocet]?”), c) current chronic pain status (“Are you currently experiencing an episode of

¹36% female with a mean age of 37 (SD=11); 80% self-identify as Caucasian, 10% as Latinx, 8% as Black, and 2% as “Other”

physical pain that has lasted 3 months or more?” [Yes/No]), and d) lifetime chronic pain status (“Have you ever experienced physical pain that has lasted 3 months or longer?” [Yes/No]). They also completed two measures of psychopathology.

Brief Symptom Inventory 18 (BSI-18; (26))—The BSI-18 is an 18-item clinical screening measure that provides three psychopathology scores (depression, somatization and anxiety) and a global severity index (GSI) score that assesses overall psychological distress. Raw scores are converted to T scores ($M = 50$, $SD = 10$) to facilitate interpretation. T scores 63 (90th percentile) are clinically significant (26).

Depressive Experiences Questionnaire (DEQ; (27))—The DEQ is a 66-item instrument that measures Dependency and Self-Criticism personality vulnerabilities associated with “anaclitic” and “introjective” types of depression. Items are rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). Dependency and Self-Criticism factors were derived from the scoring procedure outlined by Zuroff et al (28).

Treatment-related Characteristics—Patients reported number of months enrolled in MMT, number of different MMT episodes, number of non-Sunday take-home medication doses, and their current daily methadone dose on the day of study enrollment. Patients receiving MMT at APT receive a take-home dose of methadone for Sunday since programs are closed. Consistent with federal and state regulations, patients enrolled in MMT at APT receive additional take-home medication upon exhibiting clinical stability defined primarily by practitioner judgement and the 8 point criteria by SAMSHA (29).

Statistical Analysis

Demographic, diagnosis-related, and treatment-related variables were characterized with descriptive statistics appropriate for categorical and continuous variables. Logistic regression was used to assess relations among study variables and homelessness. Each correlate was first tested for significance with bivariate regression. Variables significant at $p < 0.05$ were entered simultaneously into a final logistic model. Data were analyzed using IBM SPSS Statistics Version 26.

RESULTS

One hundred and sixty-four patients completed the study. Demographic, diagnosis-related, and treatment-related variables are presented in Table 1. The sample had an average age of 44 years; 59% self-identified as male and 59% as White. Past-month homelessness was reported by 39 (24%) patients and lifetime homelessness was reported by 112 (68%) patients. The mean duration of methadone treatment was 41 months and the mean dose was 80 milligrams. Most patients did not receive non-Sunday take-home methadone ($n = 112$, 68%); the mean number of take-home doses was one.

Table 2 shows the results of bivariate analyses for demographic, diagnosis-related, and treatment-related factors relating to homelessness. This analyses initially identified seven statistically significant ($p < 0.05$) correlates of homelessness: gender, Latinx ethnicity, Brief Symptom Inventory (BSI) Depression, Anxiety, and Somatization subscales, duration of

MMT, and Depressive Experience Questionnaire (DEQ) Self-Criticism subscale. In the final logistic regression model, homeless patients were more likely to be male (OR 2.54; CI 1.01–6.36) and experience more depressive symptoms (BSI Depression; OR 1.07; CI 1.01–1.15).

DISCUSSION

This is one of the first studies to examine demographic, diagnosis-related, and treatment-related correlates of homelessness among patients receiving MMT for opioid use disorder in a lower-barrier-to-treatment-access program. Three main findings emerged. First, 24% reported past-month homelessness. Second, in multivariate analyses, patients who were homeless were more likely both to be male and to display higher symptoms of depression. Third, compared with those who were domiciled, patients who were homeless did not differ on important treatment-related factors, including retention, receipt of non-Sunday take-home medication, and methadone dose.

The high rates of current (24%) and lifetime (63%) homelessness were considerably higher than the rate of current homelessness in the general population (e.g., 17 in 10,000 individuals) (6) and were similar (15) (17) or higher (16) (18) than the lifetime rate reported in prior studies of MMT patients. One possible explanation for the higher rates of homelessness in our study is that the programs from which participants were drawn were operated by a not-for-profit treatment organization that uses a lower-barrier-to-treatment-access model, whereby prospective eligible patients are enrolled into MMT quickly, irrespective of ability to pay (24).

The association between male gender and homelessness in this study is consistent with the literature on demographic characteristics of the U.S. homeless population as well as those who enter treatment for substance use disorders. Male gender is associated with increased initiation of and decreased exit from homelessness (13). Men comprised 74% of hospital admissions for substance use between 2005 and 2015 in the United States (30).

Consistent with our hypothesis, participants who were homeless experienced higher levels of depressive symptoms. Self-critical depressive personality style (as measured by the DEQ) was initially significant in bivariate regression; however, it did not emerge as a significant predictor of homelessness in the final model. It is likely that its effects were suppressed by our measure of depressive symptoms (BSI Depression), with which it was significantly correlated ($r = .61$, $p < .001$). It may still be of value for clinicians working in this population to address self-critical depression, particularly in men who are more likely to be undomiciled. Given barriers to accessing mental health and primary care among homeless individuals (31, 32), opioid agonist treatment providers are an important connection to the healthcare system for this vulnerable patient population and may be well positioned to assess and address depression.

We also found no significant associations between homelessness and MMT-related factors, namely methadone dose, duration of treatment, and number of take-home doses of medication. In contrast to prior findings that homelessness is negatively associated with MMT entry, adherence, and retention (15) (16) (17) (18) (33), our sample contained a high

percentage of patients who were both homeless and in long-term MMT (mean duration exceeded 2 years). Our findings should be interpreted with caution since the study was cross-sectional and did not follow patients from treatment entry. APT's open-access model may be well suited to individuals with OUD who are homeless (24), extending previous studies showing low-threshold opioid agonist treatment can effectively reach these individuals (34, 35). Future research should examine prospectively retention among patients in a variety of MMT program models who are homeless (e.g., traditional vs. open-access, for profit vs. not-for-profit).

Limitations

Recruiting a relatively small convenience sample from three MMT programs in different parts of Connecticut, which are operated by a not-for-profit organization, may limit the study's generalizability to MMT programs with different treatment models or in other regions. The study's focus on a single State explains its categorization as a "From the States" Report in Medical Care. The cross-sectional design did not allow longitudinal examination, comparison at the same time point in treatment, or investigation of patients who were no longer in treatment. Our study relied on screening instruments for anxiety, depression, and somatization; it neither screened other psychiatric disorders nor systematically examined psychiatric diagnoses. Data on specific clinic site were not systematically collected or included in analyses. Self-report data was not corroborated independently. Exclusion of non-English-speaking patients limited our ability to examine the relationship between Latinx ethnicity and homelessness.

Conclusions

The high proportion of people who are homeless in this study suggests that low-barrier-to-treatment-access programs can attract out-of-treatment people who are homeless with opioid use disorder into evidence-based treatment. Patients in MMT who are homeless are more likely than those who are domiciled to be male and to report higher depressive symptoms. MMT providers should be aware of the elevated levels of depressive symptoms among patients who are homeless. Future work in this area would benefit from using a prospective approach to both disentangle the directionality of the relationship between homelessness and depression among patients in MMT and examine whether treatment response is associated with homelessness.

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REFERENCES

1. Scholl L, Seth P, Kariisa M, et al. Drug and opioid-involved overdose deaths—United States, 2013–2017. *Morbidity and Mortality Weekly Report* 2019;67:1419
2. Kolodny A, Courtwright DT, Hwang CS, et al. The prescription opioid and heroin crisis: a public health approach to an epidemic of addiction. *Annu Rev Public Health* 2015;36:559–574 [PubMed: 25581144]

3. National Academies of Sciences E, Medicine. Medications for Opioid Use Disorder Save Lives. Washington, DC: The National Academies Press; 2019
4. Association of Schools and Programs of Public Health. Bringing Science to Bear on Opioids. Washington, DC: ASPPH; 2019
5. Gryczynski J, Schwartz RP, Salkever DS, et al. Patterns in admission delays to outpatient methadone treatment in the United States. *J Subst Abuse Treat* 2011;41:431–439 [PubMed: 21821378]
6. Henry M WR, Mahathey A, Ouellette J, Sitler A, Abt Associates. 2019 Annual Homeless Assessment Report to Congress Part 1: Point in Time Estimates of Homelessness. U.S. Department of Housing and Urban Development; 2020
7. Fazel S, Geddes JR, Kushel M. The health of homeless people in high-income countries: descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet* 2014;384:1529–1540 [PubMed: 25390578]
8. Wright NM, Tompkins CN. How can health services effectively meet the health needs of homeless people? *Br J Gen Pract* 2006;56:286–293 [PubMed: 16611519]
9. Whitbeck LB, Armenta BE, Welch-Lazoritz ML. Borderline personality disorder and Axis I psychiatric and substance use disorders among women experiencing homelessness in three US cities. *Soc Psychiatry Psychiatr Epidemiol* 2015;50:1285–1291 [PubMed: 25708192]
10. Coohey C, Easton SD. Distal Stressors and Depression among Homeless Men. *Health & Social Work* 2016;41:111–119 [PubMed: 27263201]
11. Song JY, Safaeian M, Strathdee SA, et al. The prevalence of homelessness among injection drug users with and without HIV infection. *J Urban Health* 2000;77:678–687 [PubMed: 11194310]
12. Nilsson SF, Laursen TM, Hjorthøj C, et al. Risk of homelessness after discharge from psychiatric wards in Denmark: a nationwide register-based cohort study. *Acta Psychiatr Scand* 2019;140:477–489 [PubMed: 31385289]
13. Nilsson SF, Nordentoft M, Hjorthøj C. Individual-Level Predictors for Becoming Homeless and Exiting Homelessness: a Systematic Review and Meta-analysis. *J Urban Health* 2019;96:741–750 [PubMed: 31388823]
14. Johnson G, Chamberlain C. Homelessness and Substance Abuse: Which Comes First? *Australian Social Work* 2008;61:342–356
15. Lo A, Kerr T, Hayashi K, et al. Factors associated with methadone maintenance therapy discontinuation among people who inject drugs. *J Subst Abuse Treat* 2018;94:41–46 [PubMed: 30243416]
16. Lundgren LM, Sullivan LM, Maina AW, et al. Client factors associated with length of stay in methadone treatment among heroin users who inject drugs: quantitative analysis of state-level substance abuse treatment utilization data. *J Addict Med* 2007;1:26–32 [PubMed: 21768929]
17. Klimas J, Nosova E, Socias E, et al. Factors associated with discontinuation of methadone maintenance therapy (MMT) among persons who use alcohol in Vancouver, Canada. *Drug Alcohol Depend* 2018;186:182–186 [PubMed: 29604525]
18. Shah NG, Galai N, Celentano DD, et al. Longitudinal predictors of injection cessation and subsequent relapse among a cohort of injection drug users in Baltimore, MD, 1988–2000. *Drug Alcohol Depend* 2006;83:147–156 [PubMed: 16364568]
19. Parpouchi M, Moniruzzaman A, Rezansoff SN, et al. The effect of Housing First on adherence to methadone maintenance treatment. *Int J Drug Policy* 2018;56:73–80 [PubMed: 29609153]
20. Appel PW, Tsemberis S, Joseph H, et al. Housing First for severely mentally ill homeless methadone patients. *J Addict Dis* 2012;31:270–277 [PubMed: 22873188]
21. Barry DT, Beitel M, Garnet B, et al. Relations among psychopathology, substance use, and physical pain experiences in methadone-maintained patients. *J Clin Psychiatry* 2009;70:1213–1218 [PubMed: 19607760]
22. Beitel M, Savant JD, Cutter CJ, et al. Psychopathology and pain correlates of dispositional optimism in methadone-maintained patients. *Am J Addict* 2012;21:S56–S62 [PubMed: 23786512]
23. Beitel M, Oberleitner L, Kahn M, et al. Drug Counselor Responses to Patients' Pain Reports: A Qualitative Investigation of Barriers and Facilitators to Treating Patients with Chronic Pain in Methadone Maintenance Treatment. *Pain Med* 2017;18:2152–2161 [PubMed: 28177509]

24. Madden LM, Farnum SO, Eggert KF, et al. An investigation of an open-access model for scaling up methadone maintenance treatment. *Addiction* 2018;113:1450–1458 [PubMed: 29453891]
25. Jones CM, Campopiano M, Baldwin G, et al. National and state treatment need and capacity for opioid agonist medication-assisted treatment. *Am J Public Health* 2015;105:e55–e63
26. Derogatis LR. BSI 18, Brief Symptom Inventory 18: Administration, scoring and procedures manual. Minneapolis: NCS Pearson, Inc; 2001
27. Blatt SJ, D'Afflitti JP, Quinlan DM. Experiences of depression in normal young adults. *J Abnorm Psychol* 1976;85:383–389 [PubMed: 956505]
28. Zuroff DC, Quinlan DM, Blatt SJ. Psychometric properties of the Depressive Experiences Questionnaire in a college population. *J Pers Assess* 1990;55:65–72 [PubMed: 2231260]
29. Center for Substance Abuse T. SAMHSA/CSAT Treatment Improvement Protocols. Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2005
30. Famutimi O, Thompson K. Trends in Substance Use Treatment Admissions among the Homeless in the United States: 2005–2015. 2018;2:1–8
31. Krausz RM, Clarkson AF, Strehlau V, et al. Mental disorder, service use, and barriers to care among 500 homeless people in 3 different urban settings. *Soc Psychiatry Psychiatr Epidemiol* 2013;48:1235–1243 [PubMed: 23299926]
32. Paudyal V, MacLure K, Buchanan C, et al. 'When you are homeless, you are not thinking about your medication, but your food, shelter or heat for the night': behavioural determinants of homeless patients' adherence to prescribed medicines. *Public Health* 2017;148:1–8 [PubMed: 28404527]
33. Shah NG, Celentano DD, Vlahov D, et al. Correlates of enrollment in methadone maintenance treatment programs differ by HIV-serostatus. *AIDS* 2000;14:2035–2043 [PubMed: 10997409]
34. Carter J, Zevin B, Lum PJ. Low barrier buprenorphine treatment for persons experiencing homelessness and injecting heroin in San Francisco. *Addiction Science & Clinical Practice* 2019;14:20 [PubMed: 31060600]
35. Nolan S, Hayashi K, Milloy MJ, et al. The impact of low-threshold methadone maintenance treatment on mortality in a Canadian setting. *Drug and Alcohol Dependence* 2015;156:57–61 [PubMed: 26455554]

Table 1:

Participant Characteristics (N = 164).

	Overall (N = 164)	Homeless (n = 39)	Domiciled (n = 125)
<i>Demographics</i>			
Age, mean (SD)	44 (10)	41 (10)	45 (10)
Female, N (%)	67 (41)	9 (23)	58 (46)
Race, N (%)			
American Indian or Alaskan Native	2 (1.2)	1 (3)	1 (1)
Asian	2 (1.2)	1 (3)	1 (1)
Black or African American	48 (29)	7 (18)	41 (33)
White/Caucasian	96 (59)	26 (67)	70 (56)
Multiracial or other	10 (6.1)	2 (5)	8 (6)
Latinx, N (%)	18 (11)	8 (21)	10 (8)
Highest Education, N (%)			
Eighth grade or less	6 (4)	1 (3)	5 (4)
Some high school	33 (20)	6 (15)	27 (22)
High school graduate/GED	74 (45)	19 (49)	55 (44)
Post-high school (college, vocational)	51 (31)	13 (33)	38 (30)
Any employment, N (%)	14 (8.5)	4 (10)	10 (8)
Married or cohabitating, N (%)	28 (17)	3 (8)	25 (20)
Religious, N (%)	127 (77)	30 (77)	97 (78)
Body mass index (kg/m ²), mean (SD)	28 (6.4)	27 (5)	28 (7)
<i>Diagnosis-related Characteristics</i>			
Current chronic pain N (%)	82 (50)	22 (56)	60 (48)
Lifetime chronic pain, N (%)	114 (70)	30 (77)	84 (67)
Age of regular opioid use, mean (SD)	24 (8)	24 (9)	24 (8)
Age of opioid addiction, mean (SD)	25 (9)	25 (9)	25 (9)
BSI Depression, mean (SD)	58 (11)	66 (12)	55 (10)
BSI Anxiety, mean (SD)	58 (12)	65 (12)	56 (11)
BSI Somatization, mean (SD)	60 (10)	63 (11)	59 (9)
DEQ Dependency, mean (SD)	127 (15)	129 (14)	126 (16)
DEQ Self-Criticism, mean (SD)	127 (19)	136 (20)	123 (18)
<i>Treatment-related Characteristics</i>			
Duration of treatment (mo), mean (SD)	41 (53)	25 (36)	46 (57)
Number of MMT episodes, mean (SD)	2 (3)	2 (1)	2 (3)
Non-Sunday take-home bottles, mean (SD)	1 (17)	1 (1)	1 (2)
Methadone dose (mg), mean (SD)	80 (31)	73 (27)	81 (31)

Note: MMT=methadone maintenance treatment. BSI=Brief Symptom Inventory. DEQ=Depressive Experiences Questionnaire. GED= General Educational Development test.

Table 2:

Logistic models for homeless MMT Patients (N = 164)

Variable	Bivariate Models		Final Model	
	OR	95% CI	OR	95% CI
<i>Demographics</i>				
Age	0.96	0.94–1.00		
Age of regular opioid use	1.01	0.97–1.45		
Age of opioid addiction	1.00	0.96–1.04		
Sex	2.89	1.27–6.78	2.54	1.01–6.36
Race	0.58	0.26–1.23		
Latinx ethnicity	2.97	1.08–8.15	2.31	0.66–8.10
Education	0.64	0.26–1.59		
Employment	0.79	0.23–2.67		
Marital status	3.00	0.85–10.54		
Religiosity	1.04	0.44–2.45		
Body mass index	1.00	0.93–1.04		
<i>Diagnosis-related Characteristics</i>				
Current chronic pain	1.40	0.68–2.89		
Lifetime chronic pain	1.63	–.71–3.74		
BSI Depression	1.10	1.05–1.14	1.07	1.01–1.15
BSI Anxiety	1.07	1.03–1.11	1.03	0.96–1.10
BSI Somatization	1.05	1.01–1.09	0.96	0.90–1.02
DEQ Dependency	1.02	0.99–1.04		
DEQ Self-Criticism	1.04	1.02–1.07	1.01	0.98–1.04
<i>Treatment-related Characteristics</i>				
Duration of MMT (months)	0.99	0.98–1.00	0.99	0.98–1.01
Number of MMT episodes	1.00	0.87–1.15		
Methadone dose	0.99	0.98–1.00		
Number of non-Sunday take-home bottles	0.78	0.60–1.03	0.89	0.66–1.20

Note: Bold text indicates $p < 0.05$. The final model included independent variables that were statistically significant at $p < 0.05$ in the bivariate models. MMT=methadone maintenance treatment. BSI=Brief Symptom Inventory. DEQ=Depressive Experiences Questionnaire.