

The unique nature of public stigma toward non-medical prescription opioid use and dependence: a national study

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Background and Aims Our ability to combat the opioid epidemic depends, in part, on dismantling the stigma that surrounds drug use. However, this epidemic has been unique and, to date, we have not understood the nature of public prejudices associated with it. Here, we examine the nature and magnitude of public stigma toward prescription opioid use disorder (OUD) using the only nationally representative data available on this topic. **Design** General Social Survey (GSS), a cross-sectional, nationally representative survey of public attitudes. **Setting** United States, 2018. **Participants/Cases** A total of 1169 US residents recruited using a probability sample. **Measurements** Respondents completed a vignette-based survey experiment to assess public stigma toward people who develop OUD following prescription of opioid analgesics. This condition is compared with depression, schizophrenia, alcohol use disorder (AUD) and sub-clinical distress using multivariable logistic or linear regression. **Findings** Adjusting for covariates (e.g. race, age, gender), US residents were significantly more likely to label symptoms of OUD a physical illness [73%, confidence interval (CI) = 66–80%; $P < 0.001$] relative to all other conditions, and less likely to label OUD a mental illness (40%, CI = 32–48%; $P < 0.001$). OUD was significantly less likely to be attributed to bad character (37%, CI = 30–44%; $P < 0.001$) or poor upbringing (17%, CI = 12–23%; $P < 0.001$) compared with AUD. Nonetheless, perceptions of competence associated with OUD (e.g. ability to manage money; 41%, CI = 33–49%; $P < 0.01$) were lower than AUD, depression and sub-clinical distress. Moreover, willingness to socially exclude people with OUD was very high (e.g. 76% of respondents do not want to work with a person with OUD), paralleling findings on traditional targets of strong stigma (i.e. AUD and schizophrenia). **Conclusions** US residents do not typically hold people with prescription opioid use disorder responsible for their addiction, but they express high levels of willingness to subject them to social exclusion.

Keywords Drug dependence, opiates, prejudice, prescription opioids, stereotypes, stigma, substance use, vignette study.

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INTRODUCTION

Confronting public stigma—stereotypes, prejudice and discrimination endorsed by the general population—is one of the greatest barriers to reversing the opioid epidemic and reducing the harm it causes to individuals, families and communities [1–3]. Historically, non-medical drug dependence has been the most stigmatized of all psychiatric or medical conditions [4,5]. Compared to other conditions, drug dependence is disproportionately likely to be attributed to bad character and associated with violent and unpredictable behavior [5–10]. People with drug dependence are perceived as more blameworthy, less deserving of help than those with other stigmatized conditions and are less likely to be accepted as neighbors, coworkers or marriage

partners [6,8,11–14]. This stigma has a profound impact on the lives of people who engage in non-medical drug use, affecting their physical and mental health [15,16], treatment utilization and recovery [17] and public support for allocation of resources to addiction services and harm reduction [2].

To date, few studies of stigma have focused specifically on non-medical prescription opioid use and dependence [1,2]. However, due to the unique social and cultural circumstances surrounding the opioid epidemic, findings on public stigma associated with non-medical drug use in general may not extend to opioid use disorders (OUD), particularly those that develop following legitimate medical use for acute pain. Further, much of what we know about stigma attached to non-medical drug use is derived from

research conducted prior to mass media coverage and public awareness of the opioid epidemic and/or using small, non-representative samples [8,9,14].

In the present study, we use data from a special module of the 2018 General Social Survey (GSS) to examine public stigma toward people with prescription OUD compared to those with depression, schizophrenia, alcohol use disorder and subclinical distress. Of specific interest is comparing OUD to other disorders on the following dimensions of stigma: (1) labeling, (2) desire for social distance, (3) dangerousness, (4) competence and (5) causal attributions. We address these questions using the nationally representative General Social Survey (GSS), which constitutes the newest available data on public perceptions of OUD and other mental illnesses.

METHODS

Data are from the 2018 National Stigma Studies–Replication II (NSS-RII) module of the GSS, a nation-wide, representative public opinion survey of non-institutionalized adults living in the continental United States. The GSS uses a stratified random sample to the block level with household quota sampling on sex, age and employment status to reduce not-at-home bias, and is the gold standard for public opinion research [18]. Face-to-face interviews were conducted using computer-assisted personal interviewing in 2018, and data were released for public use in March 2019. The 2018 response rate was 59.5%. Survey weights were used to address non-response bias, which could result from 40% of the public declining to participate. A total of 1173 respondents completed the NSS-RII. Up to 8% of data ($n = 90$) are dropped due to missing data (list-wise for control variables, case-wise for dependent variables). An analysis of missingness patterns is presented in the Supporting information Appendix.

Measures

The NSS-RII employs a survey experiment using a vignette strategy, avoiding explicit labeling of the problem to examine public knowledge of and response to mental illness (schizophrenia, depression), alcohol dependence and non-medical opioid use and dependence [18]. These responses are compared to a control vignette depicting subclinical distress which describes an individual who ‘sometimes feels worried’ and ‘gets annoyed’, but otherwise ‘is getting along pretty well’. A subclinical comparison is provided to observe differences in public attitudes associated with distress in general relative to a clinically significant condition characterized by more severe impairment.

The NSS-RII vignettes describe behaviors that meet explicit Diagnostic and Statistical Manual of Mental Disorders

(DSM) criteria of the American Psychiatric Association. Details, including full wording of the vignettes, are provided in the Supporting information Appendix. Respondents were randomly assigned to respond to one of the five vignettes (subclinical distress, prescription OUD, alcohol use disorder, AUD, major depression or schizophrenia). Dependent variables measure public perceptions of people with mental illnesses.

The labeling processes (aim 1) is captured using endorsement of three labels—how probable is it that the vignette character is experiencing a mental illness, physical illness or ‘part of the normal ups and downs of life?’. Desire for social distance (aim 2) is measured using six items scaled together (mean of all non-missing items, higher = more social distance). These measure willingness to move next door, spend an evening socializing, make friends, work closely with, have a group home in the neighborhood and marry into family. Dangerousness (aim 3) is measured with two items asking how probable it is that the vignette character would do something violent toward other people or toward him or herself. Two items assess perceptions of the vignette character’s competence (aim 4)—the probability that the vignette character can manage their money and make treatment decisions on their own. Another is an item indicating whether the vignette character should be forced by law into any of five different types of treatment (i.e. treatment coercion). Causal attributions (aim 5) items ask how probable it is that the vignette character’s condition is caused by a series of six factors (bad character, a chemical imbalance in the brain, the way s/he was raised, stressful life circumstances or a genetic or inherited problem). Due to small cell sizes and to facilitate interpretation, ordinal outcomes are dichotomized, combining two categories representing moderate or strong agreement (equal to 1) or moderate or strong disagreement (equal to 0).

Statistical analysis

The analysis was not pre-registered, therefore results should be considered exploratory. All variables were assessed for normality, missingness, outliers and other abnormalities to ensure that these factors did not bias the results. We first computed unadjusted frequencies for all measures, followed by bivariate associations between public attitudes and vignette diagnostic condition. We employed the Bonferroni correction to adjust for multiple testing, and applied survey weights to adjust for sampling methodology and to provide population estimates for the United States. Weights were provided by the GSS, and weighting was performed using `svy` commands in Stata version 16. All hypothesis tests were two-tailed.

Subsequently, we conducted survey-weighted regression models to examine the association between vignette

Table 1 Distribution of stigmatizing public attitudes by vignette condition, National Stigma Study–Replication II, 2018 GSS ($n = 1169$).

| | <i>Subclinical distress</i> | <i>Major depression</i> | <i>Schizophrenia</i> | <i>Opioid use disorder</i> | <i>Alcohol use disorder</i> | <i>Full sample</i> | <i>F (d.f. = 4)</i> | <i>Corrected P-value</i> |
|------------------------------------|---------------------------------|-----------------------------|----------------------|--------------------------------|---------------------------------|------------------------|-------------------------|------------------------------|
| n= | 215 % (n) | 251 % (n) | 229 % (n) | 225 % (n) | 249 % (n) | 1169 % (n) | | |
| Labeling | | | | | | | | |
| Probably a mental illness | 28.91 (61) | 75.37 (181) | 94.53 (208) | 39.04 (85) | 66.02 (151) | 62.60 (686) | 46.50 | $P < 0.001$ |
| Probably a physical illness | 30.24 (64) | 62.47 (143) | 58.50 (125) | 72.54 (150) | 51.18 (128) | 55.34 (610) | 14.81 | $P < 0.001$ |
| Probably normal ups and downs | 96.24 (197) | 69.39 (159) | 35.68 (80) | 51.75 (108) | 72.42 (161) | 64.75 (705) | 39.08 | $P < 0.001$ |
| Desire for social distance | | | | | | | | |
| Unwilling to marry into family | 26.64 (59) | 41.27 (100) | 69.44 (152) | 72.87 (151) | 75.41 (176) | 57.47 (638) | 29.50 | $P < 0.001$ |
| Unwilling to move next door | 11.02 (27) | 14.82 (43) | 51.31 (104) | 41.88 (96) | 41.28 (96) | 32.02 (366) | 26.24 | $P < 0.001$ |
| Unwilling to spend evening with | 15.41 (36) | 14.59 (44) | 47.19 (101) | 46.96 (107) | 47.01 (122) | 34.09 (410) | 24.72 | $P < 0.001$ |
| Unwilling to have group home | 25.83 (52) | 25.32 (61) | 37.25 (71) | 35.80 (77) | 34.51 (86) | 31.67 (347) | 2.54 | $P = 00.77$ |
| Unwilling to work closely | 23.09 (50) | 29.13 (71) | 66.23 (150) | 77.47 (157) | 80.70 (188) | 55.18 (616) | 48.94 | $P < 0.001$ |
| Unwilling to become friends | 11.61 (26) | 11.13 (31) | 37.33 (77) | 43.59 (96) | 37.28 (97) | 27.99 (327) | 20.81 | $P < 0.001$ |
| Dangerousness | | | | | | | | |
| Probably violent toward others | 18.34 (40) | 28.30 (79) | 70.72 (149) | 51.95 (114) | 70.29 (161) | 48.18 (543) | 38.24 | $P < 0.001$ |
| Probably violent toward self | 34.83 (62) | 80.97 (192) | 90.56 (196) | 76.28 (163) | 74.28 (176) | 72.53 (789) | 29.43 | $P < 0.001$ |
| Competence | | | | | | | | |
| Can manage finances | 88.69 (179) | 75.89 (170) | 33.84 (78) | 41.92 (84) | 55.88 (122) | 59.16 (633) | 35.72 | $P < 0.001$ |
| Can make treatment decisions | 91.71 (186) | 75.88 (168) | 33.30 (76) | 52.80 (107) | 61.61 (138) | 62.78 (675) | 35.08 | $P < 0.001$ |
| Willing to coerce into treatment | 23.08 (53) | 30.48 (86) | 68.88 (153) | 64.32 (144) | 50.41 (121) | 47.40 (557) | 27.39 | $P < 0.001$ |
| Causal attributions | | | | | | | | |
| Probably due to bad character | 37.21 (77) | 33.08 (83) | 39.57 (83) | 35.61 (75) | 67.02 (152) | 42.74 (470) | 13.57 | $P < 0.001$ |
| Probably due to way raised | 56.80 (112) | 42.78 (105) | 44.41 (95) | 17.23 (35) | 68.48 (157) | 46.46 (504) | 22.51 | $P < 0.001$ |
| Probably due to stresses of life | 88.64 (178) | 95.19 (221) | 86.60 (190) | 67.25 (141) | 94.80 (222) | 87.14 (952) | 21.55 | $P < 0.001$ |
| Probably due to chemical imbalance | 46.97 (91) | 79.33 (191) | 93.37 (201) | 69.65 (144) | 76.84 (180) | 74.24 (807) | 21.34 | $P < 0.001$ |
| Probably due to genetic problem | 41.88 (86) | 65.20 (153) | 76.30 (167) | 33.02 (75) | 71.47 (174) | 58.87 (655) | 22.67 | $P < 0.001$ |

Table presents percentage reporting 'very probable' or 'somewhat probable' with frequencies in parentheses; estimates have been adjusted for survey sampling weights; d.f. = degrees of freedom. P -values have been corrected for multiple testing using the Bonferroni method.

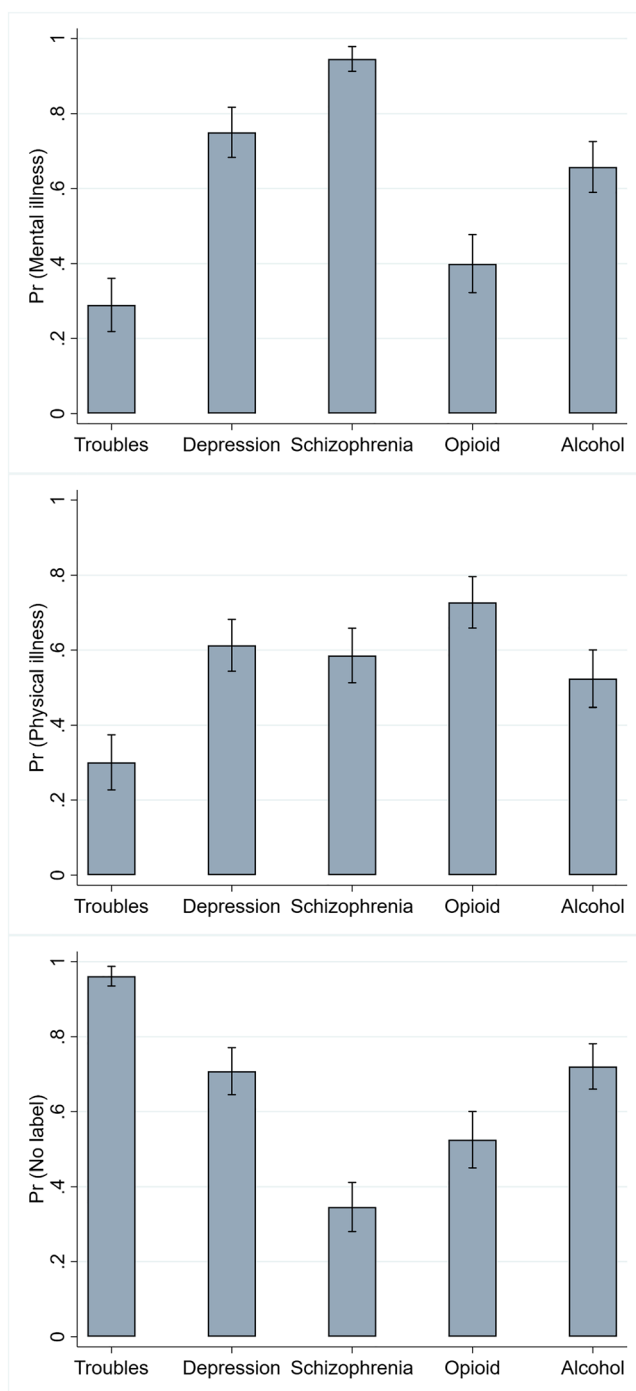


Figure 1 Predicted public attitudes about labeling by vignette condition, 2018 General Social Survey (GSS). Probabilities adjust for survey weights and respondent and vignette characteristics [Colour figure can be viewed at wileyonlinelibrary.com]

condition and stigma outcomes, controlling for respondent and vignette characteristics. Full regression results are provided in the Supporting information Appendix (Tables A1–A3). Covariates included respondent gender, age, race, education, having a mental illness diagnosis, social contact with people with mental illness and social desirability, as well as the gender, race and education level

of the vignette character. Covariates were selected based on findings from prior NSS studies.

Logistic regression was used for most outcomes. Ordinal logistic regression of original variables produced very similar results (see Supporting information Appendix, Table A4). We employed linear regression for the social distance scale (Cronbach's alpha = 0.83). The scale score was

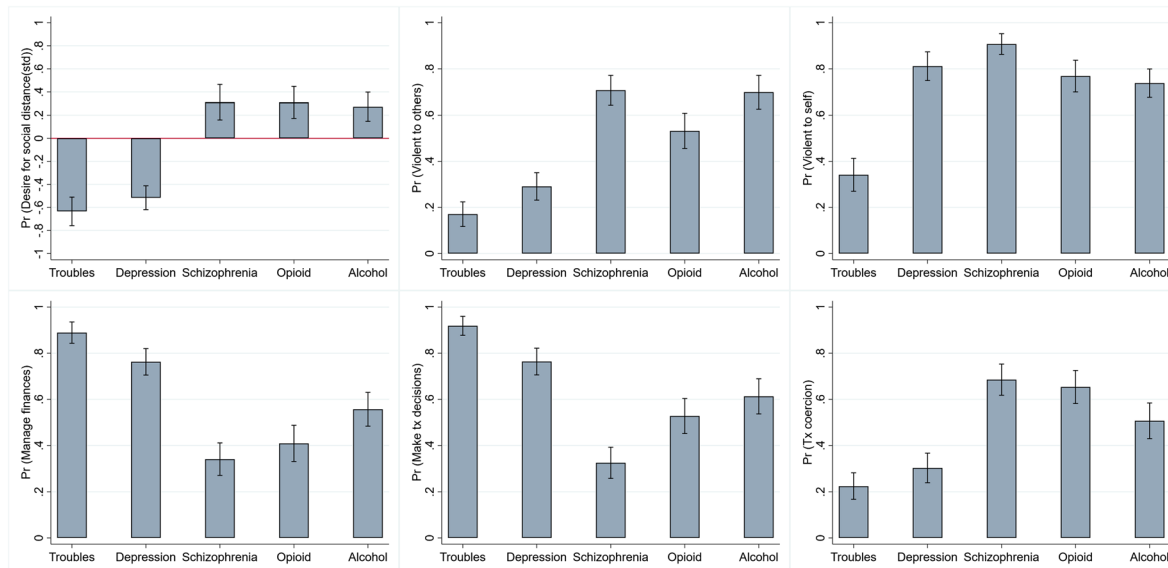


Figure 2 Predicted public attitudes about social distance, competence, and dangerousness by vignette condition, 2018 General Social Survey (GSS). Probabilities adjust for survey weights and respondent and vignette characteristics [Colour figure can be viewed at wileyonlinelibrary.com]

standardized [i.e. unit-change is a 1 standard deviation (SD) increase] to facilitate interpretation of the magnitude of effects. Predicted probabilities for each item estimated using logistic regression are presented in the Supporting information Appendix, Fig. A1.

Regression results were used to estimate and graph predicted probabilities and values (i.e. marginal effects). These depict the magnitude of differences in public opinions among vignette conditions and are easier to interpret than odds ratios. However, tests of statistical significance are conducted using odds ratios and associated *P*-values rather than tests of differences in predicted probabilities, consistent with statistical best practice. Marginal effects were calculated using the `-at-` command in Stata, holding all covariates at the mean for each vignette condition.

RESULTS

Bivariate statistics for public stigma by vignette condition are presented in Table 1. These results demonstrate that there are significant differences among vignette conditions for all measures except one at $P < 0.001$ after adjusting for multiple testing.

Sample demographics

Just more than half the sample is female (51%), while 72% are white, 17% black and 11% other race. Approximately 13% have less than a high school education, 27% have a high school diploma, 26% have some college and 34% have a 4-year college degree or more. Mean age is

48.98 years (SD = 18.02). Consistent with random assignment, these characteristics are evenly distributed among vignette conditions.

Aim 1: labeling

Predicted probabilities from the regression of vignette condition and covariates (see Statistical analysis) on endorsement of a mental illness label, physical illness label or no label (i.e. 'normal ups and downs of life') are presented in Fig. 1. Prescription OUD is significantly less likely to be labeled a mental illness [40%, confidence interval (CI) = 32–48%] than depression (75%, CI = 68–82%; $P < 0.001$), schizophrenia (95%, CI = 91–98%; $P < 0.001$) or alcohol use disorder (66%, CI = 59–73%; $P < 0.001$), and only slightly more likely than the subclinical distress condition (29%, CI = 22–36%; $P = 0.042$), adjusting for covariates. However, OUD is more likely to be labeled a physical illness (73%, CI = 66–80%) than any other condition, including subclinical distress (30%, CI = 23–37%; $P < 0.001$), depression (61%, CI = 54–68%; $P = 0.023$), schizophrenia (59%, CI = 51–66%; $P = 0.007$) and AUD (52%, CI = 45–60%; $P < 0.001$). Lastly, OUD is significantly less likely to receive no illness label in comparison to all conditions except schizophrenia. The predicted probability of OUD being labeled 'normal ups and downs' is 52% (CI = 45–60%), relative to 96% (CI = 93–99%; $P < 0.001$) for subclinical distress, 71% (CI = 65–77%; $P < 0.001$) for depression, 35% (CI = 28–41%; $P < 0.001$) for schizophrenia and 72% (CI = 66–78%; $P < 0.001$) for AUD.

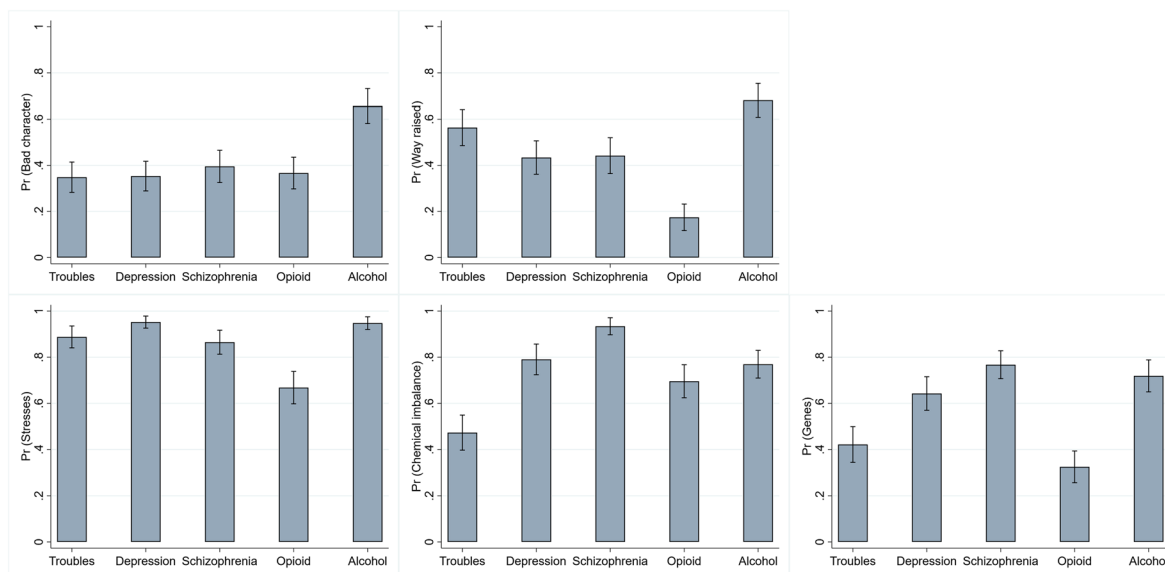


Figure 3 Predicted public attitudes about causal attributions across vignette conditions, 2018 General Social Survey (GSS). Probabilities adjust for survey weights and respondent and vignette characteristics [Colour figure can be viewed at wileyonlinelibrary.com]

Aim 2: desire for social distance

A substantial percentage of US residents report desire for social distance from adults with non-medical prescription opioid use and dependence, even when they are presented with a vignette describing initiation through legitimate medical use. As shown in Table 1, 36% are unwilling to have a group home for people with OUD in their neighborhood, 42% of respondents are unwilling to have a person with OUD move next door to them, 47% are unwilling to spend an evening socializing with such a person and 44% would not become friends with someone with OUD. However, the highest levels of desire for social distance are in the domains of marriage and work. Specifically, 73% of respondents are unwilling to have a person with OUD marry into their family, and 77% would not want to work closely with such a person on a job.

Results from the regression of desire for social distance on vignette condition and covariates are presented in Fig. 2. Unwillingness to interact with the vignette character, aggregated across social domains, is predicted to be 0.31 SD above the scale mean for OUD. US residents desire significantly less social distance from adults with depression (-0.52 ; $P < 0.001$) and subclinical distress (-0.63 ; $P < 0.001$), relative to OUD. However, desire for social distance from those with OUD is not significantly different from schizophrenia (0.31; $P = 0.99$) or AUD (0.27; $P = 0.70$). Figures of predicted probabilities for individual items in the social distance scale are presented in the Supporting information Appendix, Fig. A1.

Aim 3: dangerousness

Predicted probabilities from the regression of dangerousness on vignette condition are depicted in Fig. 2. Approximately 53% (CI = 46–61%) of respondents are estimated to report that a person with OUD is likely to hurt others, relative to only 17% (CI = 12–22%; $P < 0.001$) of people receiving the subclinical distress vignette and 29% (CI = 23–35%; $P < 0.001$) of those responding to a depression vignette. In contrast, OUD is perceived as less threatening to others than schizophrenia (71%, CI = 64–77%; $P < 0.001$) and AUD (70%, CI = 63–77%; $P = 0.003$). With respect to self-harm, 77% (CI = 70–84%) of respondents are predicted to report that a person with OUD is likely to hurt themselves, which is not significantly different from perceptions of depression (81%, CI = 75–87%; $P = 0.36$) or AUD (74%, CI = 68–80%; $P = 0.52$). However, OUD is seen as more dangerous to self than subclinical distress (34%, CI = 27–41%; $P < 0.001$) and less dangerous to self than schizophrenia (91%, CI = 86–95%; $P = 0.001$), adjusting for covariates.

Aim 4: competence

Findings on public perceptions of competence among vignette conditions are also provided in Fig. 2. A person with prescription OUD is significantly less likely to be perceived as capable of managing their own finances (41%, CI = 33–49%) relative to a person with subclinical distress (89%, CI = 84–94%; $P < 0.001$), depression (76%, CI = 71–82%; $P < 0.001$) or AUD (56%, CI = 48–63%;

$P < 0.001$), and the difference compared to an adult with schizophrenia is non-significant (34%, CI = 27–41%; $P = 0.20$). Patterns regarding public confidence in ability to make one's own treatment decisions are similar. OUD is predicted to provoke less public trust (53%, CI = 45–60%) than subclinical distress (92%, CI = 88–96%; $P < 0.001$) and depression (76%, CI = 71–82%; $P < 0.001$), but more than schizophrenia (32%, CI = 26–39%; $P < 0.001$) and approximately as much as AUD (61%, CI = 54–69%; $P = 0.12$). However, according to regression models, the American public is significantly more willing to coerce people with OUD into some kind of treatment (65%, CI = 58–73%) than any other condition (subclinical distress = 22%, CI = 17–28%; $P < 0.001$; depression = 30%, CI = 24–37%; $P < 0.001$; AUD = 51%, CI = 43–58%; $P = 0.007$), with the exception of schizophrenia, where there is no distinction (69%, CI = 62–75%; $P = 0.53$).

Aim 5: causal attributions

Results from the regression of causal attributions on vignette condition and controls are presented in Fig. 3. Only 17% (CI = 12–23%) of respondents believe that prescription OUD is caused by a person's upbringing, compared to 56% (CI = 49–64%; $P < 0.001$) for subclinical distress, 43% (CI = 36–51%; $P < 0.001$) for depression, 44% (CI = 36–52%; $P < 0.001$) for schizophrenia and 68% (CI = 61–75%; $P < 0.001$) for AUD. Also, 67% (CI = 60–74%) report that OUD is probably due to stressful circumstances, relative to 89% (CI = 84–94%; $P < 0.001$) for subclinical distress, 95% (CI = 93–98%; $P < 0.001$) for depression, 87% (CI = 81–92%; $P < 0.001$) for schizophrenia and 95% (CI = 92–98%; $P < 0.001$) for AUD. With respect to biological etiology, only 32% (CI = 26–39%) of respondents attribute OUD to a genetic or inherited problem, compared to 64% (CI = 57–72%; $P < 0.001$) for depression, 77% (CI = 71–83%; $P < 0.001$) for schizophrenia and 72% (CI = 65–79%; $P < 0.001$) for AUD. Additionally, 70% (CI = 62–77%) of the public attributes OUD to a chemical imbalance in the brain, compared to 79% (CI = 72–86%; $P < 0.001$) for depression, 93% (CI = 90–97%; $P < 0.001$) for schizophrenia and 77% (CI = 71–83%; $P < 0.001$) for AUD. Endorsement of genetic causes for OUD is not significantly different from subclinical distress (42%, CI = 34–50%; $P = 0.07$), while endorsement of chemical imbalance as a cause is higher than subclinical distress (47%, CI = 40–55%; $P < 0.001$). The public is significantly less likely to attribute prescription OUD to bad character (37%, CI = 30–44%) relative to AUD (66%, CI = 58–73%; $P < 0.001$), all else equal, while levels of endorsement for bad character are on a par with subclinical distress (35%, CI = 29–42%;

$P = 0.71$), depression (35%, CI = 29–42%; $P = 0.78$) and schizophrenia (40%, CI = 33–47%; $P = 0.57$).

DISCUSSION

Employing the most current and representative data on public attitudes toward mental illness, our findings reveal clear differences between non-medical prescription opioid use and dependence and other conditions, including AUD. Specifically, the majority of US residents believe OUD is a physical illness, while relatively few label it a mental illness. Similarly, endorsement of both biological and environmental causes, as well as bad character, is generally lower for OUD than for other conditions. These patterns diverge from prior results on general drug use, and suggest that people with prescription OUD are largely conceptualized as having a physical disease for which they are not personally responsible [3,8,9]. In short, public attitudes suggest that prescription OUD is a condition with low-onset stigma or minimal blame associated with how the condition was acquired.

The prevailing public narrative is that the majority of people who engage in non-medical prescription opioid use become addicted through 'legitimate' medical need. That is, initiation into misuse often begins with the need for pain management due to injury or chronic illness, followed by a physician-prescribed opiate analgesic. Consistent with this narrative, the OUD vignette in this study stated that the vignette character's use of non-medical opioids began after being prescribed opioid analgesics for back pain. This information, coupled with public beliefs about the addictiveness of medical opioids, probably contributed to low levels of perceived personal responsibility for OUD [19]. An important benefit of this vignette approach is that it reflects messaging by the media about the opioid epidemic. Indeed, recent media accounts of the opioid epidemic, including high-profile lawsuits and criminal trials, have placed much of the burden of responsibility on the pharmaceutical industry and fraudulent or negligent over-prescribers [20].

Another important finding revealed by GSS data is that people with prescription OUD are generally believed to be less competent and more deserving of coercion relative to other conditions. This pattern may suggest public perceptions of low controllability. That is, people with OUD are not able to control their drug use or related behaviors, and therefore cannot manage their own finances or make autonomous treatment decisions. Low controllability is likely to be associated with endorsement of formal social control of people with OUD and suspension of civil rights (e.g. involuntary treatment or criminal justice contact)—attitudes which are largely consistent with traditional societal responses to drug epidemics [21].

Further, despite lower levels of perceived dangerousness, social rejection of people with OUD in our sample is relatively high—on a par with schizophrenia and AUD. This may suggest that dangerousness—a traditional ‘backbone’ of public stigma—is a less prominent driver of attitudes toward prescription OUD compared to other severe mental illnesses [22]. Moreover, although the OUD vignette was worded to remove personal responsibility for initiation of prescription opioid use, we find that a large majority of respondents are nonetheless reticent to interact with people with OUD in everyday life. This, too, is a remarkable departure from conventional understanding about the key determinants of mental illness stigma [23]. Taken together, our findings on social distance and perceived competence indicate that OUD provokes high levels of offset stigma. That is, the public holds negative stereotypes about individuals after they have become dependent on opioids and may be pessimistic about their ability to function normally and successfully perform social roles.

Limitations

Although there are several advantages to using a vignette-based approach (see the Supporting information Appendix), this strategy has limitations. Most notably, individuals’ responses were necessarily influenced by the information in the vignettes. Respondents’ causal attributions for OUD might have been different if the vignette had not mentioned that opioid analgesics were initially prescribed by a physician. However, wording the vignette in this way provided a unique opportunity to examine whether the prominent public narrative regarding onset of OUD is accompanied by less stigmatizing attitudes and decreased levels of social exclusion. Future work should determine whether a similar pattern emerges when the trajectory of non-medical opioid use and dependence begins in another manner. Further, findings should not be generalized to other forms of non-medical opioid use, such as intravenous heroin use.

Implications for policy and practice

This study provides a representative assessment of public stigma toward non-medical opioid use and dependence initiated through prescription of opioid analgesics. Findings regarding onset stigma are somewhat hopeful (e.g. labeling as physical illness, low attribution to bad character), and suggest that traditional educational campaigns defining OUD as a disease rather than a moral failing should be a low priority [3,6]. Nonetheless, the key indicator of behavioral intentions toward people with stigmatized conditions—desire for social distance—is a troubling signal of the isolation and marginalization of those who use non-medical

opioids. While the public endorses a medical model of prescription OUD, appears not to hold affected people responsible and is only moderately concerned about dangerousness, US residents still endorse a high level of exclusion. Ultimately, concerns about competence in work and family settings appear to be driving desire for social distance, signaling a belief that people with OUD are unable to manage their disease or live full and productive lives. In short, although OUD initiated through legitimate medical use is characterized by low-onset stigma, it still provokes high-offset stigma—a pattern that is unique in the literature.

Taken together, our results suggest that public stigma and resulting discrimination will continue to profoundly shape the lives of people with OUD, adversely affecting physical and mental health and quality of life [15,16]. Additionally, stigma associated with drug use disorders is a significant barrier to health services utilization and recovery [24]. For example, studies have linked stigma to withdrawal from substance use treatment, delayed treatment-seeking and recovery and increased engagement in high-risk behaviors such as needle-sharing [17,25]. In short, stigma impedes progress toward reversing the opioid epidemic by discouraging people with OUD from seeking health and addiction services, and increasing secondary harm.

In summary, our results emphasize the pervasive risk of social rejection faced by people with OUD, and the complexity of attitudes and beliefs underlying it. The most effective strategy for combating OUD stigma may be to avoid a rhetoric of hopelessness, and instead emphasize the recovery potential of affected individuals and communities. In fact, experimental evidence suggests that portraying OUDs as treated reduces public stigma relative to an identical untreated condition [10]. Along these lines, public health campaigns might focus on creating an image of persons with OUD as fighting against a serious condition with real prospect for remission, similar to cancer. Public attention could then be directed toward strengthening the formal and informal safety net required to support successful recovery. Similarly, visible social movements that assert the rights of people who use opioids to equal opportunity under the law, and which highlight the prosocial roles and relationships of this population, might help to reduce offset stigma.

Declaration of interests

The authors have no conflicts of interest to declare.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Table A1. Results of binary logistic regressions of vignette mental illness condition on labeling of the disorder as a mental illness, physical illness, or no label. 2018 GSS ($N = 1112$)

Table A2. Results of binary logistic regressions of vignette mental illness condition on desired social distance, and perceived danger to other and self of vignette target. 2018 GSS

($N = 1119$)

Table A3. Results of binary logistic regressions of vignette mental illness condition on respondents' belief that vignette target can make decisions about managing money, seeking treatment, or should be forced to seek treatment. 2018 GSS ($N = 1129$)

Table A4. Results of ordinal logistic regressions of vignette mental illness condition on all stigma outcomes for sensitivity analysis. 2018 GSS ($N = 1129$)

Fig. A1. Predicted public attitudes about social distance scale items by vignette condition, 2018 GSS.