

Original Contribution

Stigma and Treatment for Alcohol Disorders in the United States

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Among a nationally representative sample of adults with an alcohol use disorder, the authors tested whether perceived stigmatization of alcoholism was associated with a lower likelihood of receiving alcohol-related services. Data were drawn from a face-to-face epidemiologic survey of 34,653 adults interviewed in 2004–2005 who were aged 20 years or older and residing in households and group quarters in the United States. Alcohol abuse/dependence was diagnosed by using the Alcohol Use Disorder and Associated Disabilities Interview Schedule—*Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, version (AUDADIS-IV). The stigma measure used was the Perceived Devaluation-Discrimination Scale. The main outcome was lifetime intervention including professional services and 12-step groups for alcohol disorders. Individuals with a lifetime diagnosis of an alcohol use disorder were less likely to utilize alcohol services if they perceived higher stigma toward individuals with alcohol disorders (odds ratio = 0.37, 95% confidence interval: 0.18, 0.76). Higher perceived stigma was associated with male gender ($\beta = -0.75$; $P < 0.01$), nonwhite compared with non-Hispanic white race/ethnicity, lower income ($\beta = 1.0$; $P < 0.01$), education ($\beta = 1.48$; $P < 0.01$), and being previously married ($\beta = 0.47$; $P = 0.02$). Individuals reporting close contact with an alcohol-disordered individual (e.g., relative with an alcohol problem) reported lower perceived stigma ($\beta = -1.70$; $P < 0.01$). A link between highly stigmatized views of alcoholism and lack of services suggests that stigma reduction should be integrated into public health efforts to promote alcohol treatment.

alcohol drinking; alcoholics anonymous; alcoholism; mental disorders; psychiatric therapeutic processes; shame; therapeutics; United States

Abbreviations: AUDADIS, Alcohol Use Disorder and Associated Disabilities Interview Schedule; AUDADIS-IV, Alcohol Use Disorder and Associated Disabilities Interview Schedule—*Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, version; CI, confidence interval; DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition; NESARC, National Epidemiologic Survey of Alcohol and Related Conditions; OR, odds ratio.

Alcohol use disorders are prevalent and widely distributed in the general population (1). Adults with alcohol use disorders are at increased risk for a wide range of adverse health outcomes including neurologic impairment (2), reproductive health problems (3), and psychiatric comorbidity (1). Chronic heavy alcohol consumption is also associated with elevated risk of all-cause mortality, including intentional and unintentional injury as well as several cancers (4).

Despite the development of effective treatments for alcohol disorders (5, 6), relatively few affected individuals receive any formal treatment in their lifetimes. Known barriers to treatment for alcohol disorders include those common to

many health conditions, including low severity of disorder, male gender, low income, lack of health insurance, and Hispanic race/ethnicity (7–10). However, although there have been marked national increases in the treatment of depression and anxiety (11), no corresponding increases in the treatment of alcohol disorders have occurred (1). Approximately 70% of adults with nonaffective psychoses and 50%–60% of those with a mood disorder eventually receive care (12–14), but fewer than 25% of individuals with alcohol disorders ever receive treatment (1, 14, 15). In this context, understanding obstacles unique to the community treatment of alcohol disorders is an imperative public health priority (16).

Treatment utilization and efficacy may be impeded if afflicted individuals believe that they will be stigmatized by others once their affected status is known (17–20). Stigmatizing attitudes toward individuals with mental illness are pervasive (21–24), and experiences of stigma range from perceptions that the stigmatizing characteristic sets one apart from others to feelings of rejection and isolation (25–28). Perceptions of mental illness stigmatization are associated with a number of adverse consequences, including psychological (lower self-esteem (29, 30), decreased self-efficacy (28), and increased distress (25)) and behavioral (diminished pursuit of goals such as housing and employment (29), nonadherence to treatment recommendations (31), and poor treatment retention (32)). Alcohol disorders are among the most highly stigmatized of the psychiatric disorders (33–38). For example, public perceptions of individuals with alcohol disorders include negative labels, such as dangerous, immoral, and blameworthy (33, 39–42). As a result, people with alcohol disorders who perceive high levels of alcohol stigma may avoid entering treatment because it confirms their membership in a stigmatized group. For similar reasons, people with an alcohol use disorder may eschew the label of “alcoholic” because of its associated stigma, thereby reducing their perceived need for treatment.

Despite evidence of stigma toward individuals with an alcohol disorder, little is known about its relation with treatment-seeking behavior. Previous studies on stigma and services for mental disorders combined indicators of treatment for various disorders (20, 23, 24, 29, 37, 43–47), rather than studying those with alcohol disorders separately. These studies thus precluded examination of the specific association between stigma of alcohol disorders and service use. If stigma is related to underutilization of alcohol services, understanding the distribution of alcohol stigma perceptions in the general population is critical to identify subgroups with particularly high perceptions of alcohol stigma (48). Previous research has suggested that men generally perceive more stigma and endorse more discriminatory behaviors toward psychiatric disorders than women (44, 48, 49), and that perception varies as a function of closeness to the disordered person, such that having a family member with a psychiatric disorder predicts lower stigma for such disorders (45, 50). The extent to which these factors are associated with perceptions of stigma for alcohol disorders is unknown. We might expect differences in the demographic correlates of alcohol disorder stigma compared with demographic correlates of stigma related to other mental disorders due to differences in the demographic composition of disordered individuals (e.g., men are more likely to evidence alcohol disorders compared with women, whereas women are more likely to evidence depression compared with men (51)).

To address these gaps in knowledge about stigma, alcohol disorders, and treatment utilization, the present study examines perceptions of stigma toward alcohol disorders in the general population by using a probability sample of US adults. We conducted a series of analyses culminating in the test of our main hypothesis that perceptions of stigma are associated with reduced odds of alcohol disorder treat-

ment among afflicted individuals. First, we examine demographic and alcohol disorder-related predictors of the perception that alcohol disorders are stigmatized. Second, we examine the hypothesis that, among individuals with alcohol disorders, those who perceive stigmatizing attitudes toward individuals with alcohol disorders are less likely to utilize treatment services.

MATERIALS AND METHODS

Sample

Data are drawn from the 2004–2005 National Epidemiologic Survey of Alcohol and Related Conditions (NESARC), a population-based sample of psychiatric disorders in civilian noninstitutionalized US adults. The sampling frame included households in the Census 2000–2001 Supplementary Survey and group quarters in the Census 2000 Group Quarters Inventory. Perceptions of alcohol stigma were assessed among 34,653 (ages 20–90 years) of the original 43,093 NESARC respondents (cumulative response rate of 70%), interviewed in 2004–2005. The research protocol, including written, informed consent procedures, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget. Further information on the design, implementation, and field quality control (including training and accuracy of interviewers) can be found elsewhere (1, 52, 53).

Measures

The Alcohol Use Disorder and Associated Disabilities Interview Schedule—*Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV), version (AUDADIS-IV), a structured diagnostic interview from the National Institute on Alcohol Abuse and Alcoholism (54–57), was developed to advance measurement of substance use and mental disorders in large-scale surveys. Computer algorithms produced DSM-IV diagnoses based on AUDADIS-IV data.

Alcohol disorders. In the AUDADIS-IV, all lifetime drinkers (i.e., those who ever had ≥ 1 drink) were assessed for alcohol abuse and dependence by using extensive items covering the DSM-IV criteria. In the present analysis, we combined alcohol abuse and dependence for a measure of any alcohol disorder. We examined alcohol stigma among individuals who reported at least 1 period of weekly at-risk drinking (≥ 5 drinks in 1 setting for men, ≥ 4 drinks for women) and who met criteria for an alcohol disorder at some point in their lives ($n = 6,309$).

Good-to-excellent Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS) test-retest reliability for alcohol dependence ($\kappa = 0.70$ –0.84) was documented in clinical and general population samples (54–56, 58), as were good-to-excellent convergent, discriminant, and construct validity of AUDADIS alcohol dependence criteria and diagnoses in US (1, 59–61) and international studies (62–68), including clinical reappraisals ($\kappa = 0.60$ –0.76). The alcohol abuse diagnosis specifically, when assessed nonhierarchically (independently of alcohol dependence) as is done

in the AUDADIS-IV (69), has adequate reliability (54, 58, 68).

Alcohol stigma. Alcohol-related stigma was assessed with a 12-item scale adapted from the Perceived Devaluation-Discrimination Scale developed by Link (26, 70) and Link et al. (27). The scale measures the extent to which respondents believe that a person with a mental disorder will be stigmatized if their disorder were known (25–28, 70). Respondents were asked to describe the extent to which they agreed with statements such as the following: "Most people would accept a former alcoholic as a close friend" and "most people feel that entering alcohol treatment is a sign of personal failure." Responses ranged from "strongly agree" to "strongly disagree." Questions that were positively worded were reverse coded so that higher scores consistently indicated greater stigma.

A summation of all items creates a continuous score that approximates a normal distribution in both those with and those without alcohol disorder. Exploratory factor analysis in the total sample using MPLUS, version 5 (Muthén & Muthén, Los Angeles, California), software indicated that the 12 items describe a single dimension (eigenvalue = 6.79, Comparative Fit Index (CFI) = 0.93, Tucker Lewis Index (TLI) = 0.95, root mean square error of approximation (RMSEA) = 0.02, standardized root mean square residual (SRMR) = 0.04). Internal consistency reliability is 0.82, and a test-retest study showed excellent reliability for the scale (intraclass correlation = 0.93, 95% confidence interval (CI): 0.92, 0.94) (57).

Treatment utilization. In the AUDADIS-IV, all lifetime drinkers were asked about 13 types of intervention. These fall into 4 categories: 1) self-help (e.g., Alcoholics Anonymous); 2) social services (family services, employee assistance program, clergy); 3) alcohol services (alcohol/drug detoxification, inpatient ward, outpatient clinic, rehabilitation program, halfway house, private physician, psychiatrist, psychologist, social worker, or other professional); and 4) emergency room or crisis centers. We utilized an indicator of lifetime utilization in all analyses, although sensitivity analyses using past 12-month indicators are also reported.

Confounders. In evaluating the association between alcohol stigma and alcohol treatment, we controlled for covariates associated with both alcohol stigma and alcohol disorders. Initial analyses demonstrated evidence of positive and negative confounding. Positive confounders included sex, age, education, and marital status. For example, younger individuals perceived less stigma (Table 2) and were less likely to seek treatment for an alcohol disorder (odds ratio (OR) = 0.72, 95% CI: 1.60, 0.98). Men perceived more stigma compared with women (Table 2) and were more likely to utilize alcohol services (OR = 1.93, 95% CI: 1.60, 2.32). Negative confounders included race/ethnicity and number of alcohol dependence criteria. Individuals of black race/ethnicity had higher mean stigma compared with whites (Table 2) and were less likely to utilize alcohol services (OR = 0.58, 95% CI: 0.46, 0.69). Individuals with more severe alcohol disorders were more likely to seek treatment (OR = 1.3, 95% CI: 1.24, 1.37) and perceived less stigma (Table 2) regarding their disorder.

Statistical analysis

First, we identified demographic predictors of stigma and differences in stigma by relation to a disordered individual. Given the normal distribution of alcohol stigma scores, we examined these associations using linear regression. Point estimates from linear regression models are presented both unadjusted and adjusted for demographic covariates. All analyses were conducted by using SUDAAN (Research Triangle Institute, Inc., Research Triangle Park, North Carolina) software to adjust standard errors for the complex survey design of the NESARC.

Second, we examined whether stigma was associated with lower odds of service utilization. Because preliminary analyses indicated that the association between stigma and treatment utilization was nonlinear, the continuous stigma measure was categorized into quartiles, with the lowest quartile of stigma as the reference group. Alcohol stigma was examined as a predictor of treatment in logistic regression analysis with the following quartile cutpoints: ≤ 32 , 33–38, 39–43, and ≥ 44 . Sensitivity analyses established homogeneity of the association between stigma and outcome variables within quartiles of alcohol stigma. Odds ratios from logistic regression are presented unadjusted and adjusted for confounders (described above). We also examined alcohol stigma as a continuous predictor in our test of a dose-response relation. Alcohol disorder severity was explored as a potential effect modifier by testing for multiplicative interaction in logistic regressions. No interactions were statistically significant.

Nine percent ($n = 3,114$) of the 34,653 NESARC respondents were missing data on at least 1 item in the stigma measure. For respondents with up to 2 missing items ($n = 2,034$), we imputed the mean value from remaining items. Respondents missing more than 2 items (3.1%) were excluded from analyses. We examined demographic and alcohol-related predictors of missingness status (no missing data, 1 or 2 missing items, and 3 or more) among both the whole sample and among those with an alcohol disorder. Among the whole sample, missing data were associated with being male ($\chi^2 = 8.57$, df = 2; $P = 0.002$), in an older age group ($\chi^2 = 20.64$, df = 6; $P < 0.001$), and white race/ethnicity ($\chi^2 = 3.58$, df = 6; $P = 0.002$). There were no differences by lifetime history of alcohol dependence ($\chi^2 = 1.42$, df = 2; $P = 0.24$) or lifetime alcohol service utilization ($\chi^2 = 2.14$, df = 2; $P = 0.13$). Among those with an alcohol disorder, missing data were associated with being male ($\chi^2 = 7.10$; $P = 0.002$) and in an older age group ($\chi^2 = 9.4$, df = 4; $P < 0.001$). There were no differences by race/ethnicity ($\chi^2 = 1.38$, df = 6; $P = 0.22$) or lifetime alcohol service utilization ($\chi^2 = 2.3$, df = 2; $P = 0.10$).

RESULTS

Demographic characteristics and perceived alcohol stigma

Table 1 presents associations of alcohol stigma with sociodemographic characteristics in the general population. Stigma was significantly higher for men, those with lower

Table 1. Differences in Mean and Effect of Alcohol Stigma by Sociodemographic Characteristics in the General Population, United States, 2004–2005 ($n = 33,573$)

	Stigma Scale	Sociodemographic Effect			
		Crude		Adjusted ^a	
	Mean (SE)	β (SE)	P Value	β (SE)	P Value
Total	37.9 (0.1)				
Sex					
Male	38.1 (0.1)	0.44 (0.12)	<0.01	0.75 (0.13)	<0.01
Female	37.7 (0.1)	0.00	0.00		
Age, years					
<35	38.1 (0.1)	-0.12 (0.19)	0.53	-0.18 (0.2)	0.36
35–49	37.7 (0.1)	-0.59 (0.17)	<0.01	-0.33 (0.17)	0.06
50–64	37.6 (0.2)	-0.64 (0.18)	<0.01	-0.31 (0.19)	0.11
≥65	38.3 (0.2)	0.00			0.00
Race/ethnicity					
Non-Hispanic white	37.1 (0.1)	0.00			0.00
Non-Hispanic black	39.2 (0.1)	2.06 (0.17)	<0.01	1.87 (0.18)	<0.01
American Indian/Alaska native	37.2 (0.5)	0.06 (0.50)	0.90	-0.20 (0.49)	0.69
Asian/Pacific Islander	40.3 (0.3)	3.15 (0.31)	<0.01	3.21 (0.32)	<0.01
Hispanic	40.3 (0.3)	3.16 (0.26)	<0.01	2.69 (0.26)	<0.01
Income					
≤\$19,999	38.6 (0.1)	1.52 (0.18)	<0.01	1.02 (0.18)	<0.01
\$20,000–\$34,999	37.9 (0.1)	0.80 (0.19)	<0.01	0.41 (0.19)	0.04
\$35,000–\$59,999	37.1 (0.2)	0.06 (0.19)	0.75	-0.07 (0.19)	0.71
≥\$60,000	37.1 (0.2)	0.00			0.00
Education					
< High school	39.9 (0.2)	2.57 (0.17)	<0.01	1.48 (0.19)	<0.01
High school	38.0 (0.2)	0.69 (0.14)	<0.01	0.40 (0.15)	<0.01
> High school	37.3 (0.1)	0.00			0.00
Marital status					
Married ^b	37.7 (0.1)	-0.38 (0.15)	0.02	0.08 (0.16)	0.62
Previously married	38.3 (0.2)	0.16 (0.19)	0.40	0.47 (0.19)	0.02
Never married	38.1 (0.2)	0.00			0.00

Abbreviation: SE, standard error.

^a Adjusted for all demographic covariates simultaneously.^b Includes married and living together as though married.

personal income, lower education, and individuals previously married compared with those who had never married. In relation to non-Hispanic whites, non-Hispanic blacks, Hispanics, and Asian/Pacific Islanders had higher mean stigma scores.

Closeness to an alcohol-disordered person: relation with stigma

The relation between stigma and close contact with someone with an alcohol disorder is shown in Table 2. Individuals who were ever married to or lived as though married (“married”) with someone with an alcohol disorder reported significantly less stigma than others. This difference remained significant in adjusted analysis only when comparing formerly married with never married.

Mean stigma did not differ between formerly and currently married ($t = 1.1$; $P = 0.28$) (data not shown). Adjusted analyses also indicated significantly lower stigma for individuals with a relative (parent, sibling, child, or second-degree family member) who had an alcohol disorder than for individuals without a relative with a history of an alcohol disorder.

Association between perceived stigma and treatment/self-help

Table 3 shows the association between score on the stigma scale and lifetime treatment/self-help. Descriptively, utilization was highest in the lowest stigma group (23.51%), followed by the highest stigma group (21.25%), middle-high (17.69%), and middle-low quartiles (17.17%).

Table 2. Differences in Mean and Effect of Alcohol Stigma by Closeness to an Individual With an Alcohol Disorder, United States, 2004–2005 ($n = 33,573$)

	Stigma Scale	Crude		Adjusted ^a	
		Mean (SE)	β (SE)	P Value	β (SE)
Married to someone with an alcohol problem ^b					
Currently	36.8 (0.6)	-1.12 (0.58)	0.06	-0.84 (0.60)	0.17
Formerly	35.8 (0.6)	-2.11 (0.58)	<0.01	-1.70 (0.58)	<0.01
Never	37.9 (0.1)	0.00		0.00	
Family history of alcohol					
Any first-degree family member					
Any parent	37.1 (0.2)	-1.20 (0.16)	<0.01	-0.81 (0.16)	<0.01
Any sibling	37.5 (0.2)	-0.84 (0.16)	<0.01	-0.54 (0.16)	<0.01
Any child	37.3 (0.3)	-1.03 (0.31)	<0.01	-0.76 (0.31)	0.02
Any second-degree family member	37.4 (0.1)	-0.94 (0.13)	<0.01	-0.49 (0.12)	<0.01
None of first- or second-degree family member	38.3 (0.1)	0.00		0.00	

Abbreviation: SE, standard error.

^a Adjusted for sex, age, race/ethnicity, income, education, marital status, and lifetime alcohol disorder.^b Includes married and living together as though married.

In an unadjusted model, there was no difference in odds between the highest and lowest stigma group ($OR = 0.88$, 95% CI: 0.71, 1.08). However, importantly, when the model was adjusted for the relevant confounders (in particular, alcohol disorder severity) as shown in the second column of odds ratios in Table 3, the odds of treatment/self-help decreased in stepwise fashion with each increase in the alcohol stigma quartile. Those in the highest stigma quartile were the least likely to utilize alcohol services, as shown in Table 3 ($OR = 0.37$, 95% CI: 0.18, 0.76), followed by those in the middle-high quartile ($OR = 0.47$, 95% CI: 0.23, 0.95) and then those in the middle-low quartile ($OR = 0.61$, 95% CI: 0.32, 1.16). To test for a dose-response relation, we examined stigma as a continuous predictor of the log-odds of treatment with demographic and alcohol disorder severity controls; each 5-point increase in stigma was associated with a decreased odds of alcohol disorder treatment ($OR = 0.91$, 95% CI: 0.87, 0.97).

Sensitivity analysis—past 12-month disorder and service utilization

We also examined the association between stigma and past-year service utilization among those with a current alcohol disorder ($n = 1,280$). Results were in a similar direction and magnitude as lifetime analyses; those in the highest stigma group had a lower odds of service utilization compared with those in the lowest stigma group ($OR = 0.54$, 95% CI: 0.20, 1.50). However, because of the smaller number of current cases and the low prevalence of treatment/self-help in this group, analyses were underpowered to detect significant associations between stigma and alcohol services in the past 12 months.

DISCUSSION

Individuals with alcohol disorders who perceive high stigma in the community were less likely to have utilized

Table 3. Association Between Alcohol Stigma and Any Lifetime Treatment Utilization Among Individuals With a Lifetime Alcohol Disorder, United States, 2004–2005 ($n = 6,309$)

	Utilized Alcohol Services, Lifetime ($n = 1,401$)				
	% (SE)	Unadjusted OR	95% CI	Adjusted OR ^a	95% CI
High stigma ($n = 1,911$)	21.25 (1.32)	0.88	0.71, 1.08	0.37	0.18, 0.76
Middle high ($n = 1,692$)	17.69 (1.06)	0.70	0.58, 0.84	0.47	0.23, 0.95
Middle low ($n = 1,533$)	17.17 (1.05)	0.67	0.57, 0.81	0.61	0.32, 1.16
Low stigma ($n = 1,173$)	23.51 (1.06)	1.00		1.00	

Abbreviations: CI, confidence interval; OR, odds ratio; SE, standard error.

^a Adjusted for sex, age, race/ethnicity, income, education, marital status, and number of lifetime alcohol dependence criteria met.

alcohol treatment services. The likelihood of treatment decreased in stepwise fashion with increasing stigma perception, after controlling for demographic characteristics and alcohol disorder severity. This relation suggests that perceptions of stigma represent a potential explanation for the underutilization of alcohol services among those in greatest need of treatment.

Perceptions of stigmatizing attitudes are more common among several key high-risk groups for alcohol disorders: men, persons with lower incomes, and persons with lower educational achievement. These findings are consistent with previous studies suggesting that women (44, 48) and those of higher income and education (48, 49) are generally more accepting of individuals with mental illness. Although the relation between gender and stigma is complex, Corrigan et al. (48) hypothesize that lower endorsement of stigmatizing attitudes among women may stem from the higher rates of social empathy and/or lower need for social dominance among women compared with men. We also find that perceptions of stigma vary by race/ethnicity, with non-Hispanic blacks and Hispanic individuals perceiving higher stigma compared with non-Hispanic whites. Although there is a paucity of data examining the role of race/ethnicity in mental illness stigma, existing research suggests that blacks and Hispanics are generally less likely to endorse stigmatizing attitudes toward mental illness (45) but may perceive others to judge mental illness more harshly (48, 71). Blacks and Hispanics experience multiple forms of discrimination and prejudice (72–74) and may therefore perceive others as viewing all types of “otherness” as potentially dangerous (75). Alcohol disorder severity is associated with both demographic characteristics such as sex and race/ethnicity and perceptions of stigma; in a post-hoc analysis, we controlled the relation between demographic characteristics and stigma for alcohol disorder severity. The relation reported in Table 1 persisted, and the magnitude of the effect even increased in some circumstances; for example, the β coefficient for gender increased from 0.75 to 0.94.

We found that closeness predicts lower perceptions of stigma, with those formerly married to an individual with an alcohol problem and those with a family history of alcohol problems less likely to perceive stigma. These results, while novel for alcohol use disorders, are consistent with considerable past work on mental illness stigma documenting that friends and family members of individuals with a mental illness have fewer stigmatizing attitudes (45, 50). Such differences in attitude endorsement are hypothesized to operate through a fear-based pathway: Contact with individuals with a psychiatric disorder reduces fear of mental illness, which in turn reduces stigma (39, 45, 50, 76, 77).

The association between perceived stigma and treatment has potentially important implications for initiatives aimed at reducing stigma toward alcohol disorders. Notably, evidence suggests that stigmatizing attitudes toward mental illness can be changed, although no national campaigns have targeted alcohol disorders specifically. Numerous studies have documented reductions in negative attitudes toward mental illness after educational interventions among medical professionals, police, employers, and community workers (77–81). On a broader scale, national antistigma

campaigns for mental illness, such as the “see me” campaign in Scotland (82) and the “Like Minds Like Mine” campaign in New Zealand (83), have shown some short-term efficacy in reducing negative attitudes and stereotypes. Our results indicate the need for such programs focused on the reduction of stigma of alcohol disorders, which may increase help-seeking behavior among individuals with alcohol disorders.

Several study limitations warrant mention. Within the general population, treatment services are relatively rare for psychiatric disorders, particularly alcohol disorders. In the NESARC data, only 246 individuals (or 1.3% of current drinkers) used treatment services in the past 12 months. Thus, we had power to examine lifetime treatment utilization only, although odds ratios for current treatment were in the same direction and magnitude. Lifetime treatment assessment precludes analysis of the sequence of disorder onset, stigma perception formation, and treatment utilization. Treatment for alcohol disorders, for example, may shape perceptions of alcohol stigma. Additionally, differential misclassification of alcohol disorder symptoms by stigma perception is also possible, as individuals who perceive high stigma may be less likely to report alcohol disorder symptoms to an interviewer, although question wording in the interview was designed to avoid this. Finally, we have shown an association between stigma and alcohol disorder treatment among those who reported alcohol problems. If individuals with a disorder and high stigma were also reluctant to report utilizing alcohol services, then our results would be biased toward the null. Consequently, our results are likely to represent a conservative estimate of the strength of the association between stigma and service utilization.

Our finding that perceived stigma was associated with decreased treatment likelihood raises several important questions regarding stigma and alcohol disorders that warrant further inquiry. First, research is needed to establish temporality in the effect of stigma perceptions on service utilization. Although the NESARC provided the first opportunity to address our main research question in the US general population, stigma perceptions were assessed only at the second wave of interviewing. Thus, we cannot establish whether stigma perceptions serve as a barrier to service use or whether service use colors perceptions of stigma. Our results support the need for prospective study designs to examine this question further. Second, research is needed to understand why perceptions of stigma may ultimately lead to the underutilization of treatment services among individuals with alcohol disorders. Although no studies have addressed this question specifically with respect to alcohol-related stigma, the literature on mental illness stigma suggests several possibilities, including self-stigmatization (27, 84) and self-labeling (27). Additionally, stigma ultimately leads to discrimination (85), and both structural (e.g., implementation of mental health parity laws) and individual (e.g., differential treatment by physicians) forms of discrimination may impede service use among alcohol-disordered individuals (16, 36, 86). Third, the questions on stigma in this study concerned respondents’ perceptions that others stigmatize alcohol disorders, rather than respondents’ own

beliefs (internalized stigma). Future work should determine the relations between internalized stigma and 1) perceptions that others stigmatize alcoholism, 2) attitudes toward the possibility of recovery and potential effectiveness of treatment, and 3) behavioral outcomes such as reduced drinking and recovery from DSM-IV alcohol disorder.

In summary, the present study documents that perceptions of being stigmatized are associated with a decreased likelihood of service use among alcohol-disordered individuals in the general population. The NESARC data provide the most detailed information about alcohol disorders of any current national psychiatric epidemiologic survey, and our measure of stigma perception is grounded in the sociologic and psychosocial stigma literature (25, 27, 30). Reducing stigma may facilitate public health efforts to narrow the gap in untreated alcohol disorders.

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