HHS Public Access

Author manuscript

J Behav Health Serv Res. Author manuscript; available in PMC 2019 January 01.

Published in final edited form as:

J Behav Health Serv Res. 2018 January ; 45(1): 1–12. doi:10.1007/s11414-016-9530-y.

Gender Differences in Perceived Unmet Treatment Needs Among Persons with and without Co-occurring Disorders

Jennifer I. Manuel[1,*], **Mary B. Stebbins**[2], and **Elwin Wu**[4]

[1]New York University Silver School of Social Work, New York, NY

[2]Virginia Commonwealth University School of Social Work, Richmond, VA

[4]Columbia University School of Social Work, New York, NY

Abstract

This study examined gender differences in perceived unmet treatment needs among persons with and without co-occurring substance use disorders and serious mental health conditions. Data were drawn from the 2008–2013 National Survey on Drug Use and Health (unweighted *N*=37,187) to test the hypothesis that the relationships between diagnosis and perceived unmet treatment needs differ as a function of gender. Compared to individuals with a substance use disorder or severe mental illness, those with co-occurring disorders were more likely to report perceived unmet needs for substance abuse and mental health treatment. Gender significantly moderated the relationship between diagnosis and unmet needs, suggesting that men with co-occurring disorders might be more adversely affected. Findings highlight the need for better understanding of gender-diagnosis differences with respect to unmet needs for substance abuse and mental health care.

Introduction

The 2008 Mental Health Parity and Addiction Equity Act (MHPAEA) and the 2010 Patient Protection and Affordable Care Act (ACA) are formal, large-scale efforts that are designed to significantly affect the financing and delivery of primary and behavioral health services, especially for people with substance use and/or mental health disorders. Key ACA provisions have the potential for improving access to behavioral health services and reducing system fragmentation.[1] Such provisions as Medicaid expansion, individual and employer mandates, accountability care organizations, and health homes are designed to expand insurance coverage and facilitate the coordination and delivery of integrated care. The ACA also expands the MHPAEA requirements by ensuring coverage of substance use disorder (SUD) and mental health (MH) treatment in qualified health plans offered on the health insurance marketplace.[2]

With full implementation of the ACA, an estimated 32 million people are expected to gain coverage,[3] including at least 4.3 million who have service needs for SUD and MH treatment.[4] Increased access to services presumably will lead to greater demand for and use of services and therefore reduction in unmet service needs. However, challenges remain that

*Corresponding Author: jennifer.manuel@nyu.edu.

might impact treatment access. Given the projections in substantial growth of coverage, treatment programs will need to have the capacity to meet the demands of increased utilization. SUD treatment, in particular, is expected to be affected more than any other healthcare system, with significant changes anticipated to the structure, financing, and delivery of services.[5] In addition, despite mechanisms for integration of health and behavioral health services, these treatment systems have evolved from very different and largely separate systems and will likely face challenges in developing capacity to offer integrated care.[6] Healthcare reform and the uncertainty of its impact on the healthcare system give reason to examine access to behavioral health services, especially among high-risk populations.

A particularly vulnerable population that is likely to benefit from provisions of the MHPAEA and ACA is made up of individuals with co-occurring substance use and mental health disorders. Epidemiological studies have produced consistent estimates of co-occurring disorders over the past decade, with recent data showing that almost 8 million adults in the United States are affected.[7] Although rates vary depending on the base population, studies suggest that 45% to 60% of adults with a substance use disorder (SUD) have a mental health disorder, and 20% to 50% of adults with a mental health disorder have a co-occurring SUD.[8–13] The nature of co-occurring disorders makes treatment more challenging, which in turn leaves these individuals vulnerable to relapse and other adverse outcomes.[14]

There is consensus that individuals with COD need both SUD and MH treatment, ideally in an integrated context. However, few individuals with CODs receive treatment for either disorder or both.[15,16] While studies report low levels of perceived need and negative attitudes as barriers to using services,[17,18] other research suggests barriers related to the behavioral health service system, such as high costs, insufficient insurance coverage, and fragmented services.[19]. Past research shows that, compared to individuals with either a SUD or MH disorder, those with CODs have greater perceived unmet needs, defined as not receiving treatment or receiving inadequate treatment among those who perceive a need for such treatment.[16,20–23] While informative, these studies examined one type of perceived unmet need—either SUD or MH treatment—or an overall indicator of unmet need without distinguishing between different types of treatment. A comprehensive understanding of unmet needs related to both SUD and MH treatment, especially in the context of healthcare reform, is needed to address disparities in access to care.

In addition to co-occurring disorders, examination of gender differences in accessing substance abuse and mental health services suggests distinct patterns of unmet need among men and women.[24–27] With respect to SUD treatment, prior research suggests that women are less likely to access services than men, despite women having more psychiatric and psychosocial problems.[24,26,27]Factors precluding women from accessing substance abuse services may be financial difficulty, inadequate transportation, and more family and employment challenges.[24,27] Research suggests a different help-seeking pattern for men and women with respect to mental health treatment. While men are associated with less access to mental health services than women,[19,28,29] the level of perceived unmet need for mental health services is greater for women than men.[16,19,23] Stigma is a potential factor associated

with lower access to mental health services for men.[19] Additionally, men may not translate feelings of distress as a need to seek treatment or believe they can self-manage distress on their own.[29–31]

The presentation of different health, mental health, and psychosocial comorbidities for women and men may impact treatment outcomes. In a recent review, Weinberger and colleagues[32] found co-occurring depression had a negative impact on treatment outcomes among women with SUDs compared to men, suggesting significant unmet treatment needs in women. Other studies have reported similar findings that women have greater unmet treatment needs than men.[24,33] More recent research, however, suggests the gender effect might be diminishing.[34] For example, findings from a recent study of a national, community-based sample with co-occurring disorders found no significant gender differences in unmet SUD treatment needs.[20] These discrepant findings, as well as ongoing changes in our healthcare delivery system, suggest the need for more research in this area.

Building on existing literature, the current study examined temporal trends and gender differences in perceived unmet needs among a community sample of persons with and without co-occurring SUD and serious mental illness (SMI). Specifically, we use data from the National Survey on Drug Use and Health (NSDUH), between 2008 and 2013, to (1) compare the levels of unmet treatment needs by diagnosis and gender, (2) explore the temporal trends in the rates of perceived unmet needs for SUD treatment and MH treatment by diagnosis and gender between 2008 and 2013, and (3) test the hypothesis that the relationships between diagnosis and perceived unmet treatment needs differ as a function of gender over time as well as infer whether women or men are more adversely affected by unmet treatment needs. With full implementation of the ACA underway, identifying groups who are at high risk for unmet needs is critical for effective policy planning. Findings from this study will shed light on gender- and diagnosis-related unmet needs for both SUD and MH treatment and inform more targeted approaches to improve access to behavioral health care.

Methods

Sample

We analyzed pooled data from the 2008 to 2013 NSDUH, an annual survey of noninstitutionalized civilians in the U.S. who are 12 years or older in the United States.[35–40] Using a multistage stratified sampling design, the NSDUH is conducted annually in the 50 states and the District of Columbia to generate national estimates of prevalence of legal and illegal substances. Participants were interviewed in person at their place of residence using audio computer-assisted self-interviewing to increase confidentiality for sensitive questions. Participants received $30 for completing the interview. We used the NSDUH public-release data from 2008 to 2013 (unweighted N=229,290). Data on serious mental illness were not collected prior to 2008. During the study period, the response rates ranged from 74% to 76%.[7,41,42] In the current study, we included adults aged 18 years and older with a SUD diagnosis, a serious mental illness (SMI) diagnosis, or both (unweighted N=37,187).

Measures

Perceived Unmet Treatment Needs—The main dependent variables included perceived unmet need for SUD treatment, perceived unmet need for MH treatment, and perceived unmet need for SUD and MH treatment. Perceived unmet need for SUD treatment was defined as participants who reported not receiving substance abuse services in the past year but perceived a need for such treatment *or* perceived a need for additional services if they reported using SUD treatment (yes/no). Perceived unmet need for MH treatment was ascertained by asking participants if they perceived a need for MH treatment or counseling in the past 12 months but did not receive it (yes/no). Perceived unmet need for SUD and MH treatment was defined as participants who reported a need for both types of treatment but did not receive either type in the past year (yes/no).

Diagnostic Groups—Substance use disorders (SUD) were assessed by asking respondents a series of questions based on alcohol and drug abuse and dependence criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV).[43] The criteria for substance abuse were assessed from responses to questions on role interference, hazardous use, problems with the law, and relationship problems. Dependence criteria were assessed based on responses to questions pertaining to tolerance, withdrawal, taking larger amounts or taking them for longer periods, inability to cut down, time spent using the substance, giving up activities, and continued use despite problems. SUD included alcohol and drug (i.e., marijuana, crack/cocaine, heroin, hallucinogens, inhalants, pain relievers, tranquilizers, stimulants, sedatives) abuse and/or dependence.

Severe mental illness (SMI) was defined among adults 18 years of age and older as having a mental disorder (excluding developmental disorder and SUD) that meets DSM-IV diagnostic criteria for serious functional impairment that significantly interferes with one or more major life activities. This definition is consistent with the 1992 Alcohol, Drug Abuse, and Mental Health Administration Reorganization Act (ADAMHA), which established federal block grants for states to fund mental health programs for adults with SMI.[44] The legislation required the Substance Abuse and Mental Health Services Administration to develop a standardized definition of adults with severe mental illness and mandated states to report incidence and prevalence rates of SMI in their applications to encourage state-level comprehensive planning to address mental health needs.[44]

Estimated numbers and percentages of persons with SMI for each year of the study period were generated using data from a subsample of NSDUH participants who completed diagnostic clinical interviews, as well as data from the NSDUH main interviews, based on questions from Kessler's (K6) screening for psychological distress,[45] the World Health Organization Disability Assessment Schedule (WHODAS),[46] suicidal ideation, major depressive episode, and age.[47,48] Altogether, these data were used to develop a prediction model for SMI. Estimates from the prediction model were used to create two variables: a variable indicating past year SMI status (yes/no) and a variable indicating the predicted probability of having an SMI for each NSDUH adult participant. We used the binary SMI variable to identify those with a severe mental illness. Estimates from the SMI prediction model showed a sensitivity of .51 and specificity of .98 in predicting SMI, which is similar

specificity and higher sensitivity than the K6, which was used to predict SMI in an earlier study.[45] In addition, the estimated SMI variable in the NSDUH is an improvement because it includes a functional impairment variable, whereas the K6 measure in the earlier study did not.[49]

The SUD and SMI variables were used to define three mutually exclusive diagnostic groups: SUD only, SMI only, and COD which included respondents who were categorized as having both a SUD and SMI.

Covariates—The selection of potentially confounding variables was guided by the Andersen-Newman behavioral model, which assumes that unmet need for services is a function of one's predisposition to use services (e.g., gender, age, race/ethnicity, education level, marital status, parenting, arrest history), one's need for services (e.g., substance disorder, mental health disorder, physical health condition), and enabling factors that impede or facilitate service use (e.g., employment, income, insurance status).[50] Predisposing variables were race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, and other), age (18–20, 21–29, 30–49, and ≥50 years), education level (less than high school, high school, some college, and college graduate), marital status (married, separated, divorced or widowed, and single), whether respondents had one or more children living with them, and whether respondents had ever been arrested. We assessed physical health need based on respondents who self-reported having one of the following conditions in their lifetime: asthma, bronchitis, cirrhosis, diabetes, heart disease, hepatitis, high blood pressure, HIV/AIDS, lung cancer, pancreatitis, pneumonia, sexually transmitted disease, sinusitis, sleep apnea, stroke, tinnitus, tuberculosis and ulcer. Enabling variables included employment (currently employed, not working for disability reasons, not working for personal, family or other reasons, and unemployed), income (US$ <20,000, 20,000–49,999, 50,000–74,999, >75,000), insurance status (uninsured versus Medicaid, Medicare, private, or other insurance).

Analysis

Chi-square and logistic regression analyses were used to examine the relationships between diagnostic group (SUD, SMI and COD) and unmet need for substance abuse and mental health treatment, to explore changes in unmet need over time, and to investigate differences between diagnostic group and unmet need as a function of gender. We conceptualized diagnosis as an independent variable and perceived unmet need as the dependent variable, although we acknowledge the relationship between diagnostic group and unmet need is most likely bidirectional. We conducted our analytic models in stages. First, we tested the main effects of gender and diagnosis on perceived unmet need for SUD treatment, MH treatment, and both SUD and MH treatment. In subsequent models, we included two-way interaction terms for gender by diagnosis to examine whether the relationship between diagnosis and unmet needs varied as a function of gender. All analyses controlled for predisposing, need, and enabling factors described above. To examine changes in unmet need over time, we included a variable for time (in years). Based on the distributions of unmet treatment needs over time, we modeled time dependence using time cubed (i.e., including t, t^2, and t^3 as regressors). However, no significant time effects were found in any of our analytic models.

Based on a sensitivity analysis of our multivariate models with and without time as a predictor, our results were virtually unchanged. As such, we opted for more parsimonious models by excluding time from our analysis. All analyses were conducted using Stata 14, which adjusts for the complex sampling design of the NSDUH. Analyses were weighted by sampling weights. The frequencies and percentages reported are weighted.

Results

Based on weighted data, approximately 26.4 million respondents were diagnosed with a SUD (59.6%), SMI (30.4%), or COD (10.0%) from 2008 to 2013. Table 1 presents the sample characteristics of women and men by diagnostic group pooled across the study period. The majority of participants were non-Hispanic white regardless of gender and diagnosis. A greater percentage of women and men in the SUD and COD groups represented younger age groups, 18–25 years, while older age groups were more common among those with SMI. Across the diagnostic groups, more men than women reported having less than a high school degree. In the SMI and COD groups, a greater percentage of men were never married compared to women. However, more women than men had children regardless of diagnosis. Compared to women, men were more likely to be unemployed, uninsured, have a family income less than $20,000, and arrested in their lifetime. Across the diagnostic groups, more women compared to men reported having a physical health problem. Across the 6-year study period, 24% of women and 19% of men with COD received SUD treatment, while 66% of women and 55% of men with COD received MH treatment. A much smaller percentage of women (15%) and men (18%) with COD received both SUD and MH treatment in the previous year. Compared to individuals with SUD or SMI, a greater percentage of those with COD reported perceived unmet needs regardless of the type of treatment. While a greater percentage of men with COD reported perceived unmet needs for SUD treatment (14.5%) and both SUD and MH treatment (9.6%), more women with COD reported an unmet need for MH treatment (52.6%).

Table 2 presents the multivariate models of perceived unmet needs for SUD treatment, MH treatment, and both SUD and MH treatment. With respect to SUD treatment, no significant difference in perceived unmet needs between men and women was found in the main effects model. Participants with COD were significantly more likely to report a perceived unmet need than those with SUD (AOR = 2.34, 95% CI: 1.80, 3.06) and SMI (AOR = 24.10, 95% CI: 15.65, 37.11). The interaction between gender and diagnosis was significant ([Gender × (COD versus SUD)] AOR: 1.60, 95% CI: 1.04, 2.46), suggesting that when comparing participants with COD versus SUD, the increased likelihood for men (AOR=1.77x1.60 = 2.83) was significantly higher than that observed for women (AOR=1.77).

The main effects model of perceived unmet need for MH treatment suggests significant differences between men and women and across diagnostic groups. Men versus women were significantly less likely to report a perceived unmet need for MH treatment (AOR: .62, 95% CI: .55–.69). Participants with COD had a greater likelihood of perceived unmet need for MH treatment than those with SUD (AOR: 6.64, 95% CI: 5.77, 7.65) and SMI (AOR: 1.81, 95% CI: 1.57, 2.07). The relationship between diagnosis and unmet need for MH treatment

was significantly moderated by gender ([Gender × (COD versus SUD)] AOR: 2.23, 95% CI: 1.71–2.92).

No significant gender differences were found in the main effects model estimating perceived unmet need for both SUD and MH treatment. Similar to the other outcome models, participants with COD were significantly more likely to have a perceived unmet need for both types of treatment than those with SUD ([Gender × (COD versus SUD)] AOR: 4.22, 95% CI: 2.82, 6.31) and SMI ([Gender × (COD versus SUD)] AOR: 31.72, 95% CI: 17.97, 56.00). A significant two-way interaction was found between gender and diagnosis with respect to unmet need for both SUD and MH treatment ([Gender × (COD versus SUD)] AOR: 3.01, 95% CI: 1.68, 5.39).

Discussion

Consistent with prior research,[20,21] our analysis found that perceived unmet needs for SUD and MH treatment were more prevalent among individuals with CODs compared to those with SUD or SMI. In the current study, regardless of diagnosis and gender, relatively few reported using SUD treatment services in the previous 12 months. Notably, individuals with SUDs, especially women, reported using higher rates of MH treatment than SUD treatment. It is possible that MH treatment is more widely available than SUD treatment. However, service availability is unlikely the only factor given the low rate of perceived need for treatment in this population. It could also be that individuals perceive their mental illness to be the primary or more severe disorder, or they perceive substance abuse as a mental illness, and thus seek MH treatment.

Our findings suggest that gender significantly moderated the relationship between diagnosis and unmet needs for SUD treatment, MH treatment, and both SUD and MH treatment, suggesting that men with CODs might be more adversely affected. In contrast to these findings, Chen and colleagues[20] did not find significant gender differences in examining the association between having co-occurring disorder and unmet need for SUD treatment. The current study used a more severe indicator for mental illness, which might explain this inconsistency. Women with CODs and SUDs reported higher rates of MH treatment and lower rates of SUD treatment compared to men. It may be that these women have a lower likelihood of unmet SUD treatment need because they are getting their needs met in MH treatment.

These findings also highlight a notable gap in accessing needed services to address both SUD and SMI conditions among men, which has not been identified previously in the literature. One explanation is that men might be slow to recognize signs of distress as a mental health need,[29] perhaps explaining in part the greater unmet need for MH services among men with COD. Chen and colleagues[20] found that men were more likely than women to be hospitalized and use emergency care services, suggesting a pattern that might delay entry into substance abuse treatment.

Our findings suggest that few people with COD, regardless of diagnosis or gender, received both SUD and MH treatment and even fewer reported an unmet need for both types of

treatment. A number of barriers, such as stigma, negative attitudes, financial factors (e.g., cost, limited or no insurance coverage), and structural factors (e.g., workforce, fragmented services), likely contribute to the low rates of service use and unmet needs.[15,16,20] The ACA is designed to help reduce the financial and structural burdens of access by increasing insurance coverage and facilitating the integration of behavioral health and primary care services through such initiatives as health homes and accountable care organizations. Although our results did not find significant changes in unmet treatment needs over time, continued assessment of treatment access will be important to monitor in the coming years when the ACA has had more time to make an impact.

The findings should be viewed in the context of the following limitations. First, the potential source of bias from the participants' ability to provide accurate self-reports of their service use activity in the previous year. Some participants may not recall their service use activity or may have difficulty distinguishing between services for SUD and MH needs. One benefit of the NSDUH over other national surveys is that it uses computer-assisted software to administer the interviews, which has been found to help minimize recall and social desirability biases.[51,52] Second, in lieu of administering a full clinical diagnostic interview to assess mental illness in the NSUDH, a model-based methodology was used to estimate SMI on the full sample in each year from 2008–2013. In comparison to other national cross-sectional surveys, this approach may have produced rates that underestimate the prevalence of SMI found in the general population.[53] Third, the large confidence intervals in estimating the impact of COD versus SUD on unmet need for SUD treatment and unmet need for both SUD and MH treatment prompt caution regarding the interpretation of the actual magnitude or value of the adjusted odds ratios in the multivariate models.

Implications for Behavioral Health

The findings have broad implications for behavioral health administrators and policy stakeholders. Most substance abuse and mental health services continue to be offered separately, leaving people with co-occurring substance use and mental health disorders to navigate a fragmented system ill-equipped to address their complex needs. Behavioral health agencies will have the opportunity to take advantage of innovations promoted by the ACA to increase access to and the integration of SUD and MH treatment, such as collaborative care models and multidisciplinary teams.[54] In addition, specialized assessment and treatment approaches, such as screening, brief interventions and referral to treatment, may be necessary to increase treatment engagement and address unmet needs among persons with co-occurring disorders, especially men. Monitoring and tracking the impact of the ACA to identify gender-specific unmet needs and gaps in care among these populations will be important in the coming years.

Our findings support the importance of future research on the intersection of gender and diagnosis in understanding unmet needs for SUD and MH services. Simple adjustment of gender in statistical models, as examined in past research, is not sufficient to examine the role of gender in relation to other variables. Future studies should incorporate subgroup analyses and interaction models to fully explore gender differences in unmet treatment needs for services by diagnostic group. Given the emphasis and critical need for integrated care to

address the needs of co-occurring disorders, future studies are needed to examine access to both SUD and MH treatment. In addition, prospective panel studies are needed to assess within person changes in unmet need and the intersection between gender and diagnosis over time. Future qualitative inquiries are needed to provide a greater understanding of barriers specific to gender and diagnosis that might otherwise be missed in quantitative assessments.

References

1. Barry CL, Huskamp HA. Moving beyond parity - mental health and addiction care under the ACA. New England Journal of Medicine. 2011; 365(11):973–975. [PubMed: 21848453]
2. Buck JA. The looming expansion and transformation of public substance abuse treatment under the Affordable Care Act. Health Affairs. 2011; 30(8):1402–1410. [PubMed: 21821557]
3. Beronio K, Glied S, Frank R. How the Affordable Care Act and Mental Health Parity and Addiction Equity Act greatly expand coverage of behavioral health care. Journal of Behavioral Health Services & Research. 2014; 41(4):410–428. [PubMed: 24833486]
4. Garfield RL, Zuvekas SH, Lave JR, et al. The impact of national health care reform on adults with severe mental disorders. American Journal of Psychiatry. 2011; 168(5):486–494. [PubMed: 21285138]
5. Humphreys K, Frank RG. The Affordable Care Act will revolutionize care for substance use disorders in the United States. Addiction. 2014; 109(12):1957–1958. [PubMed: 24965487]
6. Andrews C, Grogan CM, Brennan M, et al. Lessons from Medicaid's divergent paths on mental health and addiction services. Health Affairs. 2015; 34(7):1131–1138. [PubMed: 26153307]
7. Center for Behavioral Health Statistics and Quality. Behavioral health trends in the United States: Results from the 2014 National Survey on Drug Use and Health (HHS Publication No. SMA 15-4927, NSDUH Series H-50). 2015. Retrieved from http://www.samhsa.gov/data/
8. Grant BF, Stinson FS, Dawson DA, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Archives of General Psychiatry. 2004; 61(8):807–816. [PubMed: 15289279]
9. Kessler RC, Nelson CB, McGonagle KA, et al. The epidemiology of co-occurring addictive and mental disorders: implications for prevention and service utilization. American Journal of Orthopsychiatry. 1996; 66(1):17–31. [PubMed: 8720638]
10. Hasin DS, Goodwin RD, Stinson FS, et al. Epidemiology of major depressive disorder - Results from the National Epidemiologic Survey on Alcoholism and Related Conditions. Archives of General Psychiatry. 2005; 62(10):1097–1106. [PubMed: 16203955]
11. Kessler RC, Chiu WT, Demler O, et al. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry. 2005; 62(6):617–627. [PubMed: 15939839]
12. Hasin DS, Stinson FS, Ogburn E, et al. Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States - Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Archives of General Psychiatry. 2007; 64(7):830–842. [PubMed: 17606817]
13. Merikangas KR, Akiskal HS, Angst J, et al. Lifetime and 12-month prevalence of bipolar spectrum disorder in the national comorbidity survey replication. Archives of General Psychiatry. 2007; 64(5):543–552. [PubMed: 17485606]
14. Nunes, EV. Substance dependence and co-occurring psychiatric disorders: Best practices for diagnosis and clinical treatment. Civic Research Institute; 2010.
15. Mojtabai R, Chen LY, Kaufmann CN, et al. Comparing barriers to mental health treatment and substance use disorder treatment among individuals with comorbid major depression and substance use disorders. Journal of Substance Abuse Treatment. 2014; 46(2):268–273. [PubMed: 23992953]

16. Urbanoski KA, Cairney J, Bassani DG, et al. Perceived unmet need for mental health care for Canadians with co-occurring mental and substance use disorders. Psychiatric Services. 2008; 59(3):283–289. [PubMed: 18308909]
17. Goldstein RB, Olfson M, Martens EG, et al. Subjective unmet need for mental health services in depressed children grown up. Administration and Policy in Mental Health and Mental Health Services Research. 2006; 33(6):666–673. [PubMed: 16823630]
18. Sareen J, Jagdeo A, Cox BJ, et al. Perceived barriers to mental health service utilization in the United States, Ontario, and the Netherlands. Psychiatric Services. 2007; 58(3):357–364. [PubMed: 17325109]
19. Mojtabai R. Unmet need for treatment of major depression in the United States. Psychiatric Services. 2009; 60(3):297–305. [PubMed: 19252041]
20. Chen LY, Strain EC, Crum RM, et al. Gender differences in substance abuse treatment and barriers to care among persons with substance use disorders with and without comorbid major depression. Journal of Addiction Medicine. 2013; 7(5):325–334. [PubMed: 24091763]
21. Harris KM, Edlund MJ. Use of mental health care and substance abuse treatment among adults with co-occurring disorders. Psychiatric Services. 2005; 56(8):954–959. [PubMed: 16088012]
22. Kaufmann CN, Chen LY, Crum RM, et al. Treatment seeking and barriers to treatment for alcohol use in persons with alcohol use disorders and comorbid mood or anxiety disorders. Social Psychiatry and Psychiatric Epidemiology. 2014; 49(9):1489–1499. [PubMed: 23900549]
23. Roll JM, Kennedy J, Tran M, et al. Disparities in unmet need for mental health services in the United States, 1997–2010. Psychiatric Services. 2013; 64(1):80–82. [PubMed: 23280460]
24. Greenfield SF, Trucco EM, McHugh RK, et al. The Women's Recovery Group Study: a Stage I trial of women-focused group therapy for substance use disorders versus mixed-gender group drug counseling. Drug and Alcohol Dependence. 2007; 90(1):39–47. [PubMed: 17446014]
25. Keene J, Li X. Age and gender differences in health service utilization. Journal of Public Health. 2005; 27(1):74–79. [PubMed: 15637107]
26. Marsh JC, Cao D, D'Aunno T. Gender differences in the impact of comprehensive services in substance abuse treatment. Journal of Substance Abuse Treatment. 2004; 27(4):289–300. [PubMed: 15610830]
27. Tuchman E. Women and addiction: the importance of gender issues in substance abuse research. Journal of Addictive Diseases. 2010; 29(2):127–138. [PubMed: 20407972]
28. Ojeda VD, Bergstresser SM. Gender, race-ethnicity, and psychosocial barriers to mental health care: an examination of perceptions and attitudes among adults reporting unmet need. Journal of Health and Social Behavior. 2008; 49(3):317–334. [PubMed: 18771066]
29. Wang PS, Berglund P, Olfson M, et al. Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry. 2005; 62(6):603–613. [PubMed: 15939838]
30. Kessler RC, Brown RL, Broman CL. Sex differences in psychiatric help-seeking: evidence from four large-scale surveys. Journal of Health and Social Behavior. 1981; 22(1):49–64. [PubMed: 7240706]
31. Williams JB, Spitzer RL, Linzer M, et al. Gender differences in depression in primary care. American Journal of Obstetrics and Gynecology. 1995; 173(2):654–659. [PubMed: 7645648]
32. Weinberger AH, Mazure CM, Morlett A, et al. Two decades of smoking cessation treatment research on smokers with depression: 1990–2010. Nicotine & Tobacco Research. 2013; 15(6): 1014–1031. [PubMed: 23100459]
33. Green CA. Gender and use of substance abuse treatment services. Alcohol Research & Health. 2006; 29(1):55–62. [PubMed: 16767855]
34. Mojtabai R. Use of specialty substance abuse and mental health services in adults with substance use disorders in the community. Drug and Alcohol Dependence. 2005; 78(3):345–354. [PubMed: 15893166]
35. United States Department of Health and Human Services. ICPSR26701-v5, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Inter-university Consortium for Political and Social Research; 2008. National Survey on Drug Use and Health, 2008.

36. United States Department of Health and Human Services. ICPSR29621-v5, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Inter-university Consortium for Political and Social Research; 2009. National Survey on Drug Use and Health, 2009.
37. United States Department of Health and Human Services. ICPSR32722-v5, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Ann Arbor, MI: Inter-university Consortium for Political and Social Research; 2010. National Survey on Drug Use and Health, 2010.
38. United States Department of Health and Human Services. ICPSR34481-v3, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Inter-university Consortium for Political and Social Research; 2011. National Survey on Drug Use and Health, 2011.
39. United States Department of Health and Human Services. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Inter-university Consortium for Political and Social Research; 2012. National Survey on Drug Use and Health, 2012.
40. United States Department of Health and Human Services. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Inter-university Consortium for Political and Social Research; 2013. National Survey on Drug Use and Health, 2013.
41. Substance Abuse and Mental Health Services. Vol NSDUH Series H-36, HHS Publication No. SMA 09-4434. Rockville, MD: Office of Applied Studies; 2009. Administration. Results from the 2008 National Survey on Drug Use and Health: National Findings.
42. United States Department of Health and Human Services. ICPSR34481-v3, Substance Abuse and Mental Health Services Administration. Center for Behavioral Health Statistics and Quality. Inter-university Consortium for Political and Social Research; 2011. National Survey on Drug Use and Health Methodology Report, 2011.
43. Diagnostic and statistical manual of mental disorders: DSM-IV. 4th. Washington, DC: American Psychiatric Association; 1994. American Psychiatric Association Task Force on DSM-IV.
44. [Accessed: 6/18/16] "Alcohol, Drug Abuse and Mental Health Services Administration (ADAMHA) Reorganization Act of 1992" (PL 102–321, Jul 10, 1992). Available from: Thomas (Library of Congress), http://thomas.loc.gov;
45. Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. Archives of General Psychiatry. 2003; 60(2):184–189. [PubMed: 12578436]
46. Novak SP, Colpe LJ, Barker PR, et al. Development of a brief mental health impairment scale using a nationally representative sample in the USA. International Journal of Methods in Psychiatric Research. 2010; 19(Suppl 1):49–60. [PubMed: 20527005]
47. Aldworth, J., Barnett-Walker, K., Chromy, J., et al. 2008 National Survey on Drug Use and Health: Methodological resource book (Section 16, prepared for the Substance Abuse and Mental Health Services Administration, Contract No. 283-2004-00022, Mental Health Surveillance Study Deliverable 5, RTI/0209009.423.006.008). Research Triangle Park, NC: RTI International; 2009. Measuring serious mental illness with the NSDUH: Results of 2008 12-month analysis.
48. Liao, D., Kott, P., Aldworth, J., et al. 2011 Mental Health Surveillance Study: design and estimation report. Research Triangle Park, NC: RTI International; 2012.
49. Gfroerer J. Estimating mental illness in the United States: SAMHSA's methodology Briefing to the National Institute of Mental Health. 2013 Nov 18.
50. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? Journal of Health and Social Behavior. 1995; 36(1):1–10. [PubMed: 7738325]
51. Breslin FC, Borsoi D, Cunningham JA, et al. Help-seeking timeline followback for problem drinkers: preliminary comparison with agency records of treatment contacts. Journal of Studies on Alcohol. 2001; 62(2):262–267. [PubMed: 11327193]
52. Killeen TK, Brady KT, Gold PB, et al. Comparison of self-report versus agency records of service utilization in a community sample of individuals with alcohol use disorders. Drug and Alcohol Dependence. 2004; 73(2):141–147. [PubMed: 14725953]
53. Hedden S, Gfroerer JC, Barker PR, et al. Comparison of NSDUH mental health data and methods with other data sources. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. 2012 Mar.

54. Croft B, Parish SL. Care integration in the Patient Protection and Affordable Care Act: implications for behavioral health. Administration and Policy in Mental Health and Mental Health Services Research. 2013; 40(4):258–263. [PubMed: 22371190]

Table 1

Sample Characteristics of Persons with Substance Use, Serious Mental Illness, and Co-Occurring Disorders, by Gender (N=26,431,275)

	SUD (n=15,740,735; 59.6%)		SMI (n=8,033,579; 30.4%)		COD (n=2,656,962; 10.0%)	
	Women (n=5,078,594)	Men (n=10,662,141)	Women (n=5,564,420)	Men (n=2,469,159)	Women (n=1,434,772)	Men (n=1,222,190)
	%	%	%	%	%	%
Race/Ethnicity						
Non-Hispanic White	72.2	66.6	73.1	72.5	73.6	72.6
Non-Hispanic Black	10.5	11.6	9.6	7.1	9.4	7.3
Hispanic	12.5	16.6	12.0	13.4	12.4	14.3
Asian	2.5	2.7	3.0	4.1	1.5	2.1
Other	2.3	2.4	2.4	2.9	3.1	3.7
Age in years						
18–20	12.4	9.9	7.1	6.7	14.3	9.7
21–25	21.6	18.5	9.8	8.5	21.2	18.4
26–34	22.6	24.6	19.2	18.2	25.3	27.1
35–49	25.3	26.2	33.4	32.5	25.3	28.6
50–64	13.8	16.0	24.3	28.2	12.2	15.6
65 and older	4.3	4.7	6.3	5.9	1.7	0.6
Education						
Less than high school	11.3	16.6	14.7	16.4	14.8	19.4
High school or GED	25.0	32.1	31.8	30.3	32.4	32.9
Some college	32.7	27.5	31.8	28.6	33.1	29.2
College graduate	31.0	23.7	21.7	24.6	19.7	18.5
Marital Status						
Married	32.0	35.4	40.7	41.7	23.8	23.5
Separated, Divorced or Widowed	17.5	15.1	31.1	21.7	25.2	22.4
Never Married	50.5	49.5	28.2	36.7	51.0	54.1
Any Children	39.9	35.5	46.1	30.5	44.2	32.7
Employment						

	SUD (n=15,740,735; 59.6%)		SMI (n=8,033,579; 30.4%)		COD (n=2,656,962; 10.0%)	
	Women (n=5,078,594)	Men (n=10,662,141)	Women (n=5,564,420)	Men (n=2,469,159)	Women (n=1,434,772)	Men (n=1,222,190)
	%	%	%	%	%	%
Currently Working	71.5	74.9	51.5	49.4	54.6	58.4
Not Working-Disability	4.2	4.2	21.6	26.4	14.3	16.7
Not Working-Other Reason	17.8	12.9	20.3	16.1	20.3	12.1
Unemployed	6.6	8.0	6.6	8.1	10.8	12.8
Household Income						
<$20,000	24.3	20.7	30.7	27.1	34.6	33.7
$20,000–$49,999	31.1	32.6	35.4	38.0	33.8	31.0
$50,000–$74,999	14.6	16.3	15.4	13.7	13.4	14.6
≥$75,000	30.0	30.3	18.6	21.2	18.2	20.7
Uninsured	18.2	26.3	18.2	21.6	23.8	33.8
Ever Arrested	24.7	47.5	20.5	36.9	39.3	61.3
Any Health Conditions	50.9	44.2	68.2	65.6	60.9	58.3
Service Use, past 12 months						
SUD Treatment	6.0	8.0	2.0	5.0	19.0	24.0
MH Treatment	28.0	13.0	64.0	58.0	66.0	55.0
SUD & MH Treatment	3.0	2.0	2.0	3.0	15.0	18.0
Perceived Unmet Needs						
SUD Treatment	3.5	3.8	0.35	0.58	8.5	14.5
MH Treatment	14.9	5.7	37.4	30.9	52.6	47.1
SUD & MH Treatment	1.7	.96	.19	.26	5.9	9.6

Table 2

Multivariate Logistic Regression Models of Perceived Unmet Treatment Needs Amont NSDUH Participants, 2008–2013

	Perceived Unmet Need for SUD Treatment				Perceived Unmet Need for MH Treatment				Perceived Unmet Need for SUD & MH Treatment			
	Main Effects		Interactions with Gender		Main Effects		Interactions with Gender		Main Effects		Interactions with Gender	
	AOR[a]	95% CI	AOR[a]	95% CI	AOR[a]	95% CI	AOR[a]	95% CI	AOR[a]	95% CI	AOR[a]	95% CI
Men (vs. Women)	1.19	0.95–1.49	1.58	1.12–2.22	0.62	0.55–0.69	0.87	0.70–1.09	0.90	0.65–1.24	1.52	1.03–2.23
COD (vs. SUD only)	2.34	1.80–03.06	1.77	1.27–2.48	6.64	5.77–7.65	4.51	3.81–5.35	4.22	2.82–6.31	2.32	1.47–3.65
COD (vs. SMI only)	24.10	15.65–37.11	23.13	12.97–41.25	1.81	1.57–2.07	1.65	1.40–1.93	31.72	17.97–56.00	27.69	13.22–58.00
Gender × COD (vs. SUD only)			1.60	1.04–2.46			2.23	1.71–2.92			3.03	1.70–5.42
Gender × COD (vs. SMI only)			0.99	0.44–2.23			1.12	0.85–1.47			1.13	0.39–3.29

[a]Adjusted logistic regression models controlled for race/ethnicity, age, education, marital status, parity, employment, income, insurance, ever arrested, any health conditions, SUD treatment past 12 months, MH treatment past 12 months