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Co-Occurrence of Obsessive-Compulsive Disorder and Substance Use Disorders Among U.S. Veterans: Prevalence and Mental Health Utilization

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Obsessive-compulsive disorder (OCD) and substance-use disorders (SUDs) co-occur at high rates, which is related to poorer psychosocial outcomes. Prior work suggests that, among veterans in the Veterans Health Administration (VHA), OCD is underdiagnosed and undertreated, which can compound negative effects of OCD and SUD co-occurrence. This study identified patterns of OCD and specific SUD co-occurrence and their effect on mental health and substance-use screening measures and mental healthcare utilization. Using VHA administrative data, we identified veterans with an OCD diagnosis from 2010 to 2016 (N = 38,157); 36.70% also had a SUD diagnosis. Specific SUD rates are alcohol-use disorder, 17.17%; cannabis-use disorder, 5.53%; opioid-use disorder, 3.60%; amphetamine-use disorder, 1.49%; cocaine-use disorder, 3.37%; and tobacco-use disorder, 26.50%. Veterans with co-occurring OCD and SUD used more mental health services throughout the data capture period. Findings suggest that OCD and SUD co-occur at high rates within the VHA, and that this is associated with more burden to the healthcare system. Targeted screening and treatment efforts may help address the needs of this population.

Keywords: obsessive-compulsive disorder; substance-use disorder; veterans

Obsessive-compulsive disorder (OCD) is a major mental health problem in the United States and is associated with a number of psychosocial, occupational, and health problems (Huppert, Simpson, Nissenson, Liebowitz, & Foa, 2009; Ruscio, Stein, Chiu, & Kessler, 2010). Among U.S. veterans, OCD is estimated to occur at rates between 0.04% and 28% (McIngvale, Van Kirk, Amspoker, Stanley, & Barrera, 2019), compared to 2.3% in the general population (Ruscio et al., 2010). OCD among veterans in primary care settings has been related to greater physical health problems and mental health problems (including substance-use disorder [SUD]) than those not having OCD (Gros, Magruder, & Frueh, 2013). However, this was a small sample and may not reflect the experience of the wider population of veterans with OCD in the Veterans Health Administration (VHA). In a larger sample of veterans enrolled in VHA services, in a 1-year period from 2010 to 2011, 21% of veterans with OCD also had a SUD diagnosis (Barrera et al., in press). This finding is striking in part because SUDs are also a major health concern among U.S. veterans, as 11% of veterans of conflicts in Iraq and Afghanistan enrolled in healthcare through the VHA were diagnosed with SUD, and it was over three times more common among veterans with co-occurring mental health conditions than among those without (Seal et al., 2011). Specifically, 10% of veterans were diagnosed with alcohol-use disorder (AUD), and 5% were diagnosed with a drug-use disorder (i.e., non-alcohol SUD). Further, approximately 1% of veterans are diagnosed with opioid-use disorder, a rate seven times greater than the general population (Baser et al., 2014). A similar rate (1%) is observed among veterans for cannabis-use disorders (Bonn-Miller, Bucossi, & Trafton, 2012). Although SUD diagnosis and treatment is a priority within VHA, veterans with OCD and SUD may be at particular risk for not receiving adequate clinical care, given that OCD likely goes undiagnosed and undertreated among veteran patients in VHA, contributing to the compounded negative impact of OCD on veterans' lives (Barrera et al., in press).

Although little work has examined OCD and SUD co-occurrence among veterans, among the general population OCD commonly co-occurs with SUD. Population-based studies find that rates of SUD are as much as four times greater among individuals with OCD than among the general population (Kessler, Chiu, Demler, & Walters, 2005; Ruscio et al., 2010; Torres et al., 2006). One study conducted in an OCD specialty clinic documents rates of 6.5% for comorbid AUD among those with OCD (Lochner et al., 2014). Among a sample of university students with OCD, 7.5% had co-occurring AUD (Gentil et al., 2009). In a study investigating the prevalence of specific SUDs among those with OCD in a Danish

population-based study, findings showed that 8.8% had AUD, 1.2% had an opioid-use disorder, 2.3% were diagnosed with cannabis-use disorder, 1.0% had a diagnosis of sedative-use disorder, and less than 1% had a diagnosis of stimulant-use disorder, cocaine-use disorder, or hallucinogen-use disorder, respectively (Toftdahl, Nordentoft, & Hjorthøj, 2016).

Not only do OCD and SUD commonly co-occur, but the co-occurrence is also related to greater impairment; as individuals with OCD/SUD endorse more severe OCD symptoms and greater impairments in overall psychosocial functioning than those with OCD but no SUD (Gentil et al., 2009; Mancebo, Grant, Pinto, Eisen, & Rasmussen, 2009). Further, comorbid OCD/SUD is related to greater SUD symptoms (Campos, Yoshimi, Simao, Torresan, & Torres, 2015), suggesting that the comorbid conditions contribute to increased psychopathology of both disorders as well as increased suicidality (Campos et al., 2015; Mancebo et al., 2009). OCD symptoms typically precede onset of SUD, and younger onset of OCD is related to increased risk of AUD (Gentil et al., 2009; Mancebo et al., 2009). However, the association between OCD and specific SUDs remains unclear among veterans, a group with higher rates of problems related to mental health and substance-use problems than the general population (Stecker, Fortney, Owen, McGovern, & Williams, 2010).

Given that veterans are a group particularly at risk for negative consequences of co-occurring SUD and OCD, the current study sought to identify the prevalence of co-occurring SUDs and OCD, using VHA archival data. This method allows direct examination of all VHA patients to obtain a clear picture of these comorbid diagnoses in an actual healthcare setting. Prior work demonstrated high rates of co-occurring OCD and SUD generally (Barrera et al., in press); however, rates of individual SUDs other than AUD (i.e., cannabis-use disorder, opioid-use disorder, amphetamine or other stimulant-use disorder, cocaine-use disorder, and tobacco-use disorder) were not examined. Thus, the current study sought to determine rates of specific SUD comorbidities among veterans with OCD, to obtain data on temporal precedence of OCD and SUD diagnoses, and to examine the effect of comorbidity on mental health and substance-use screening measures and mental health service utilization. In light of prior work finding that co-occurring OCD and SUD are related to poorer mental health outcomes in civilian samples (e.g., Mancebo et al., 2009), it was hypothesized that veterans with co-occurring SUD and OCD would endorse greater symptom severity on mental health screening measures and be higher users of mental health services in the VHA than those with OCD but not SUD.

Method

Data for this study were obtained through the Corporate Data Warehouse, a large-scale database related to mental and physical health of patients within the VHA. The Veterans Affairs (VA) Information Resource Center monitors the accuracy and validity of the information in the database. This study was approved by the Institutional Review Boards of the participating institutions.

Data were drawn from a larger study of OCD and its treatment in the VHA, using Corporate Data Warehouse data for veterans receiving care in the VHA in 2010–2011 (Barrera et al., in press). The current study expanded the time frame of examination to include all veterans diagnosed with OCD from 2010 to 2016. Further, the current study expanded Barrera and colleagues' work by obtaining specific SUD diagnoses rather than a generic SUD designation. A cohort of patients receiving VHA care was identified by selecting those who carried a diagnosis of OCD during the data capture period. Data were drawn from both outpatients and inpatients. Diagnosis of OCD was identified using both International Classification of Diseases, Ninth Edition, Clinician Modification (ICD-9-CM; National Center for Health Statistics, 2013) code 300.3, and International Classification of Diseases,Tenth Edition (ICD-10; National Center for Health Statistics, 2015) code F42, given that the identified time frame involved transition from one edition of ICD to the next. These criteria resulted in 38,157 identified patients, 82.2% of whom were men.

Mean age was 56.84 years (standard deviation [*SD*] = 15.67). These veterans were 73.6% White, 11.3% African American/Black, 1.0% American Indian, 1.1% Asian, 1.0% Native Hawaiian, 6.3% Hispanic, and 6.6% unknown. Of the sample, 47.7% of veterans lived in rural areas.

SUD Criteria

Patients were considered to have a co-occurring SUD if they carried a SUD diagnosis during the study time frame (i.e., 2010–2016), as identified using any of the ICD-9-CM and ICD-10 codes, including AUD (305.00, 303.90, F10.10, F10.20), cannabis-use disorder (305.20, 304.30, F12.10, F11.20), opioid-use disorder (305.50, 304.00, F11.10, F11.20), amphetamine or other stimulant-use disorder (305.70, 304.40, F15.10, F15.20), cocaine-use disorder (305.60, 304.20, F14.10, F14.20), or tobacco-use disorder (305.1, Z72.0, F17.200, F17.200).

Mental Health Services

Current procedural terminology (CPT) codes were used to identify mental health services accessed by patients 1 year before and after the date of initial OCD diagnosis. CPT codes referred to the following services: psychotherapy with medication management (90805, 90807, 90809, 90811, 90813, 90815), psychotherapy without medication management (90804, 90806, 90808, 90810, 90812, 90814, 90845, 90846, 90847, 90849, 90853, 90857, 90875, 90876, 96152, 96153, 96154, 96155), and medication management (90862). For the current analyses, two categories were created: mental health visits with medications (e.g., medication management, individual therapy/medication management) and mental health visits without medications (e.g., individual psychotherapy, family therapy, group therapy). Visits for mental health services of each category during the data retrieval period were summed to reflect total number of mental health visits of each type during the period.

Self-Report Measures

Alcohol Use Identification Test –Consumption Questions (AUDIT-C; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). The AUDIT-C is a three-item screening questionnaire that assesses alcohol consumption. Respondents rate how often they have an alcoholic drink, how many standard drinks per day they consume, and how often they have six or more drinks on one occasion. Total score ranges from 0 to 12, with higher scores indicating greater alcohol consumption. Scores of three or above indicate potentially hazardous drinking. The VHA administers the AUDIT-C as an annual screening for all patients. Given that patients may have been administered the AUDIT-C multiple times throughout the data review period, only the score closest to the date of diagnosis was used.

Patient Health Questionnaire (PHQ-2; Löwe, Kroenke, & Gräfe, 2005). The PHQ-2 is a two-item screening measure designed to detect and monitor symptoms of depression experienced in the prior 2 weeks. Respondents rate both items on a scale ranging from 0 (*not at all*) to 3 (*nearly every day*). Responses to the two items were summed to create a total score. Total scores of 3 or greater indicate clinically significant depression. The PHQ-2 has demonstrated construct and criterion validity (Kroenke, Spitzer, & Williams, 2003). It is administered annually in the VHA. Similar to the AUDIT-C, only the score closest to the diagnosis date within 1 year before or after initial OCD diagnosis was used in the current analyses.

TABLE 1. Prevalence of SUDs Among veterans Diagnosed With Obsessive-Compulsive Disorder (Total *N* = 38,157)

SUD	Number	Percent
Alcohol-use disorder	6,553	17.17
Cannabis-use disorder	2,109	5.53
Opioid-use disorder	1,373	3.60
Amphetamine-use disorder	570	1.49
Cocaine-use disorder	1,285	3.37
Tobacco-use disorder	10,110	26.50

Note. SUD = substance-use disorder.

Data Analytic Strategy

First, frequency of specific co-occurring SUD diagnoses was examined. Second, to examine temporal patterns of diagnoses, the first diagnosis (SUD vs. OCD) was examined among the subsample of those with co-occurring OCD and SUD. Descriptive statistics were calculated for both OCD only and OCD/SUD groups by demographic variables (i.e., race/ethnicity, sex, and rural status). A series of chi-square tests or independent samples *t*-tests were used to examine mean differences between patients with OCD only and those with both OCD and SUD on number of medication mental health visits; and number of nonmedication mental health visits, the AUDIT, and the PHQ-2.

Results

There were 38,157 veterans with a diagnosis of OCD during the data period. This sample represents 0.4% of the 9,493,318 veterans who received VHA services during the study time frame. Rates of specific co-occurring SUDs are presented in Table 1. Among the study cohort, 36.70% (n = 14,002) of the veterans were diagnosed with a co-occurring SUD. The most common SUD diagnosis was tobacco-use disorder, followed by AUD. Differences between OCD/SUD and OCD-only groups on demographic variables are presented in Table 2. In the overall sample, more veterans had OCD only than OCD/SUD, which was also the case among the different racial/ethnic groups, rurality, and Operation Enduring Freedom/Operation Iraqi Freedom/ Operation New Dawn (OEF/OIF/OND) status. Among veterans with both OCD and SUD, the majority (62.31%) were first diagnosed with SUD (Table 3).

Discussion

Among veterans with OCD, SUD co-occurrence is common, particularly tobacco and AUDs. These findings extend prior work finding that OCD and SUD co-occur among veterans (Barrera et al., in press) to determine rates of individual types of SUD that occur and the clinical impact of this co-occurrence. It is particularly striking that in this sample of veterans with OCD, rates of cannabis-use disorder and AUD are greater than those observed in more general veteran populations (i.e., not selected for OCD status; Bonn-Miller et al., 2012; Seal et al., 2011). Rates of drug-use disorders (i.e., nonalcohol or tobacco) co-occurrence were also greater than those observed in the general civilian population (Toftdahl et al., 2016). Importantly, these disorders not only co-occur, but they are also related to nearly twice as much mental health care use as OCD alone, as well as more severe depression and greater alcohol use. In line with prior work in civilian samples

TABLE 2. Co-Occurrence of OCDs and SUDs by Demographic Characteristics

	OCD/SUD (n = 14,002)	OCD only (n = 24,155)	χ^2 or t	p	Cramer's ϕ or Cohen's d
Race/ethnicity			108.04	<.001	0.05
White	11,197 (79.97%)	18,730 (77.54%)			
Black/African American	1,651 (11.79%)	2,754 (11.40%)			
American Indian	168 (1.20%)	254 (1.05%)			
Asian	110 (0.07%)	346 (1.43%)			
Native Hawaiian	146 (1.04%)	281 (1.16%)			
Hispanic	29 (0.21%)	53 (0.22%)			
Unknown	701 (5.00%)	1,737 (7.19%)			
Rural status			3.06	.081	0.01
Rural	6,764 (48.31%)	11,446 (47.39%)			
Urban	7,230 (51.64%)	12,698 (52.57%)			
OEF/OIF/OND status			60.16	<.001	0.04
Yes	2,399 (17.13%)	3,432 (14.21%)			
No	11,603 (82.87%)	20,732 (85.83%)			
Mental health medication visits[a]	M = 10.27 (15.63)	M = 6.40 (11.15)	28.05	<.001	0.29
Mental health non-medication visits[b]	M = 37.19 (63.68)	M = 15.44 (35.58)	42.80	<.001	0.42

Note. OCD = obsessive-compulsive disorders; OEF/OIF/OND = Operation Enduring Freedom/-Operation Iraqi Freedom/Operation New Dawn; SUD = substance-use disorder.
[a]Range = 428.
[b]Range = 910.

(Fals-Stewart & Angarano, 1994; Gungor, et al., 2014; Toftdahl, et al., 2016), SUD was common among individuals with OCD. However, the estimate of prevalence of SUD among those with OCD was nearly double the 11%–14% observed in these prior studies. This finding may reflect prior work showing that veterans are at higher risk for SUD than the general population (Wagner et al., 2007). These higher co-occurrence rates may also reflect standard diagnostic practices in the VHA that emphasize SUD screening and underdiagnosis of OCD (Barrera et al., in press; Glazier, Swing, & McGinn, 2015). It may be that co-occurrence rates are inflated due to VHA clinicians' being more likely to identify SUD because of more regular screening practices and less likely to identify OCD. This may also account for the current study's finding that SUD diagnosis more often preceded OCD diagnosis. However, more work is needed to test this hypothesis.

In the current sample, co-occurring OCD and SUD among veterans were related to more severe symptoms of depression and risky alcohol use. This is in line with prior work among civilian samples finding that co-occurring OCD and SUD are related to compounded impairment greater than either disorder alone (Campos et al., 2015; Gentil et al., 2009; Mancebo et al., 2009). Interestingly, although prior work demonstrates a younger age of onset for OCD than for SUD (Gentil et al., 2009; Mancebo et al., 2009), our analyses suggest that, within the VHA, SUD diagnoses are

TABLE 3. Number of Veterans Diagnosed With SUD Prior to OCD

Disorder	Number	Percent of OCD/SUD
Alcohol-use disorder	4,207	30.05
Cannabis-use disorder	1,150	8.21
Opioid-use disorder	853	6.09
Amphetamine-use disorder	304	2.17
Cocaine-use disorder	830	5.93
Tobacco-use disorder	7,013	50.08
Any SUD	8,725	62.31

Notes. OCD = obsessive-compulsive disorder; SUD = substance-use disorder. n = 14,002 due to selecting only those with SUD diagnoses. Of the total sample, 25,887 (64.84%) had AUDIT-C data within the specified time frame. Veterans with comorbid OCD and SUD endorsed higher scores on the AUDIT-C (M = 2.40, SD = 3.34) than those without SUD (M = 1.01, SD = 2.06), t (36,340) = 53.38, $p < .001$, d = 0.47. Of the total sample, 23,744 (62.23%) had PHQ-2 data within the specified time frame. Veterans with comorbid OCD/SUD also endorsed greater depression on the PHQ-2 (M = 2.00, SD = 2.18) than those without SUD diagnoses (M = 1.52, SD = 1.99), t (23,742) = 17.16, $p < .001$, d = 0.23. However, it is noteworthy that the effect size of differences on the PHQ-2 was small. Veterans with co-occurring OCD/SUD attended more mental health medication visits over the data-collection period than veterans without SUD (Table 2). Veterans with co-occurring OCD/SUD also attended more nonmedication mental health visits over the data-collection period than veterans without SUD (Table 2).

documented prior to OCD. This likely reflects the greater emphasis in VHA to assess and treat SUD relative to OCD. For example, in the VHA SUD is a priority for screening at the levels of primary care and within specialty care; but no such wide-scale screening is used for OCD. This may, therefore, contribute to earlier detection of SUDs, and their detection at lower levels of care (e.g., primary care); whereas OCD diagnoses may not be established until a veteran enters specialty care or receives targeted assessment of OCD symptoms. Although the screening measures employed in the current study are commonly used within the VHA, further study of SUD-specific problems and OCD symptomatology is needed to determine more fully the synergistic impact of co-occurring OCD/SUD. As a part of these efforts, particular attention to screening, assessment, and coordinating potentially disparate treatment types among veterans with co-occurring OCD and SUD may be needed to ensure quality treatment of both disorders.

It is also noteworthy that veterans with OCD/SUD evidenced greater use of mental health services (both medication and nonmedication related) than those with OCD alone. Prior work has shown that veterans with mental health and SUD co-occurrence are higher utilizers of mental health services (Brown, Recupero, & Stout, 1995; Hoff & Rosenheck, 1999; Petrakis, Rosenheck, & Desai, 2011). Co-occurrence of OCD and SUD may represent an increased burden on the healthcare system. Efforts to streamline care for this common co-occurrence may especially be of benefit. For example, integration of SUD and OCD treatment through educating prescribers on pharmacological treatment of both disorders and coordinating care between OCD and SUD therapists may ease such burden. Medical centers within the VHA have implemented designated staff to coordinate care of veterans with co-occurring SUD and posttraumatic stress disorder (Department of Veterans Affairs, 2009), and broadening this approach to include mental health disorders other than posttraumatic stress disorder could improve treatment for those with co-occurring SUD. Further, given undertreatment of OCD in the VHA (Barrera et al., in press), differences in mental health services for OCD/SUD and OCD alone may partly be explained by greater services available for those with SUD.

Limitations and Future Directions

The current study should be considered in light of its limitations. First, although the data were obtained through the VHA electronic health record, the diagnoses reflect those given in routine clinical practice. That is, the current study is unable to determine the validity of OCD diagnoses, given a lack of standardized assessment for these disorders in VHA. Given that OCD may be underdiagnosed in the VHA (Barrera et al., in press), prevalence rates and the associations of co-occurrence may differ from those observed in studies using systematic diagnostic assessment. Further, associations with clinical impairment and healthcare utilization should be interpreted with caution; and future work would benefit from use of rigorous diagnostic methods. Second, many veterans in the sample did not have any PHQ-2 or AUDIT-C screenings. Future work would benefit from further evaluation of mental health, substance use, medical health, and psychosocial variables (e.g., employment status) correlates of co-occurring OCD/SUD. Third, the temporal precedence results must also be interpreted with caution, given that they reflect when diagnoses were assigned, and not necessarily onset of a disorder. Longitudinal research is needed to elucidate the etiology of co-occurring OCD/SUD in veterans. Fourth, although the demographics of this sample are largely consistent with national rates of veterans (National Center for Veterans Analysis and Statistics, 2018) relative to civilian populations, women and racial/ethnic minorities were underrepresented in the current sample. Future work would benefit from greater inclusion of veterans from these backgrounds to determine whether co-occurring OCD/SUD differs within these populations. Finally, due to these data coming from a larger database study examining OCD in veterans, our data capture was limited to veterans with OCD diagnoses; and we were thus unable to obtain a comparison group of veterans with SUD only. Future work would benefit from examination of differences between co-occurring OCD/SUD and SUD only among veterans to further our understanding of unique characteristics of comorbidity.

Conclusions

Co-occurring OCD/SUD is common within the VHA, and our results suggest that veterans with OCD may be at greater risk than the general veteran population for SUD, particularly alcohol- and cannabis-use disorders. Co-occurring OCD/SUD is associated with greater endorsement of depression symptoms and endorsement of risky alcohol use. Veterans with co-occurring OCD and SUD are also greater utilizers of mental health services than those with OCD alone. Given these findings, veterans, particularly those in SUD treatment settings in which OCD is not routinely screened for, may benefit from targeted screening, treatment, and prevention efforts to ensure that they receive quality healthcare for these conditions.

References

Barrera, T. L., McIngvale, E., Lindsay, J., Walder, A. M., Kauth, M. R., Smith, T. L. . . Stanley, M. A. (2018). *Obsessive-compulsive disorder in the Veterans Health Administration psychological services*. Advance online publication. doi:10.1037/ser0000249

Baser, O., Xie, L., Mardekian, J., Schaaf, D., Wang, L., & Joshi, A. V. (2014). Prevalence of diagnosed opioid abuse and its economic burden in the veterans health administration. *Pain Practice, 14*(5), 437–445. doi:10.1111/papr.12097

Bonn-Miller, M. O., Bucossi, M. M., & Trafton, J. A. (2012). The underdiagnosis of cannabis use disorders and other Axis-I disorders among military veterans within VHA. *Military Medicine, 177*(7), 786–788. doi:10.7205/MILMED-D-12-00052

Brown, P. J., Recupero, P. R., & Stout, R. (1995). PTSD substance abuse comorbidity and treatment utilization. *Addictive Behaviors, 20*(2), 251–254. doi:10.1016/0306-4603(94)00060-3

Bush, K., Kivlahan, D. R., McDonell, M. B., Fihn, S. D., & Bradley, K. A. (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Ambulatory Care Quality Improvement Project (ACQUIP). Alcohol Use Disorders Identification Test. Archives of Internal Medicine, 158*(16), 1789–1795. doi:10.1001/archinte.158.16.1789

Campos, L. M., Yoshimi, N. T., Simao, M. O., Torresan, R. C., & Torres, A. R. (2015). Obsessive-compulsive symptoms among alcoholics in outpatient treatment: Prevalence, severity and correlates. *Psychiatry Research, 229*(1-2), 401–409. doi:10.1016/j.psychres.2015.05.111

Department of Veterans Affairs. (2009). *Practice recommendations for treatment of veterans with comorbid substance use disorder and posttraumatic stress disorder*. Retrieved from https://www.mentalhealth.va.gov/providers/sud/docs/SUD_PTSD_Practice_Recommendations.pdf

Fals-Stewart, W., & Angarano, K. (1994). Obsessive-compulsive disorder among patients entering substance abuse treatment: Prevalence and accuracy of diagnosis. *Journal of Nervous and Mental Disease, 182*(12), 715–719. doi: 10.1097/00005053-199412000-00007

Gentil, A. F., de Mathis, M. A., Torresan, R. C., Diniz, J. B., Alvarenga, P., do, Rosario., M. C, . . . Miguel, E. C. (2009). Alcohol use disorders in patients with obsessive-compulsive disorder: The importance of appropriate dual-diagnosis. *Drug and Alcohol Dependence, 100*(1-2), 173–177. doi:10.1016/j.drugalcdep.2008.09.010

Glazier, K., Swing, M., & McGinn, L. K. (2015). Half of obsessive-compulsive disorder cases misdiagnosed: Vignette-based survey of primary care physicians. *Journal of Clinical Psychiatry, 76*(6), e761–767. doi:10.4088/JCP.14m09110

Gros, D. F., Magruder, K. M., & Frueh, B. C. (2013). Obsessive compulsive disorder in veterans in primary care: Prevalence and impairment. *General Hospital Psychiatry, 35*(1), 71–73. doi:10.1016/j.genhosppsych.2012.09.004

Gungor, B. B., Askin, R., Taymur, I., & Sari, S. (2014). Obsessive compulsive disorder and impulse control disorder comorbidity and evaluation of impulsivity and compulsivity in alcohol dependent patients. *Dusunen Adam, 27*(3), 233–241. doi:10.5350/DAJPN2014270306

Hoff, R. A., & Rosenheck, R. A. (1999). The cost of treating substance abuse patients with and without comorbid psychiatric disorders. *Psychiatric Services, 50*(10), 1309–1315. doi:10.1176/ps.50.10.1309

Huppert, J. D., Simpson, H. B., Nissenson, K. J., Liebowitz, M. R., & Foa, E. B. (2009). Quality of life and functional impairment in obsessive-compulsive disorder: A comparison of patients with and without comorbidity, patients in remission, and healthy controls. *Depression and Anxiety, 26*(1), 39–45. doi:10.1002/da.20506

Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 617–627. doi:10.1001/archpsyc.62.6.617

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The patient health questionnaire-2: Validity of a two-item depression screener. *Medical Care, 41*(11), 1284–1292. doi:10.1097/01.mlr.0000093487.78664.3c

Löwe, B., Kroenke, K., & Gräfe, K. (2005). Detecting and monitoring depression with a two-item questionnaire (PHQ-2). *Journal of Psychosomatic Research, 58*(2), 163–171. doi:10.1016/j.jpsychores.2004.09.006

Lochner, C., Fineberg, N. A., Zohar, J., van Ameringen, M., Juven-Wetzler, A., Altamura, A. C. . . Stein, D. J. (2014). Comorbidity in obsessive-compulsive disorder (OCD): A report from the. *International College of Obsessive-Compulsive Spectrum Disorders (ICOCS). Comprehensive Psychiatry, 55*(7), 1513–1519. doi:10.1016/j.comppsych.2014.05.020

Mancebo, M. C., Grant, J. E., Pinto, A., Eisen, J. L., & Rasmussen, S. A. (2009). Substance use disorders in an obsessive compulsive disorder clinical sample. *Journal of Anxiety Disorders, 23*(4), 429–435. doi:10.1016/j.janxdis.2008.08.008

McIngvale, E., Van Kirk, N., Amspoker, A. B., Stanley, M. A., & Barrera, T. L. (2019). Prevalence and treatment of obsessive-compulsive disorder in veterans and active-duty service members: A systematic review. *Journal of Cognitive Psychotherapy, 33(1),* XX-XX.

National Center for Health Statistics. (2013). *International classification of diseases, Ninth revision, Clinical modification*. Atlanta, GA: World Health Organization.

National Center for Health Statistics. (2015). *International classification of diseases, Tenth revision (ICD-10)*. Atlanta, GA: World Health Organization.

National Center for Veterans Analysis and Statistics. (2018). *Profile of veterans, 2016*: *Data from the American community survey*. Washington, DC: U.S. Department of Veterans Affairs.

Petrakis, I. L., Rosenheck, R., & Desai, R. (2011). Substance use comorbidity among veterans with post-traumatic stress disorder and other psychiatric illness. *American Journal on Addictions, 20*(3), 185–189. doi:10.1111/j.1521-0391.2011.00126.x

Ruscio, A. M., Stein, D. J., Chiu, W. T., & Kessler, R. C. (2010). The epidemiology of obsessive-compulsive disorder in the National Comorbidity Survey Replication. *Molecular Psychiatry, 15*(1), 53–63. doi:10.1038/mp.2008.94

Seal, K. H., Cohen, G., Waldrop, A., Cohen, B. E., Maguen, S., & Ren, L. (2011). Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001-2010: Implications for screening, diagnosis and treatment. *Drug and Alcohol Dependence, 116*(1-3), 93–101. doi:10.1016/j.drugalcdep.2010.11.027

Stecker, T., Fortney, J., Owen, R., McGovern, M. P., & Williams, S. (2010). Co-occurring medical, psychiatric, and alcohol-related disorders among veterans returning from Iraq and Afghanistan. *Psychosomatics, 51*(6), 503–507. doi:10.1176/appi.psy.51.6.503

Toftdahl, N. G., Nordentoft, M., & Hjorthøj, C. (2016). Prevalence of substance use disorders in psychiatric patients: A nationwide Danish population-based study. *Social Psychiatry and Psychiatric Epidemiology, 51*(1), 129–140. doi:10.1007/s00127-015-1104-4

Torres, A. R., Prince, M. J., Bebbington, P. E., Bhugra, D., Brugha, T. S., Farrell, M., & Singleton, N. (2006). Obsessive-compulsive disorder: Prevalence, comorbidity, impact, and help-seeking in the British National Psychiatric Morbidity Survey of 2000. *American Journal of Psychiatry, 163*(11), 1978–1985. doi:10.1176/appi.ajp.163.11.1978

Wagner, T. H., Harris, K. M., Federman, B., Dai, L., Luna, Y., & Humphreys, K. (2007). Prevalence of substance use disorders among veterans and comparable nonveterans from the National Survey on Drug Use and Health. *Psychological Services, 4*(3), 149–157. doi:10.1037/1541-1559.4.3.149

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