Nonmedical prescription sedative/tranquilizer use in alcohol and opioid use disorders

Victoria R. Votaw[a,*], Katie Witkiewitz[a,b], Linda Valeri[c,d], Olivera Bogunovic[c,e],
R. Kathryn McHugh[c,e]

[a] *Department of Psychology, University of New Mexico, MSC 03-2220, Albuquerque, NM 87131, Mexico*
[b] *Center on Alcoholism, Substance Abuse, and Addictions, University of New Mexico, 2650 Yale Blvd SE, Albuquerque, NM 87106, Mexico*
[c] *Department of Psychiatry, Harvard Medical School, 401 Park Drive, Boston, MA 02155, USA*
[d] *Psychiatric Biostatistics Laboratory, McLean Hospital, 115 Mill Street, Belmont, MA 02478, USA*
[e] *Division of Alcohol and Drug Abuse, McLean Hospital, 115 Mill Street, Belmont, MA 02478, USA*

HIGHLIGHTS

- General population sample of adults with alcohol and/or opioid use disorders.
- Examined correlates of nonmedical sedative/tranquilizer use (NMSTU).
- NMSTU and sedative/tranquilizer use disorder were prevalent in these samples.
- Polysubstance use and psychiatric distress were significantly associated with NMSTU.
- These variables were also associated with sedative/tranquilizer use disorder.

ARTICLE INFO

ABSTRACT

Aims: Nonmedical prescription sedative/tranquilizer (e.g., benzodiazepines) use (NMSTU) increases risk of overdose when combined with opioids and/or alcohol. Yet, little is known about NMSTU among those with alcohol and opioid use disorders. We aimed to characterize NMSTU and sedative/tranquilizer use disorder among adults with alcohol use disorder (AUD) and/or opioid use disorder (OUD) in a general population sample.
Methods: We conducted analyses of 2008–2014 National Survey on Drug Use and Health data; adults with past-year AUD-only (n = 27,416), OUD-only (n = 2142), and co-occurring AUD and OUD (n = 1483) were included (total N = 31,041). Multivariable logistic regression models were utilized to examine correlates of past-month NMSTU and past-year sedative/tranquilizer use disorder. Focal independent variables were polysubstance use (i.e., number of substances used in the previous year) and psychiatric distress.
Results: Among those with AUD-only, 27.1% reported lifetime NMSTU, 7.6% reported past-year NMSTU, 2.7% reported past-month NMSTU, and 0.6% met criteria for past-year sedative/tranquilizer use disorder. Corresponding prevalence rates among those with OUD-only were 69.5%, 43.0%, 22.6%, and 11.3%. Those with co-occurring AUD and OUD displayed the highest rates of NMSTU (e.g., 27.5% with past-month NMSTU) and sedative/tranquilizer use disorder (20.2%). Across groups, more severe polysubstance use and psychiatric distress were associated with increased risk of NMSTU and sedative/tranquilizer use disorder.
Conclusions: Results of this analysis indicate that > 25% of adults with AUD and approximately 70% of those with OUD report lifetime NMSTU. Among these populations, individuals with more polysubstance use and greater psychiatric distress might benefit from targeted interventions to reduce NMSTU.

1. Introduction

Opioid overdose deaths have dramatically increased over the past two decades (Compton & Volkow, 2006; Kanouse & Compton, 2015).

Simultaneously, an average of 6 persons per day died from alcohol overdose from 2010 to 2012 (Kanny et al., 2015). The concurrent misuse of benzodiazepines—a class of sedative/tranquilizer medications—is an often-overlooked contributor to alcohol and opioid

overdose deaths (Jones, Paulozzi, & Mack, 2014; Kandel, Hu, Griesler, & Wall, 2017). However, surprisingly little is known about nonmedical sedative/tranquilizer use (NMSTU) among those with alcohol and/or opioid use disorders. The aim of the present study was to examine the prevalence and correlates of NMSTU among those with alcohol use disorder (AUD), opioid use disorder (OUD), and co-occurring AUD and OUD in a general population sample. In the present analysis, non-medical sedative/tranquilizer use (NMSTU) refers to the use of sedative or tranquilizer medications (e.g., benzodiazepines, z-drugs, barbiturates, etc.) that were taken without a prescription or only for the experience or feelings the prescription drugs cause (Center for Behavioral Health Statistics and Quality, 2015).

Several studies have characterized NMSTU among those in OUD treatment. These studies have consistently documented high rates of NMSTU in this population, with approximately 50% of patients reporting past-month NMSTU (McHugh et al., 2017; Stein, Kanabar, Anderson, Lembke, & Bailey, 2016; Vogel et al., 2013). Findings on correlates of NMSTU among those in OUD treatment have been relatively mixed. For example, some studies have found that sociodemographic characteristics (e.g., female gender, younger age) and opioid use severity indicators (e.g., age of opioid onset) are associated with NMSTU (Backmund et al., 2005; Eiroa-Orosa et al., 2010; Moitra, Anderson, & Stein, 2013; Stein, Anderson, Kenney, & Bailey, 2017), whereas other studies have reported null results (Brands et al., 2008; Lavie, Fatseas, Denis, & Auriacombe, 2009; McHugh et al., 2017). Despite these conflicting findings, negative affective traits (e.g., anxiety sensitivity; Hearon et al., 2011; McHugh et al., 2017) and symptoms of anxiety (Eiroa-Orosa et al., 2010; McHugh et al., 2017; Stein, Anderson, et al., 2017) and depression (Schreiber, Peles, & Adelson, 2008; Stein, Anderson, et al., 2017) have consistently been identified as correlates of NMSTU, particularly among women (Hearon et al., 2011; McHugh et al., 2017). In addition, those with NMSTU typically have higher rates of other substance use and overall polysubstance use (i.e., the use of multiple substances over the same period) (Ghitza, Epstein, & Preston, 2008; Lavie et al., 2009; Schuman-Olivier et al., 2013; Stein, Anderson, et al., 2017).

Much less is known about NMSTU among those with AUD, as compared to those with OUD, despite evidence that AUD increases risk of NMSTU and sedative/tranquilizer use disorder (Fenton, Keyes, Martins, & Hasin, 2010; Huang et al., 2006; McCabe, Cranford, & Boyd, 2006; Stinson et al., 2005). A small number of studies conducted in the late 20th century indicate that up to 60% of those in AUD treatment have engaged in lifetime NMSTU (Ross, 1993; Wolf, Iguchi, & Griffiths, 1989). A more recent study using general population data from 2005 to 2007 found that 12% of those with alcohol dependence had past-year NMSTU (Hedden et al., 2010). However, this study did not examine the full range of individuals with AUD (i.e., did not include those with alcohol abuse) and did not examine current NMSTU or sedative/tranquilizer use disorder.

Similarly, risk factors for NMSTU and sedative/tranquilizer use disorder among those with current AUD have not been studied. One previous study (Ross, 1993) among those with lifetime AUD found that females had higher rates of lifetime sedative/tranquilizer use disorder than males. In addition, those with lifetime sedative/tranquilizer use disorder had greater psychiatric distress (e.g., depression symptoms, lifetime anxiety disorders) and substance-related problems (e.g., co-occurring substance use disorders, more consequences from drug use) than those without a history of sedative/tranquilizer use disorder. However, this study was limited to examination of sedative/tranquilizer use disorder, as opposed to any NMSTU, and lifetime substance use disorder diagnoses, as opposed to current use. The study also examined bivariate associations only, and therefore did not control for factors that might confound identified correlates.

In the present study, we aimed to address two limitations of the extant literature. First, most studies characterizing NMSTU among those with AUD and OUD have enrolled treatment-seeking or otherwise

severe samples. Second, very few studies have characterized NMSTU among those with AUD. Accordingly, the prevalence of NMSTU and sedative/tranquilizer use disorder among those with current AUD and/or OUD remains largely unknown. Furthermore, identifying correlates of NMSTU and sedative/tranquilizer use disorder can help inform targeted interventions by identifying: (1) subgroups who are most likely to misuse sedative/tranquilizer medications, and (2) candidate risk factors for NMSTU initiation and maintenance (i.e., potential treatment targets). Decreasing NMSTU and sedative/tranquilizer use disorder among these populations is crucial given the increased risk of overdose when sedatives/tranquilizers are combined with alcohol and/or opioids.

Our first aim was to examine the prevalence of NMSTU (lifetime, past-year, and past-month prevalence) and past-year sedative/tranquilizer use disorder among those with past-year AUD, OUD, and co-occurring AUD and OUD in a general population sample. We also examined correlates of past-month NMSTU and past-year sedative/tranquilizer use disorder among those with AUD and/or OUD. We hypothesized that greater levels of psychiatric distress and polysubstance use would be independently associated with NMSTU and sedative/tranquilizer use disorder. Given evidence that associations between affective vulnerabilities and substance use are often stronger in females than males (Lehavot, Stappenbeck, Luterek, Kaysen, & Simpson, 2014; McHugh et al., 2017; Verplaetse et al., 2018), we also examined the interaction between gender and psychiatric distress.

2. Method

2.1. Data source and study population

Data were obtained from the 2008–2014 National Survey on Drug Use and Health (NSDUH) public use data files. Although NSDUH data files are available for years 2015 and 2016, the definition of nonmedical use prescription drug use was modified in 2015, and therefore we chose to utilize NSDUH data prior to this modification to ensure consistency in defining NMSTU.

Respondents were non-institutionalized, civilian citizens ages 12 and older who were selected through an independent, multistage area probability sample for each of the 50 states and Washington, DC. All participants provided informed consent before completing the computer-assisted survey. Detailed methodology and rationale have been reported elsewhere (Center for Behavioral Health Statistics and Quality, 2015). The present analysis included 31,041 adult participants who met criteria for OUD (either heroin abuse/dependence or prescription opioid abuse/dependence) or AUD in the past year. The present analysis was limited to respondents over the age of 18 given that the Kessler Psychological Distress Scale (see description below), which served as a focal independent variable, was only administered to adult participants.

2.2. Measures

2.2.1. Sociodemographic measures

Sociodemographic measures in the present analysis included gender, age (categorized as 18–25 years old, 26–34, 35–49, 50 or older), race/ethnicity (White, Black/African American, Hispanic, other), and education (< high school, high school graduate, some college, college graduate).

2.2.2. Substance use

To determine nonmedical prescription sedative (e.g., temazepam, triazolam, zolpidem, phenobarbital, secobarbital, etc.) or tranquilizer (e.g., alprazolam, lorazepam, clonazepam, diazepam, carisoprodol, buspirone, etc.) use, participants were shown cards and names of these prescription medications and specified which, if any, they had ever used without a prescription or exclusively for the experience or feelings they provide. Consistent with other studies on nonmedical prescription drug use (Becker, Fiellin, & Desai, 2007; Goodwin & Hasin, 2002;