



## Disability status and prescription drug misuse among U.S. adults

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### HIGHLIGHTS

- The current research examined disability status and prescription drug misuse.
- Respondents with a disability were at increased odds of prescription drug misuse.
- Poor health and social isolation were mediating variables for opioid misuse.
- Disability status remained a significant correlate of benzodiazepine misuse.

### ARTICLE INFO

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### ABSTRACT

**Background:** The U.S. is in the midst of a public health crisis related to drug overdose deaths. Largely responsible for the dramatic increase in overdose deaths is the misuse of prescription drugs such as opioids and benzodiazepines. While much research attention has focused on correlates of prescription drug misuse in recent years, notable gaps in the literature remain. The current research addresses one of these gaps by examining the relationship between disability status and prescription drug misuse.

**Method:** We examine data from the 2015 National Survey on Drug Use and Health, a leading source of epidemiological data on drug use in the United States that added questions related to disability status to the 2015 survey. The current research assessed the relationship between disability status (i.e. activities of daily living and instrumental activities of daily living) and prescription drug misuse (i.e. opioids and benzodiazepines) among adults.

**Results:** Findings from multinomial logistic regression analysis showed that a disability related to activities of daily living was correlated with opioid misuse, while a disability associated with instrumental activities of daily living was associated with benzodiazepine misuse and misuse of both. In addition, health related measures had a greater impact on the relationship between disability status and prescription drug misuse than did the social engagement/isolation measures.

**Conclusion:** Findings indicated that disability status is a significant correlate of prescription drug misuse. However, this relationship was largely mediated by measures associated with poor health and social engagement/isolation.

### 1. Introduction

Prescription drug misuse is a significant public health problem in the United States and is generally defined as the act of using medication not prescribed to you or using a prescription drug solely for the experience or feeling it causes (CBHSQ, 2016). The drugs largely behind the prescription drug misuse crisis are prescription opioids and benzodiazepines (Bachhuber, Hennessy, Cunningham, & Starrels, 2015; Dart et al., 2015). While rates of prescription opioid misuse are higher among young adults, the prevalence of benzodiazepine misuse is notably higher among older adults, especially among persons aged 65 and

older (Olfson, King, & Schoenbaum, 2015). Prolonged use of benzodiazepines in older adults with disabilities has been linked to increased depression, cognitive declines, confusion, falls and fractures (Hogan, Maxwell, Fung, & Eby, 2003; Leipzig, Cumming, & Tinetti, 1999). Misuse of opioids or other pain relievers has been linked to vision impairment, attention and coordination problems in older adults. Concurrent use of these drugs can lead to intense sedation and shallow breathing, increasing risk for overdose fatality (NIDA, 2018).

The growing rates in the misuse prescription opioids and benzodiazepines has resulted in sharp increases in overdose deaths (National Center for Health Statistics, 2015; Rudd, Aleshire, Zibbell, & Gladden,

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2016). Despite the significant overdose risk associated the concurrent use of each drug, there have been alarming increases in their simultaneous use among U.S. adults, largely to due prescribing patterns. Among a sample of 315,428 continuously insured patients aged 18–64 in the U.S., one study showed that while 9% of opioid users also were prescribed a benzodiazepine in 2001, 17% used both drugs in 2013, indicating an 80% increase (Sun et al., 2017). In line with these figures, a 2011 report released by the Drug Abuse Warning Network revealed high rates of emergency department visits involving the misuse of prescription opioids (39.2%) and benzodiazepines (28.7%). In addition, overdoses deaths resulting from the use of both prescription opioids and benzodiazepines have risen significantly over the past several decades (Bachhuber et al., 2015; Centers for Disease Control and Prevention, 2017; Jones & McAninch, 2015; Park, Saitz, Ganoczy, Ilgen, & Bohnert, 2015), with an upwards of 30% of opioid-related overdoses also involving benzodiazepines (NIDA, 2018);

In the United States, 56.7 million people or 19% of the population are living with some form of disability (Brault, 2012). The Americans with Disabilities Act defines an individual with a disability as “a person who has a physical or mental impairment that substantially limits one or more major life activity” (Americans with Disabilities Act, 1990). In the United States the most common causes of disability are mental health disorders, cardiovascular diseases, cancer, musculoskeletal disorders (like arthritis) and diabetes. Although research has shown substance use is lower among disabled persons compared to the general population (Yu et al., 2008), there are several key factors associated with their substance use. These factors include the presence of a painful physical disability, being unable perform daily activities, greater availability of prescription drugs, psychological distress, unemployment, poverty, social isolation, lack of education, the presence of a chronic medical condition, other forms of drug use, and past experience of physical or sexual trauma (Brown, 2015; Ives et al., 2006; Moore & Li, 1998; Shankar, McMunn, Demakakos, & Mark, 2017; Substance Abuse and Mental Health Services Administration, 2009). Research has also identified several key correlates of prescription drug misuse, but not among those with disabilities (Ford & Arrastia, 2008; Ford & Lacerenza, 2011; Herman-Stahl, Krebs, Kroutil, & Heller, 2007; Katz, El-Gabalawy, Keyes, Martins, & Sareen, 2013; Osborne et al., 2017; Rigg & Monnat, 2015; Simoni-Wastila & Strickler, 2004). Some of these factors include depression, poor self-reported health, unemployment, easy access to prescription drugs, lack of health insurance, being female, being younger, being unmarried, and having lower levels of religiosity (Back, Payne, Simpson, & Brady, 2010; Boyd, West, & McCabe, 2017; Ford & Rigg, 2015; Grattan, Sullivan, Saunders, Campbell, & Von Korf, 2012; Lin, Walton, & Blow, 2015; Park & Lavin, 2010; Saunders et al., 2012; Simoni-Wastila & Strickler, 2004). The concurrent misuse of other prescription drugs, alcohol and tobacco use, and illicit drug use have also been found to be significantly related to prescription drug misuse (Arkes & Iguchi, 2008; Kaloyanides, McCabe, Cranford, & Teter, 2007; Mowbray & Quinn, 2015; Sung, Richter, Vaughan, Johnson, & Thom, 2005). While several factors linked with prescription misuse have been identified, there is little research that has established an association with disability and prescription misuse.

The purpose of this paper is to address this gap in the literature and examine the association between disability status and prescription drug misuse. To do this we examine several research questions. First, we assess the relationship between disability status and prescription drug misuse. Second, we seek to understand why disability status is a significant correlate of prescription drug misuse. We do this by separately examining the impact of health-related and social isolation measures. This will help determine if disability status is significantly related to prescription drug misuse or if the relationship is based on the health or social isolation of persons living with disabilities.

## 2. Methods

### 2.1. Data

The data for the current study are the 2015 National Survey on Drug Use and Health (NSDUH) (Center for Behavioral Health Statistics and Quality, 2016). Dating back to the 1970s, the NSDUH is a leading source of epidemiological data on population health, with a focus on alcohol and other drug use, in the United States. The target population are civilians 12 years and older that are not institutionalized. The sample (N = 68, 073) for the NSDUH is based on an independent, multistage area probability sample for each of the 50 states and the District of Columbia. Data was collected from respondents using a combination of computer-assisted face-to-face interviewing and computer-assisted self-interviewing by a trained interviewer in the respondent private residence. The weighted screening response rate was 79.69% and the weighted interview response rate was 69.66%. In an effort to improve the quality of the data, the NSDUH questionnaire underwent a partial redesign in 2015. Pertinent to the current research was a change in the module associated with prescription drug misuse and the inclusion of questions related to disability.

To protect the confidentiality of the respondents a complete version on the NSDUH is not available to the public. Rather, a public-use version of the data was created by applying a statistical disclosure limitation method to the full analytic file (Center for Behavioral Health Statistics and Quality, 2016). This process eliminated all directly identifying information from the data file. This process created a public-use file with 57,146 respondents, which was representative of the non-institutionalized U.S. civilian population ages 12 and older. For the current research we restrict analysis to respondents in the NSDUH aged 18 and older (N = 43,561)

### 2.2. Measures

The NSDUH defines *prescription drug misuse* as the use of prescription drugs without a prescription and also in any way a doctor did not direct respondents to use them (i.e. use in greater amounts, more often, or longer than told to take the drug; or use in any other way a doctor did not tell respondents to take the drug). To capture the misuse of prescription opioids and benzodiazepines in the past 12 months we created a categorical variable (1 = no use, 2 = opioid misuse, 3 = benzodiazepine misuse, 4 = both opioid and benzodiazepine misuse).

We include two measures of *disability status* to serve as the independent variable of interest. To measure a disability related to activities of daily living (ADL) respondents were asked...because of a physical, mental, or emotional condition do you have serious difficulty (a) concentrating, remembering, or making decisions; (b) walking or climbing stairs; or (c) dressing or bathing. To measure a disability related to instrumental activities of daily living (IADL), respondents were asked...because of a physical, mental, or emotional condition, do you have serious difficulty doing errands alone such as visiting a doctors' office or shopping. Both measures of disability were coded 0 = no, 1 = yes.

To assess the relationship between disability status and prescription drug misuse we include controls for demographic characteristics and also the use of alcohol and other drugs. The following demographic characteristics are included: age (1 = 18–25, 2 = 26–34, 3 = 35–49, 4 = 50–64, 5 = 65 or older), gender (0 = female, 1 = male), and race/ethnicity (0 = Non-White, 1 = White). We also included measures for heavy drinking in the past 30 days, and marijuana and other illicit drug use in the past 12 months, all coded 0 = No, 1 = Yes. Heavy drinking was defined as drinking five or more drinks on the same occasion for males (four for females) on each of 5 or more days in the past 30 days. Other illicit drug use includes cocaine, crack, heroin, hallucinogens, LSD, PCP, ecstasy, DMT, ketamine, inhalants, and methamphetamines.

To determine the impact of *physical and mental health* we include

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