



Full length article

Patterns of major depression and nonmedical use of prescription opioids in the United States



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ARTICLE INFO

Article history:

Received 1 March 2015

Received in revised form 5 May 2015

Accepted 7 May 2015

Available online 19 May 2015

Keywords:

Addiction

Illegal drug use

Major depressive disorder

Nonmedical use of prescription opioids

Polydrug use

ABSTRACT

Introduction: Recent epidemiologic studies have shown that nonmedical use of prescription opioids (NMUPO) and major depression frequently co-occur. Comorbid forms of drug use and mental illness such as NMUPO and depression pose a greater disease burden than either condition alone. However, sociodemographic and substance use differences between individuals with either NMUPO or depression and those with comorbid conditions have not yet been fully investigated.

Methods: Data came from the 2011 and 2012 National Survey on Drug Use and Health (NSDUH). Adolescents and adults were examined independently because of differences in screening for major depressive episodes (MDE). Weighted multinomial logistic regression investigated differences between persons with either past-year NMUPO (4.0%) or MDE (5.5%) and those with comorbid NMUPO and MDE (0.6%), compared to persons with neither condition.

Results: Females were more likely than males to report either MDE-alone and comorbid NMUPO and MDE, whereas adult men were marginally more likely to report NMUPO-alone (not significant among adolescents). Polydrug use and alcohol use disorders were more pronounced among those with comorbid NMUPO and MDE than persons with either NMUPO-alone or MDE-alone. Persons with independent and comorbid NMUPO and MDE were more likely to report lower income and unemployment versus employment.

Conclusions: This study found that independent and comorbid NMUPO and MDE were disproportionately clustered with burdens of lower socioeconomic position, suggesting that a population-based approach to address NMUPO would target these social determinants of health, whereas a high-risk approach to prevention should be tailored to females experiencing MDE symptoms and polydrug users.

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1. Introduction

Recent epidemiologic studies have shown that nonmedical use of prescription opioids (NMUPO) and major depression frequently co-occur (Becker et al., 2008; Goldner et al., 2014; Martins et al., 2012). Comorbid forms of drug use and mental illness such as NMUPO and depression pose a greater disease burden than either condition alone, as such cases are more likely to experience more severe psychiatric symptoms (Kessler, 2004), rehospitalization

(Appleby et al., 2001), incarceration (Hawthorne et al., 2012), and suicidal behaviors (Effinger and Stewart, 2012). Although nonmedical users of prescription opioids share many sociodemographic and behavioral characteristics with those who experience major depression (younger age, lower annual household income, and other substance use disorders, for example; Becker et al., 2008; Martins et al., 2012), these populations differ on other factors (sex, for example; Martins et al., 2012). The identification of characteristics that are specific to cases of comorbid NMUPO and major depressive episodes (MDE) can inform more effective intervention efforts tailored to this high-risk group. However, to our knowledge, no study has investigated the similarities and differences of populations who report NMUPO in the presences or absence of major depression.

Major depressive episodes and NMUPO are independently related to several of the same sociodemographic and substance

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use behaviors, including: age (Becker et al., 2008; Pratt and Brody, 2014; Wu et al., 2010), sex (Becker et al., 2008; Pratt and Brody, 2014; Wu et al., 2010), marital status (Becker et al., 2008; Riolo et al., 2005; Wu et al., 2010), and legal and illegal substance use (Becker et al., 2008). Although these risk factors are largely similar in the direction and magnitude of association with each MDE and NMUPO, certain risk factors differ. For example, whereas men are more likely than women to report NMUPO (Becker et al., 2008), women are more likely to have MDE (Hasin et al., 2005). Empirically it is very difficult to disentangle these various risk factors for MDE alone, NMUPO alone, and comorbid MDE and NMUPO. However, a study can estimate the relative frequency of differential factors to investigate the population profiles of persons with independent and comorbid NMUPO and MDE.

In the current study, we analyzed data from a nationally representative sample of the general U.S. population to identify similarities and differences among these populations that may inform more tailored efforts to reduce NMUPO and related harm. Since MDE and NMUPO have similar risk factors—such that age, sex, marital status, education, and substance use are associated with major depression (Pratt and Brody, 2014; Riolo et al., 2005) and also NMUPO (Becker et al., 2008; Wu et al., 2010), we focused our investigation on factors previously shown to be related to both NMUPO and MDE. As such, if evidence suggests that sociodemographic and substance use factors are similar among persons reporting NMUPO-alone and those with comorbid NMUPO and MDE, then more global interventions should be implemented to reduce both NMUPO and MDE. Whereas, the identification of distinct associated factors for independent and comorbid NMUPO and MDE, suggests that intervention efforts should be more tailored to identify those at the highest risk.

2. Methods

2.1. Sample

We used data from the National Survey of Drug Use and Health (NSDUH), conducted in 2011 and 2012. As described in more detail elsewhere (SAMHSA, 2013, 2012), the NSDUH is an ongoing annual national survey that assesses tobacco use, alcohol use and disorders, illicit drug use and disorder, and mental health symptoms in the U.S. The NSDUH respondents are selected from an independent multistage area probability sample of each of the 50 States and District of Columbia, yielding a nationally-representative sample of the noninstitutionalized U.S. citizen population aged 12 years and older. After selection of potential study respondents, study trained interviewers explained all study procedures to respondents, including assurances to strict confidentiality of personal responses, obtained informed consent, and administered interviews using computer-assisted personal interviewing (CAPI) and audio computer-assisted self-interviewing (ACASI). The combined use of CAPI with ACASI are employed to increase the validity of self-reported data by providing a confidential means for the interviewees to respond to sensitive questions about illicit drug use and other behaviors (Biondo and Chilcoat, 2014; SAMHSA, 2012, 2013).

Starting in 2011, post-stratification weights were applied to adjust the NSDUH data to the distribution of the U.S. population projections from the 2010 census. Therefore, we restricted our analysis to data from the 2011 ($n = 58,397$) and 2012 ($n = 55,268$) NSDUH public use files to assure the samples were weighted to comparable population estimates and to ensure that concatenating the data would not compromise its integrity. Since the NSDUH employs separate depression screeners for adolescents (12–17 years) and adults (18+ years), we stratified the total sample into two groups at 18 years (i.e., 12–17, 18+). The final datasets included survey

responses from 36,663 adolescent and 77,002 adult respondents. The weighted response rates for 2011 and 2012 were 73% and 74%, respectively.

2.2. Measures

2.2.1. Past-year nonmedical use of prescription opioids (NMUPO). Past-year NMUPO was determined through a three-stage process. First, the respondents were asked whether they have ever used “any form of prescription pain reliever that were not prescribed for you or that you took only for the experience or feeling they caused.” Second, respondents were presented with pictures and names of different types of prescription opioids (e.g., Darvocet, Percocet, Vicodin) and asked if they had ever used them nonmedically (e.g., “Have you ever, even once, used Darvocet, Darvon, or Tylenol with codeine that was not prescribed for you or that you took only for the experience or feeling it caused?”; SAMHSA, 2012, 2013). Finally, respondents were asked: “How long has it been since you last used any prescription pain reliever that was not prescribed for you or that you took only for the experience or feeling it caused?” Respondents endorsing use during the preceding 12 months were classified as past-year nonmedical prescription opioid users.

2.2.2. Past-year major depressive episode (MDE). We defined cases of major depressive episode using the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 2000) criteria. The adolescent and adult MDE screeners was derived from the National Comorbidity Survey-Adolescent and National Comorbidity Survey-Replication (SAMHSA, 2012, 2013), respectively; respondents who endorsed experiencing five or more of the nine DSM-IV MDE symptoms, with at least one of these symptoms being either anhedonia (“little interest or pleasure in doing things”) or depressed mood (“feeling down, depressed, or hopeless”), for more than half the days over the course of a two-week period during their worst or more recent period in their lifetime, were determined to screen positive for MDE. Participants endorsing that at least a two-week period of the depressive symptoms occurred during the previous year determined the presence of a MDE in the past 12 months. In the survey, respondents endorsing MDE that was related to substance use, grief, or physical comorbidity respondents were still considered as having a past-year MDE (SAMHSA, 2012, 2013).

2.2.3. Socio-demographic variables. We considered 10 potential independent variables of interest, including: self-reported sociodemographics (7 items), drug use characteristics (2 items), and population characteristics (1 item). Adolescent and adult sociodemographics included age at time of interview ([adolescents: 12–13 as reference, 14–15, and 16–17] and [adults: 18–25 and 26–34, 35 years or older as reference]), sex (male, female as reference), race/ethnicity (non-Hispanic white as reference, non-Hispanic black, non-Hispanic American Indian or Alaska Native [Native American], non-Hispanic Native Hawaiian or other Pacific Islander [Pacific Islander], non-Hispanic Asian, non-Hispanic two or more races, and Hispanic/Latino), and total annual family income in US dollars (0 to 19,999, 20,000 to 39,999, and 40,000 to 74,999, 75,000+ as reference). Additional adult sociodemographics included: education (less than high school and high school or equivalent, some college or more as reference), marital status (single and previously married [widowed, divorced, or separated], married as reference), and employment status (employed as reference; unemployed and other). Drug experience characteristics included past-year drug use other than NMUPO (yes/no) and alcohol use disorder (yes/no). To determine past-year drug use other than NMUPO, respondents indicated whether they used several types of illegal drugs during the previous 12 months (yes or no), including: cocaine, heroin,

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