Stressful events and other predictors of remission from drug dependence in the United States: Longitudinal results from a national survey

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ABSTRACT

This study examined stressful life events and other predictors associated with remission from DSM-IV drug dependence involving cannabis, cocaine, hallucinogens, heroin, inhalants, non-heroin opioids, sedatives, stimulants, tranquilizers, or other drugs. Waves 1 and 2 of the National Epidemiologic Survey on Alcohol and Related Conditions were used to examine the prevalence and predictors of past-year remission status. Among U.S. adults with previous (i.e., prior-to-past-year) drug dependence (n = 921) at baseline (wave 1), the prevalence of past-year remission status at wave 1 was: abstinence (60.5%), asymptomatic drug use (18.8%), partial remission (7.1%), and still drug dependent (13.5%). Similarly, the prevalence of past-year remission status three years after baseline at wave 2 was: abstinence (69.1%), asymptomatic drug use (15.5%), partial remission (8.4%), and still drug dependent (7.0%). Remission three years after baseline at wave 2 was much more likely among formerly drug dependent U.S. adults who abstained from drug use at baseline (wave 1) relative to those who reported asymptomatic drug use, partial remission, or remained drug dependent. Design-based weighted multinomial logistic regression analysis showed that relative to abstinence, past-year stressful events at baseline (wave 1) predicted higher odds of partial remission and drug dependence at both waves 1 and 2. This is the first national study to examine the potential role of stressful life events associated with remission from drug dependence. Although the majority of those who reported previous drug dependence transitioned to full remission, a sizeable percentage were either still drug dependent or in partial remission. Higher levels of stressful life events appear to create barriers to remission and should remain a focus for relapse prevention programs.

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1. Introduction

Approximately one in every ten U.S. adults develop drug use disorders (DUDs) involving psychoactive substances other than alcohol (i.e., cannabis, cocaine, hallucinogens, heroin, inhalants, non-heroin opioids, sedatives, stimulants, tranquilizers, and other drugs) in their lifetime (Grant et al., 2016). Recent evidence also indicates the prevalence of cannabis use disorders have increased among U.S. adults over the past decade (Hasin et al., 2015). Approximately three in every ten U.S. adults who develop DSM-IV DUDs will continue to meet criteria for DUDs over a three-year period (Fenton et al., 2012). The estimated percentage of U.S. adults in the general population in remission from substance use disorders ranges from 5.3% to 15.3% (White, 2012). While the course of alcohol dependence and remission from alcohol dependence has been well-investigated in the U.S. general population (Dawson, Grant, & Ruan, 2005; Dawson, Goldstein, & Grant, 2007; Moss, Chen, & Yi, 2010; White, 2012), very few national longitudinal studies have examined the course and predictors associated with remission from drug dependence among U.S. adults over time (Calabria et al., 2010; Compton, Dawson, Conway, Brodsky, & Grant, 2013; Fenton et al., 2012; Sarvet & Hasin, 2016).

There is evidence that drugs other than alcohol are increasingly becoming primary drugs of misuse among those entering drug treatment programs in the U.S. over the past two decades (SAMHSA, 2006, 2012, 2015). For instance, the percentage of drug treatment admissions reporting alcohol as the primary drug decreased from 57% in 1993 to 38% in 2013, while the percentage of drug treatment admissions for marijuana, opiates, and stimulants increased from approximately 22% in 1993 to 53% in 2013 (SAMHSA, 2006, 2012, 2015). These trends suggest the importance of improving our understanding of remission from drug dependence, including predictors of relapse and stability of abstinence from drug use over time based on national studies in the U.S. (Blanco et al., 2007; Compton, Thomas, Stinson, & Grant, 2007; Lopez-Quintero et al., 2011). While a shift has occurred in presenting substance use profiles for those entering drug treatment programs, the research on the course and correlates associated with remission from drug (non-alcohol) dependence has lagged behind relative to alcohol.

There is robust cross-sectional evidence that stressful life events are associated with heavy drinking, alcohol use disorders, marijuana use disorders, other DUDs, and other mental health disorders (Blanco et al., 2014; Dawson, Grant & Ruan, 2005; Keyes et al., 2012; McLaughlin, Conron, Koenen, & Gilman, 2010; Myers, McLaughlin, Wang, Blanco, & Stein, 2014; Sarvet & Hasin, 2016; Young-Wolff, Kendler, & Prescott, 2012). To date, no national longitudinal studies have tested whether higher levels of stressful life events predict remission among U.S. adults with drug dependence over time. Other factors associated with transitioning from DUDs and/or problematic drug use to abstinence and sustained remission in clinical and epidemiological studies include age, sex, race/ethnicity, educational attainment, income, marital status, comorbid substance use disorders (SUDs), and drug treatment utilization (Compton et al., 2013; McKay et al., 2013; Mertens, Kline-Simon, Delucchi, Moore, & Weisner, 2012). Clearly, a more comprehensive understanding of the role such factors play in remission from drug dependence is paramount for enhancing drug treatment and relapse prevention efforts.

Although abstinence represents the most stable form of full remission from alcohol dependence in treatment and non-treatment samples, there is limited knowledge on the stability of abstinence from drug use over time among formerly drug dependent individuals (Calabria et al., 2010; Compton et al., 2007, 2013; Dawson et al., 2007; Mertens et al., 2012). A review concluded the extant literature on remission from drug dependence suffers from notable methodological limitations, including a lack of national studies, imprecise definitions of full remission, and homogeneous and/or small clinical or community studies (Calabria et al., 2010). In addition, most studies examining the stability of full remission have focused on alcohol, neglecting the potential differences and similarities between remission from alcohol dependence and other drug dependence. Thus, it remains unknown whether long-term outcomes are similar between formerly drug dependent individuals reducing drug use to asymptomatic levels and those attaining complete abstinence from drug use. In order to fill these gaps in knowledge, the present study assesses the prevalence associated with remission from drug dependence among U.S. adults and examines the potential role stressful life events and other factors play in predicting remission from drug dependence over time.

2. Materials and methods

Data collected from waves 1 and 2 of the 2001–2002 and 2004–2005 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC-I and NESARC-II) were used as the primary sources of information regarding substance use and remission from drug dependence among the general noninstitutionalized adult population in the U.S. The target population for the NESARC was the civilian noninstitutionalized population residing in the U.S. aged 18 years or older. The NESARC sample included persons living in households, military personnel living off base, and persons residing in the following group quarters: boarding or rooming houses, non-transient hotels, shelters, facilities for housing workers, college quarters, and group homes.

At wave 1, the NESARC achieved a sampling frame response rate of 99%, a household response rate of 89%, and a person response rate of 93%, for an overall response rate of 81% (Grant et al., 2003). A total of 43,093 respondents completed face-to-face personal interviews at wave 1. Three years after wave 1 was completed, an attempt was made to re-interview all 43,093 wave 1 respondents via face-to-face personal interviews. A response rate of 87% was achieved at wave 2 for a total n = 34,653, resulting in an overall response rate of 70% (Ruan et al., 2008).

2.1. Sample

The weighted wave 1 sample (N = 43,093) represented a population that was 52% female; 71% White, 12% Hispanic, 11%

African-American, 4% Asian, and 2% Native American or other racial category. Approximately 12% of the sample were 18 to 24 years of age and 88% were adults 25 years of age or older. Considering weighted estimates, the final wave 2 sample (N = 34,653) represented a population that has the same sex and race/ethnic distributions as the wave 1 sample. In addition, more than one-half of the participants reported educational levels beyond high school (59%), while about one-fourth completed high school (27%) and one in every seven completed less than high school (14%).

2.2. Measures

The NESARC included the NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version (AUDADIS-IV), which is a fully structured diagnostic interview (Grant et al., 2003). The AUDADIS-IV was computerized and responses were entered directly into laptop computers. The measures in the NESARC survey assessed demographic characteristics, alcohol dependence, other drug dependence, remission status, stressful life events, and drug treatment utilization.

Demographic characteristics were measured with several items including sex, age, race, personal income level, educational attainment, marital status.

Substance use disorders were assessed according to the criteria of the DSM-IV using the AUDADIS-IV, which contains symptom questions that separately operationalize DSM-IV criteria for abuse and dependence for alcohol, cannabis, cocaine, hallucinogens, heroin, inhalants, non-heroin opioids, sedatives, stimulants, tranquilizers, and other drugs. The present study focused on the sub-sample of 921 drug dependent persons at wave 1 and did not include individuals dependent solely on alcohol. Consistent with the DSM-IV, a diagnosis of abuse required the absence of a dependence diagnosis and at least one positive response to four criteria defined for abuse in a 12-month period: (1) recurrent use resulting in failure to fulfill major role obligations; (2) recurrent use in hazardous situations; (3) recurrent substance-related legal problems; and (4) continued use despite recurrent social or interpersonal problems caused or exacerbated by drinking. A dependence diagnosis was defined as a positive response to at least three of the seven dependence criteria in a 12-month period: (1) tolerance; (2) withdrawal; (3) using larger amounts or for a longer period than intended; (4) persistent desire or unsuccessful efforts to quit; (5) spending much time obtaining or recovering from its effects; (6) giving up or reducing occupational, social or recreational activities; and (7) and continuing to use despite a physical or psychological problem caused or exacerbated by use. Reliability and validity of the DSM-IV, AUDADIS-IV diagnoses of substance use disorders have been established in numerous national and international psychometric studies, with test–retest reliability ranging from good to excellent (0.70 to 0.91) (e.g., Grant, 1996; Grant, Harford, Dawson, Chou, & Pickering, 1995; Grant et al., 2003; Hasin, Carpenter, McCloud, Smith, & Grant, 1997; Hasin, Li, McCloud, & Endicott, 1996; Muthen, Grant, & Hasin, 1993; Nelson, Rehm, Usten, Grant, & Chatterji, 1999; Pull et al., 1997).

Past-year remission was based on DSM-IV definitions and broken into the following four sub-categories: 1) past-year abstinence: no drug use in the past 12 months; 2) past-year asymptomatic drug use: used at least one drug at least once but did not experience any DSM-IV drug use disorder criteria in the past 12 months; 3) past-year partial remission: past-year recurrence of DSM-IV DUD criteria but did not meet full criteria for DSM-IV drug dependence in the past 12 months; and 4) past-year still drug dependent: continued to meet criteria for DSM-IV drug dependence for at least one drug class in the past 12 months.

Stressful life events were assessed by asking respondents if they had experienced each of the following stressful life events: "In the last 12 months…1) Did any of your family members or close friends die? 2) Did any of your family members or close friends have a serious illness