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Stressful Life Events and Relapse Among Formerly Alcohol Dependent Adults

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Abstract

We examined associations between stressful life events and relapse among adults in the United States with at least 1 year of remission from DSM-IV alcohol dependence. The sample consisted of individuals in remission from alcohol dependence at the Wave 1 interview (2001–2002) for the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) who also participated in a Wave 2 interview (2004–2005; N 1,707). Associations between stressful life events, demographic variables, = and the binary outcome of alcohol dependence relapse were examined with multiple logistic regression models. After adjustment for potential confounders, respondents who were divorced or separated in the year preceding the baseline assessment (Wave 1) were over two times more likely (OR = 2.32; CI = 1.01–5.34) to have relapsed 3 years later (Wave 2), compared to those not experiencing a divorce/separation in the 12 months prior to Wave 1. No other stressful life event was associated with relapse. Findings suggest that formerly alcohol dependent adults are at increased risk for relapse following divorce/separation. These results highlight the need for social work practitioners to consider the possibility of relapse following a divorce when one or both partners have a history of alcohol dependence.

Keywords

alcohol dependence; alcoholism; stressful life events; divorce; relapse

INTRODUCTION

There is a long tradition of studying associations between Stressful Life Events (SLEs) and psychopathology (Dohrenwend, 2000; Dohrenwend & Dohrenwend, 1978), initially mostly in relation to depression (Kendler, Karkowski, & Prescott 1999; Kessler, 1997), but more recently in relation to other problems and disorders (Dohrenwend, 2000). There are several definitional and etiological issues about these events. First, there is no agreement about events that are or should be considered stressful. Nevertheless, these events are often defined as “objective occurrences of sufficient magnitude to bring about changes in the usual activities of most individuals who experience them” (Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1982). Second, the direction of causality is often unclear. For example, “being fired from work,” an event often included in life events checklists, can be the consequence rather than the cause of psychopathology. Temporal sequencing and knowing whether the onset of the event was within the subjects’ control may help infer causality (Dohrenwend & Dohrenwend, 1978).

Although the strongest evidence for an association between life events and psychopathology is found in the depression literature (Kendler et al., 1999; Kessler, 1997), there is emerging evidence that these events may be associated with subsequent substance use disorders but the direction of causality is often unclear because these disorders may bring about SLEs (Hayaki, Stein, Lessor, Herman, & Anderson, 2005; O’Doherty, 1991). For this reason some have focused on childhood SLEs that are likely to have preceded the onset of substance use (Douglas et al., 2010; Green et al., 2010; Kessler et al., 2010; Kessler, Petukhova, & Zaslavsky 2011; McLaughlin et al., 2010; Pilowsky, Keyes, & Hasin, 2009). Studying associations between SLEs and relapse provides an opportunity to ascertain the temporal sequence if the timing of relapse and the timing of SLEs is known. For this reason we focused of relapse of alcohol dependence in this report. Furthermore, understanding the role of factors associated with relapse is important because it could guide secondary prevention (i.e., the prevention of relapse among individuals in remission from alcohol use disorders).

Because the first 12 months following remission from alcohol or other substance dependence are a period of vulnerability for relapse, DSM-IV designates this period as “early remission,” and defines “sustained full remission” as not meeting any criteria for dependence or abuse at any time during a period of 12 month or longer. Thus, the term relapse is often used to refer to individuals who meet criteria for abuse or dependence after a period of sustained full remission. We adopted a slightly more conservative definition of relapse as specified in the Methods section. The extensive clinical literature dealing with relapse among individuals treated for alcohol use disorders has predominantly focused on the role of coping mechanisms, self-efficacy (Brown, Vik, Patterson, Grant, & Schuckit, 1995; Vielva and Iraurgi, 2001), drinking characteristics (e.g., severity of alcohol dependence), and comorbid psychopathology (Bottlender & Soyka, 2005). While dealing with stress without returning to substance abuse is a common theme in the development of evidence-based treatments for alcohol and other substance disorders (Brewer et al., 2009; Carroll et al., 1994; Sinha et al., 2009), to the best of our knowledge only two clinical studies have explicitly considered the role of stressful life events in the risk for relapse of remitted alcohol dependence (Bottlender & Soyka, 2005; Brown et al., 1990). These studies found that the overall severity of stressful life events (Brown et al., 1990), and having fewer “positive life events” (Bottlender & Soyka, 2005), predicted relapse. However, these studies used aggregate measures of life events and did not examine specific life events.

Studies of patient samples provide important information. However, information from clinical samples may be biased by selection factors (Cohen & Cohen, 1984). These factors are particularly important in the case of Alcohol Use Disorders (AUDs) because several

studies show that only a small proportion of adults with AUDs receive any treatment or non-professional intervention (Cohen, Feinn, Arias, & Kranzler, 2007; Cunningham, 1999; Dawson et al., 2005). Furthermore, treated and untreated individuals with AUDs differ with respect to the severity of AUDs, and to the prevalence of psychiatric comorbidity (Cohen et al., 2007; Grant, 1996). To obtain a more complete picture, prospective studies in the general population are needed.

Studies of correlates and risk factors for relapse in the general population are scarce. To our knowledge, the role of life events as risk factors for relapse has not been investigated using samples from the U.S. general population. While Dawson and colleagues studied correlates of relapse to alcohol dependence in the U.S. population, they did not examine the role of specific life events (Dawson, Goldstein, & Grant, 2007). To fill this gap in information, we studied associations between recent stressful life events and relapse using a large U.S. national sample with longitudinal follow-up data. We hypothesized that among individuals with remitted alcohol use disorders, stressful life events occurring in the year prior to baseline would be associated with relapse during a 3-year follow-up period. Our goal was to test this hypothesis and to explore the effects of specific events.

METHODS

Sample

Data were drawn from Waves 1 (2001–2002) and 2 (2004–2005) of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a nationally representative survey of U.S. adults, as described in detail elsewhere (Grant et al., 2004, 2009). The target population included individuals in households and non-institutional group quarters aged 18 years or older, with oversampling for Blacks, Hispanics, and young adults. Adjustment for over-sampling and non-response produced data representative of the U.S. civilian population based on the 2000 census. The Wave 1 sample included 43,093 individuals, and the response rate was 81.0%. In Wave 2, the re-interview rate among those eligible (i.e., those who had not died, become incapacitated or institutionalized) was 86.7%, yielding a Wave 2 sample of 34,653 adults and a cumulative response rate of 70.2%. Data were collected in personal interviews (Dawson, Goldstein, Chou, Ruan, & Grant, 2008). The present study includes individuals in remission from alcohol dependence for at least one year at the Wave 1 interview ($N = 1,707$).

Definitions of Remission and Relapse

Remission was defined as having met full DSM-IV criteria for alcohol dependence at any time prior to the past 12 months at Wave 1, and not meeting any criteria for current alcohol abuse, dependence or reporting any episode of binge drinking at Wave 1. Binge drinking was defined as having five or more drinks on an occasion (men) or four or more (women) at least once per week in the past 12 months (Hasin, Paykin, & Endicott, 2001). Binge drinking was included among remission criteria because it is significantly related to chronicity of alcohol dependence (Hasin et al., 2001). *Relapse* was defined as meeting full criteria for current DSM-IV alcohol dependence at Wave 2 three years later among individuals who were in remission from alcohol dependence at Wave 1.

Stressful Life Events

We analyzed six stressful life events occurring in the 12 months preceding the Wave 1 assessment. These included: (1) “Were you fired or laid off from a job?”; (2) “Were you unemployed and looking for a job for more than a month?”; (3) “Did you get separated or divorced or break off a steady relationship?”; (4) “Have you experienced a major financial crisis, declared bankruptcy or more than once been unable to pay your bills on time?”; (5)

“Did any of your family members or close friends die?”; and (6) “Did any of your family members or close friends have a serious illness or injury?” Each stressful life event was dichotomized into two categories indicating whether the event did or did not occur in the prior 12 months. These events prior to the Wave 1 interview were not caused by active alcohol dependence because we studied the subset of 1,707 who were in full remission for at least 1 year.

NESARC includes other life stressors not examined in this study. We chose the above stressors based on a long-standing literature (Mazure, 1998) that indicates that certain stressors, including death of a family member, marital separation, business failures, and medical illnesses, are most likely to be associated with psychopathology. Additionally, stressors followed by negative changes that impact a significant proportion of the individual's usual activities may augment the risk for alcoholism, major depression, and other psychiatric disorders (Dohrenwend, 2000). Based on this literature, certain events included in NESARC (e.g., moving from one residence to another), were not considered in this study.

Statistical Analysis

Associations between stressful life events, demographic variables, and the binary outcome of alcohol dependence relapse were examined with multiple logistic regression models, producing adjusted odds ratios and 95% confidence intervals. Prevalences, standard errors, and confidence intervals were estimated using SUDAAN (Research Triangle Institute, 2002), which adjusts for the complex sample design. Life events were entered into eight separate models, each adjusted for age, sex, race/ethnicity, and education.

RESULTS

Using the remission criteria outlined above (see Methods) yielded a sample of 1,707 individuals in remission at wave 1. Of these 1,707 individuals, 65 (3.41%) relapsed between waves 1 and 2. Relapsers included 43 (68.7%) males and 22 (31.3%) females.

Demographic characteristics did not differ significantly between relapsers and non-relapsers, except that relapsers were younger (Table 1). While about one-third (33.08%) of non-relapsers were 50 years or older, only 13.95% of relapsers were this old. The unadjusted prevalence of life events did not differ between relapsers and non-relapsers. However, after adjusting for age, sex, race/ethnicity, and education (Table 2), individuals who were divorced/separated or experienced the breakup of a steady relationship in the 12 months prior to Wave 1 were more than twice as likely ($OR = 2.32$; 95% $CI: 1.01-5.34$; $p < .05$) to relapse compared to those who did not experience such an event. No other stressful life events were significantly associated with relapse.

DISCUSSION

Stressful life Events and Recurrence of Alcohol Dependence

Relapsers and non-relapsers were similar except that relapsers were younger. This is not surprising because alcohol abuse and dependence in the general population are more common among younger compared to older adults, and this finding has been reported in different countries (Hasin, Stinson, Ogburn, & Grant, 2007; Teesson et al., 2010). Furthermore, individuals who start drinking early in life (before age 15) are more likely to develop a more severe alcohol use disorder than late-onset drinkers (Grant et al., 2006; Prescott & Kendler, 1999), and severity of disorder predicts relapse (i.e., individuals with more severe alcohol use disorders are more likely to relapse than their counterparts with less severe disorder; Adamson, Sellman, & Frampton, 2009).

Among individuals in the general population with a history of DSM-IV alcohol dependence who had been in remission for at least 12 months at the time of their baseline interview, adjusted analyses indicated that experiencing a marital separation, divorce, or breakup of a steady relationship prospectively predicted subsequent relapse to alcohol dependence. Compared to those who did not report a divorce/separation or the breakup of a steady relationship in the 12 months preceding the baseline interview (either because they had remained in a steady relationship or had not been in a relationship during the 12 month interval), individuals who had separated/divorced or experienced the breakup of a steady relationship during this interval were over twice as likely to relapse to alcohol dependence by the end of the 3-year follow-up (2001–2002 to 2004–2005). These findings are based on a strict definition of remission, that is, not meeting any current criteria for an alcohol use disorder, or binge drinking, at baseline (2001–2002), and a strict definition of relapse, that is, meeting full DSM-IV criteria for alcohol dependence at follow-up (2004–2005), and obtained using longitudinal data from a representative sample of the adult U.S. population. Previous reports of increased alcohol use and related problems after divorce/separation (Chilcoat & Breslau, 1996; Hanna, Faden, & Harford, 1993) do not distinguish between relapse and excessive alcohol use following divorce/separation among individuals without a history of alcohol dependence. This report suggests that relapse may play a role in the previously noted increase of alcohol-related problems following divorce/separation.

Alcohol dependence is strongly associated with being unmarried, as shown in clinically ascertained (Dick et al., 2006) and population (Hasin et al., 2007) samples. The hypothesized protective effect of being in a steady relationship (whether married or not) does not indicate the direction of causality, that is, individuals may not enter a steady relationship because of an alcohol use disorder, being in a steady relationship may decrease the likelihood of such a disorder, or both. However, there is some evidence that marriage is associated with remission. For example, using data from NESARC (2001–2002), Dawson et al. showed that marriage was associated with remission of alcohol dependence among individuals who remitted without treatment (Dawson, Grant, Stinson, & Chou, 2006). This has been characterized as a protective “marriage effect,” characterized by less consumption of alcohol among married men and women than among single and divorced individuals (Leonard & Rothbard, 1999). A large British population-based study also showed that divorce and separation were associated with an increased risk for alcohol abuse after adjusting for numerous potential confounders (Richards, Hardy, & Wadsworth, 1997). While this literature refers to marriage the hypothesized protective effect may apply to other steady relationships. It is not surprising that the termination of a major life relationship would lead to relapse, given the potential for loss of social support and increased stress. Stress has long been associated with risk for alcohol use disorders, yet the exact mechanism is not known (Koob, 2008a). Recent work suggest that the brain neurotransmitter corticotropin-releasing factor (CRF) may play an important role in increasing the risk of alcohol use disorders associated with stress (Koob, 2003, 2008a, 2008b, 2009; Koob & Kreek, 2007). This includes animal work suggesting that changes in the CRF receptor may lead to heavy alcohol use following exposure to repeated stress (Sommer et al., 2008), and work showing that adolescents who experienced multiple stressful life events were more likely to drink heavily than those not experiencing such events, provided that they were homozygous for a gene that influences the expression of the CRF receptor (Blomeyer et al., 2008). While acute stress leads to adaptive neuroendocrine reactions, prolonged or chronic stress is associated with dysregulation of the mechanisms that underlie the stress reaction, and this dysregulation may be associated with subsequent disease (McEwen, 2008). Divorce/separation can be highly stressful, a stress that is often protracted. Thus, a dysregulation of the stress response may well underlie the association between divorce and relapse of alcohol dependence.

The other life events examined in this study are also stressful yet were not associated with relapse. This raises the question of the mechanism that would explain the association between divorce/separation and relapse. Although speculative, the following possibilities merit consideration. First, because divorce/separation is often protracted and the outcome may have painful long-term consequences (loss of children's custody, poverty), it may be intrinsically more stressful. Second, while other life events examined in this study (e.g., illness of a family member or losing a job), are likely to elicit social support, divorce/separation is often associated with loss of social support as friends and associates of the separating partners often remain associated with only one of the partners.

We did not find an association between the numbers of stressors and relapse. There is evidence that the number of stressors is related to the life-time prevalence of alcohol (Pilowsky et al., 2009) and drug (Turner & Lloyd, 2003) dependence. Our results may indicate that the number of stressors is less important for relapse than specific stressors. However, it is more likely that the limited number of SLEs included in the NESARC survey did not enable us to demonstrate a cumulative impact of SLEs on relapse.

Limitations of the study are noted. NESARC data are based on self-report. However, there is evidence that NESARC diagnoses were highly reliable (Hasin et al., 2007). The association of divorce and relapse does not imply causality. Other events not included in this study may have played a role in the causation of relapse. The list of stressful life events included in this study is far from being exhaustive. However, it includes most common highly stressful life events. Relapse was examined during a 3-year period, between Waves 1 and 2. Thus, these data do not distinguish between life events associated with the early and most vulnerable phase of recovery, and those associated with later phases. This limitation is determined by the period of time between the two NESARC waves. Last, individuals experiencing a divorce or breakup were compared to those who had a partner but did not experience a divorce or breakup and to those who did not have a partner during the relevant 12-month period. Thus, the comparison group is heterogeneous. Strengths of the study include the use of a large sample representative of the adult U.S. population, the use of strict definitions of remission and relapse, and the prospective design of the study. Thus, divorce/separation (ascertained at Wave 1) could not have resulted from relapse (ascertained at Wave 2).

Implications for Social Work Practice

Social workers dealing with clients undergoing a divorce or end of a steady romantic relationship need to be aware that those with a prior history of alcohol dependence are at risk for relapse. Consequently, they should assess for such a history when working with couples or individuals experiencing marital or relationship problems, and take steps to prevent relapse by the formerly alcohol-dependent partner or spouse. This may include strengthening awareness of the post-divorce or post-breakup period as a time entailing considerable risk for relapse, and helping the patient access social support from family and friends.

This study used a large population-based U.S. sample, and therefore the findings reported here are applicable to the U.S. population, and free of most biases found in clinical samples. Since both divorce/separation and alcohol use disorders are highly prevalent in the United States, relapse among divorcing individuals is an important public health problem.

Future research should focus on relapse and resilience among divorcing/separating formerly alcohol dependent individuals. Resilience in this context refers to the ability to stay in remission from alcohol dependence despite experiencing the considerable stress that divorce/separation can entail. Additionally, preventive interventions for these individuals in

the period preceding and following divorce/separation warrant attention from investigators and clinicians.

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TABLE 1

Demographic Characteristics and Life Events Experienced by Relapsers and Non-Relapsers Among NESARC Respondents in Remission^I at Wave 1 (*N* = 1,707)

	Non-relapse (<i>n</i> = 1,642) % (SE)	Relapse (<i>n</i> = 65) % (SE)	Chi-square	DF
Sex				
Male	64.88 (1.4)	68.72 (6.7)	0.30	1
Female	35.12 (1.4)	31.28 (6.7)		
Race/ethnicity				
White	81.58 (1.4)	77.77 (5.6)	0.37	4
Black	6.51 (0.7)	6.74 (3.4)		
Native American	3.69 (0.7)	8.56 (4.4)		
Asian	1.68 (0.5)	1.03 (1.0)		
Hispanic	6.54 (1.1)	5.91 (2.5)		
Age, years				
18–29	12.85 (1.1)	14.69 (5.3)	3.50**	3
30–39	25.85 (1.3)	32.00 (6.8)		
40–49	28.21 (1.4)	39.36 (7.0)		
50+	33.08 (1.5)	13.95 (4.9)		
Education				
High School	38.86 (1.7)	50.90 (6.9)	2.81*	1
College +	61.14 (1.7)	49.10 (6.9)		
Family Died				
Yes	32.69 (1.4)	31.77 (6.7)	0.02	1
No	67.31 (1.4)	68.23 (6.7)		
Family Illness				
Yes	45.27 (1.5)	48.84 (7.0)	0.25	1
No	54.73 (1.5)	51.16 (7.0)		
Fired				
Yes	9.37 (1.0)	13.94 (4.7)	0.88	1
No	90.63 (1.0)	86.06 (4.7)		
Unemployed				
Yes	9.70 (0.9)	10.31 (4.0)	0.02	1
No	90.30 (0.9)	89.69 (4.0)		
Divorced/Separated				
Yes	6.32 (0.7)	14.58 (4.8)	2.76	1
No	93.68 (0.7)	85.42 (4.8)		
Financial Crisis				
Yes	19.55 (1.3)	16.28 (5.2)	0.37	1
No	80.45 (1.3)	83.72 (5.2)		

^I Remission and relapse as defined in the Methods section.

* $p < .10$;

**
 $p < .05$.

TABLE 2

Odds of Relapse Among NESARC Respondents in Remission¹ at Wave 1 ($N = 1,707$), According to Stressful Life Events Experienced

Life event	OR (C.I. 95%) ²
Family Died	
Yes	1.02 (0.55–1.90)
No	Reference
Family Illness	
Yes	1.20 (0.66–2.20)
No	Reference
Fired	
Yes	1.25 (0.50–3.12)
No	Reference
Unemployed	
Yes	0.88 (0.33–2.36)
No	Reference
Divorced/Separated	
Yes	2.32 (1.01–5.34) *
No	Reference
Financial Crisis	
Yes	0.60 (0.26–1.34)
No	Reference
Any SLE	
Yes	1.25 (0.62–2.50)
No	Reference
Number of SLE	
0	Reference
1	1.59 (0.75–3.38)
2+	0.97 (0.43–2.19)

¹Remission and relapse as defined in the Methods section.

²Controlled for age, sex, race/ethnicity, and education.

* $p < .05$.