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Parental Divorce, Maternal-Paternal Alcohol Problems, and Adult Offspring Lifetime Alcohol Dependence

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Abstract

This study examined the influences of parental divorce and maternal-paternal histories of alcohol problems on adult offspring lifetime alcohol dependence using data from the 2001–2002 National Epidemiological Survey on Alcohol and Related Conditions (NESARC). Parental divorce and maternal-paternal alcohol problems interacted to differentially influence the likelihood of offspring lifetime alcohol dependence. Experiencing parental divorce and either maternal or paternal alcohol problems doubled the likelihood of alcohol dependence. Divorce and history of alcohol problems for both parents tripled the likelihood. Offspring of parental divorce may be more vulnerable to developing alcohol dependence, particularly when one or both parents have alcohol problems.

Keywords

Alcohol dependence; maternal alcohol use; paternal alcohol use; parental divorce; NESARC

No study to date has examined the main and interactive effects of parental divorce and maternal-paternal alcohol problems on adult offspring lifetime alcohol dependence using a large nationally representative sample. Alcohol use disorders (alcohol abuse and dependence) constitute one of the most prevalent public health problems in the United States, with individuals meeting the DSM-IV alcohol dependence diagnosis, in particular, having considerable impairment (Hasin, Stinson, Ogburn, Grant, 2007; Li, Hewitt, Grant, 2007). Prior research has found that experiencing parental divorce during childhood and adolescence increases offspring risk for problem alcohol use (Dube, Anda, Felitti, Edwards, Croft, 2002; Hope, Power, Rodgers, 1998; Thompson, Lizardi, Keyes, Hasin, 2008; Wolfinger, 1998). Divorce in the United States is common (Cherlin, 1992; Kelly, 2000; Munson & Sutton, 2006; US Census Bureau, 2007), affecting over 1.5 million children and adolescents each year (Summers, Forehand, Armistead, & Tannenbaum, 1998). Thus, gaining a better understanding of the relationship of parental divorce to the risk for alcohol use disorders is important to inform the development of prevention and treatment of alcohol use disorders.

Maternal and paternal alcoholism both have been shown to influence adolescent alcohol use through increased stress, decreased parental monitoring, and increased temperamental emotionality among adolescents and their parents (Chassin, Pillow, Curran, Molina, & Barrera, 1993). Both significantly predicted initial increased levels of adolescent alcohol problems as compared to controls (Chassin, Curran, Hussong, & Colder, 1996), influenced adolescent alcohol use over and above the effects of other parental psychopathology (Chassin, Pitts, DeLucia, & Todd, 1999), and predicted offspring transition from problem to dependent drinking (Bucholz, Heath, Madden, 2000; Walden, Iacono, & McGue, 2007).

However, differential effects of maternal versus paternal alcohol problems on offspring alcohol problems have been identified as well. Paternal (but not maternal) alcoholism significantly predicted a steeper increase in adolescent alcohol use and related problems over time (Chassin et al., 1999). Maternal (but not paternal) alcoholism predicted high risk-taking drinking and the transition from moderate to problem drinking (Bucholz et al., 2000). However, these differential effects have been demonstrated primarily among smaller samples of adolescent to young adult offspring and not among a nationally representative adult sample. Additionally, studies that have examined the influence of maternal and paternal alcohol problems on offspring alcohol use have utilized samples comprised of offspring from two-parent households only, none controlling for parental divorce. As 80%-90% of children live with their mothers after parental divorce or separation (Kelly, 2007), a better understanding of the relationship between maternal versus paternal alcohol problems and offspring alcohol problems when such offspring experience parental divorce during childhood is an important clinical and research issue.

One study specifically examined the relationship among parental divorce, parental history of alcohol problems, and offspring lifetime alcohol dependence (Thompson et al., 2008). Childhood parental divorce and parental history of alcohol problems were shown to interact to differentially influence the likelihood of offspring lifetime alcohol dependence. Experiencing both parental divorce and parental alcohol problems placed offspring at three times the likelihood for DSM-IV lifetime alcohol dependence. Additionally, experiencing childhood parental divorce, even in the absence of parental history of alcohol problems, remained a significant predictor of lifetime alcohol dependence (Thompson et al., 2008). However, the measure for parental history of alcohol problems in the study was a composite indicator of whether either and/or both parents had histories of alcohol problems. Maternal and paternal histories of alcohol problems were not examined separately in the analyses. Given the disability associated with alcohol dependence, the pervasiveness of divorce, the identified interaction between parental divorce and parental history of alcohol problems to differentially influence the likelihood of offspring lifetime alcohol dependence, and the likelihood of children living with mother after parental divorce, knowing whether parental divorce and maternal versus paternal alcohol problems interact to increase the likelihood of offspring risk for lifetime alcohol dependence is of public health significance.

Accordingly, the present study builds upon prior research by utilizing a nationally representative adult sample to evaluate the influences of maternal versus paternal histories of alcohol problems (neither parent, maternal only, paternal only, both parents) and parental divorce on the likelihood of adult offspring DSM-IV lifetime alcohol dependence. Although both biological and adopted parents were included, it was made clear to respondents that all questions regarding parents in the interview referred to the male and female head of households with whom respondents were raised.

We addressed the following questions: (1) after controlling for parental divorce, do maternal-only versus paternal-only alcohol problems differentially affect the risk for offspring DSM-IV lifetime alcohol dependence? and (2) is there an interaction effect of

maternal versus paternal alcohol problems and parental divorce on the risk for offspring DSM-IV lifetime alcohol dependence?

METHODS

Sample

The sample was comprised of participants in the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a nationally representative United States survey of civilian non-institutionalized participants aged 18 and older, interviewed in person. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) sponsored the study and supervised the fieldwork, conducted by the U.S. Bureau of the Census. The NESARC used a multistage stratified design in which primary sampling units (PSUs) were stratified according to certain sociodemographic criteria. The sampling frame for housing units is the Census 2000/2001 Supplementary Survey (C2SS) and that for group quarters is the Census 2000 Group Quarters Inventory. The C2SS sample of 655 PSUs was selected at the first stage, including 401 self-representing (SR) and 254 non-self-representing (NSR) PSUs. All SR PSUs were selected with certainty. For the NSR sample, two PSUs were selected per stratum, with probability proportional to the size of the estimated 1996 population of the stratum. At the second stage, housing units and group quarter units (converted to housing unit equivalents) were systematically selected within the PSUs. Non-Hispanic Black and Hispanic housing units were selected at higher rates than other housing units. At the third stage, within each household, one person was selected randomly from a roster of people living in the household. Within group quarters, respondents were selected based upon the position of their name on the list obtained by interviewers. Young adults ages 18–24 were sampled at a rate of 2.25 times that of other members of the household. The household response rate for the NESARC was 89 percent, and the person response rate was 93 percent, yielding an overall response rate of 81 percent, and resulting in a final sample of 43,093. The weighted data were then adjusted to represent the US civilian population based on the 2000 census.

Measures

Offspring Lifetime Alcohol Dependence—The Alcohol Use Disorder and Associated Disabilities Interview Schedule–DSM-IV Version (AUDADIS-IV) was administered to NESARC participants to measure DSM-IV alcohol dependence (Grant et al., 2003). This fully structured instrument was specifically designed for experienced lay interviewers. Computer diagnostic programs implemented the DSM-IV criteria for diagnosing alcohol abuse and dependence using AUDADIS-IV data. Extensive AUDADIS-IV questions covered DSM-IV criteria for dependence. Consistent with DSM-IV, lifetime diagnoses of alcohol dependence required 3 or more of the 7 DSM-IV dependence criteria within a 12-month period. Test-retest reliability of AUDADIS-IV alcohol dependence diagnoses ranges from good to excellent ($\kappa = 0.70\text{--}0.84$). Many types of validation studies, including psychiatrist reappraisal of AUDADIS-IV alcohol dependence diagnoses (Canino, Bravo, Ramirez, Febo, Rubio-Stipec, Fernandez, & Hasin, 1999), have shown its validity to be good to excellent, as described in detail elsewhere (Grant et al., 2004; Hasin et al., 2007).

Childhood or Adolescent Parental Divorce—Childhood or adolescent parental divorce/separation was assessed with the following question: “Did your [biological/adoptive] parents get divorced or permanently stop living together before you were 18?”

Maternal and Paternal History of Alcohol Problems—Parental histories of alcohol problems were ascertained in a separate module of the AUDADIS following the module evaluating the respondent’s own alcohol history. In assessing family history, interviewers

read definitions to respondents that included examples of the diagnostic criteria. Rather than reading the full diagnostic criteria, the definitions included readily observable manifestations of the disorder, since these are the mostly likely to be known to family informants and thus increase the sensitivity of the measure (Andreasen et al. 1977; Zimmerman and Martinez-Pons, 1988; Slutske et al. 1996). Interviewers then asked separately whether respondents' biological mother or father experienced the condition as defined. From this information, a variable was created representing parental alcohol problems, with the following categories: neither parent, maternal only, paternal only, both parents. The test-retest reliability of AUDADIS family history variables is very good to excellent (Hasin et al., 1997; Grant et al., 2003; Grant et al., 1995).

Control Variables—The following variables were included as controls as they have associations with lifetime alcohol dependence and have been used as controls in related studies (Thompson et al., 2008; Chassin et al., 1999; Hasin et al., 2007):

Parental History of Other Emotional and Behavioral Problems: Parental histories of other drug, depression, and antisocial behavior problems were ascertained in separate modules of the AUDADIS following the module evaluating the participant's own history of this type of problem with questions in the same format as parental alcohol problems. From this information, a variable was created representing combined parental history of other drug, depression, or antisocial behavior problems.

Demographics: Five demographic variables were used as controls in multivariate regressions: gender; age (18–29, 30–45, 46–64, 65+); race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Hispanic, Other); education (less than high school, high school, some college or higher); and past-year personal income (\$0–19,999, \$20,000–34,999, \$35,000–69,999, \$70,000+).

Procedures

All potential NESARC respondents were informed in writing about the nature of the survey, the statistical uses of the survey data, the voluntary aspect of their participation, and the federal laws that provide for the confidentiality of identifiable survey information. Respondents who gave consent were then interviewed. Data were collected through computer-assisted face-to-face interviews that took 45–60 minutes to complete. Respondents who completed the survey were compensated \$80.00. The research protocol, including informed consent procedures, received full ethical review and approval from the U.S. Census Bureau and U.S. Office of Management and Budget. Field methods included extensive home study and structured in person training, supervision, and quality control, including random call-backs to respondents to verify data, described in detail elsewhere (Grant et al., 2003; Grant et al., 2004).

Statistical Analysis

The prevalence of respondent lifetime alcohol dependence by childhood or adolescent parental divorce status and maternal and paternal history of alcohol problems was calculated with cross-tabulations. The simultaneous effect of childhood or adolescent parental divorce and maternal and paternal history of alcohol problems on offspring lifetime alcohol dependence was calculated using a logistic regression model with an interaction term, first unadjusted for any covariates, and then adjusted for demographics and parental history of other emotional and behavioral problems. F-tests were used to estimate the statistical significance of the inclusion of the interaction term in the model. Odds ratios and 95% confidence intervals were derived from the beta estimates in the logistic regression model. To adjust for the complex sample characteristics of the NESARC, all analyses were

conducted using SUDAAN (Research Triangle Institute, 2004). This software adopts Taylor series linearization to take into account the design effects of the NESARC.

RESULTS

Of the sample, 47.9% were male; 70.9% were white, 11.1% were black, 2.1% were Native American, 4.4% were Asian, and 11.6% were Hispanic; 21.8% were 18–29 years, 30.9% were 30–44 years, 31.1% were 45–64 years, and 16.3% were 65 years or older; 61.6% were married or cohabiting and 20.9% were never married; 15.7% had less than high school education, 29.3% had a high school education, and 55.0% had at least some college; and 47.3% had an income of \$0–19,999, 22.7% had an income of \$20,000–34,999, 22.0% had an income of \$35,000 – 69,999, and 8.1% had an income of \$70,000 or more.

Sixteen percent (SE=0.3) of the sample experienced parental divorce. The age of offspring at the time of parental divorce ranged from 1 to 17 years, with the average age being 9 years and most frequent age being 5 years. Of those reporting parental divorce, 18.8% (SE=0.7) met criteria for DSM-IV lifetime alcohol dependence compared to 11.3% (SE=0.4) who did not experience parental divorce. After adjusting for demographics and parental history of drug, depression, and antisocial behavior problems, parental divorce was a significant predictor of offspring lifetime alcohol dependence (Adjusted Odds Ratio [AOR] = 1.33; previously reported: Thompson et al., 2008).

Of the total sample, 2.5% (N=1,046) reported maternal only alcohol problems, 15.9% (N=6,859) reported paternal only alcohol problems, and 2.9% (N=1,265) reported both maternal and paternal alcohol problems. Of those with a maternal only history of alcohol problems, 22.2% (SE=1.6) met criteria for DSM-IV lifetime alcohol dependence. Of those with a paternal only history of alcohol problems, 20.9% (SE=0.7) met criteria for DSM-IV lifetime alcohol dependence. Of those with both maternal and paternal histories of alcohol problems, 35.0% (SE=1.7) met criteria for DSM-IV lifetime alcohol dependence. Of those with no parental history of alcohol problems, 9.6% (SE=0.3) met criteria for DSM-IV lifetime alcohol dependence (see Table 1).

After adjusting for demographics and parental histories of drug, depression, and antisocial behavior problems, maternal only alcohol problems (AOR = 1.96), paternal only alcohol problems (AOR = 2.07), and both maternal and paternal alcohol problems (AOR = 3.72) significantly increased the odds for offspring lifetime alcohol dependence.

The combined effect of parental divorce and maternal-paternal alcohol problems on offspring lifetime alcohol dependence was assessed via a three-way interaction term in a logistic regression model, first unadjusted and then adjusted for demographics and parental histories of drug, depression, and antisocial behavior problems. The final interaction term was significant ($p = 0.02$).

Table 2 presents the prevalence and odds ratios for offspring lifetime alcohol dependence by specific combinations of parental divorce and maternal-paternal alcohol problems. Parental divorce and maternal (AOR = 2.49) or paternal (AOR = 2.13) only alcohol problems more than doubled the likelihood and parental divorce and both maternal and paternal alcohol problems more than tripled the likelihood (AOR = 3.25) for offspring lifetime alcohol dependence.

DISCUSSION

This study indicated that maternal and paternal alcohol problems, after controlling for the effects of parental divorce and parental histories of drug, depression, and antisocial behavior

problems, increased the likelihood of offspring lifetime alcohol dependence. Thus, the relationship between maternal and paternal alcohol problems and offspring alcohol dependence was confirmed in the general population, regardless of parental divorce status. Moreover, although maternal and paternal alcohol problems varied considerably in their prevalence in this sample, maternal-only and paternal-only alcohol problems predicted very similar levels of risk for offspring alcohol dependence. In contrast, having both parents with alcohol problems substantially increased the level of risk for alcohol dependence over maternal or paternal alcoholism alone.

Additionally, an interaction effect of childhood parental divorce, maternal history of alcohol problems, and paternal history of alcohol problems on the likelihood of offspring lifetime alcohol dependence was identified. Experiencing childhood parental divorce and having a mother or father only with a history of alcohol problems doubled the likelihood lifetime alcohol dependence by an offspring, while experiencing childhood parental divorce and having *both* parents with histories of alcohol problems more than tripled such likelihood. The similar level of influence of maternal versus paternal alcoholism and the significantly higher likelihood of alcohol dependence when both parents had alcohol problems, regardless of divorce status, suggest that both maternal and paternal alcohol problems influence the development of offspring alcohol dependence, whether or not the parent with the alcohol problems is (presumably) present in the home.

It should be noted that the relationship among parental divorce and maternal-paternal alcohol problems and adult offspring lifetime alcohol dependence may be influenced by a number of mediating influences, such as inadequate parenting and other maladaptive parental behaviors. Parental divorce is related to poor parenting skills and inadequate child supervision (Kelly, 2000; Storksens, Roysamb, Holmen & Tambs, 2006). Parental divorce/separation can also result in lack of affection, high levels of criticism or hostility, lax or inconsistent discipline or supervision, or general lack of involvement (Summers et al., 1998; Wolfinger, 1998). Also, prior research has demonstrated that the transition following parental divorce is highly stressful for most children. Children of divorced parents are more likely to exhibit psychological, behavioral, social, and academic problems than children raised in intact two-parent families (Amato, 1993; Kelly, 2000). Many of the problems (e.g., lower educational attainment and earnings, welfare dependency, poor marital quality) persist well into adulthood (Amato & Keith, 1991; Amato, Loomis & Booth, 1995; Dube et al., 2001; Dube et al., 2002) and are associated with risk for alcohol dependence.

Similarly, parents with alcohol problems may be more likely to exhibit maladaptive behaviors in the household which, in turn, are associated with offspring having expectancies and beliefs which lead to increased risk for alcohol dependence (Jacob & Johnson, 1997). Moreover, maladaptive coping and cognitive styles that deemphasize problem-solving may also be modeled and internalized by offspring. Additionally, several childhood stressors (e.g., physical and sexual abuse, family dysfunction, interpersonal violence, terrorism exposure), regardless of parental divorce and alcohol problems, have been shown to impact drinking and increase the risk for alcohol problems (Anda, Whitfield, Felitti, Chapman, Edwards, Dube, & Williamson, 2002; Anda, Felitti, Bremner, Whitfield, Perry, Dube & Giles, 2006; Dube et al., 2001; Dube et al., 2002; Kendler, Bulik, Silberg, Hettema, Myers & Prescott, 2000; Schiff, Zweig, Benbenishty, & Hasin, 2007).

Thus, difficulties in the parent-child relationship may be a vital pathway through which various family factors influence child outcomes (Fauber, Forehand, Thomas, & Wierson, 2003). Future research regarding lifetime alcohol dependence among offspring of divorced parents should explore additional environmental influences occurring before parental divorce (e.g., parent conflict, parenting skills, child maltreatment history, parental

psychiatric disorders), during the dissolution period (e.g., age of child at divorce, meaning of divorce to child), and after parental divorce (e.g., change in income, school, residence, parent-child relationship; parent reside with post divorce; gender match of parent-child; parental remarriage) that could possibly mediate or moderate offspring lifetime alcohol dependence (Jacob & Johnson, 1997; Jacob, Waterman, Heath, Bucholz, Haber, Scherrer & Fu, 2003; Johnson, Cohen, Kasen, Smailes & Brook, 2001).

Study Limitations

Parental divorce and permanent separation were covered in a combined question. Thus, any difference in effects of legal divorce compared to permanent separation cannot be determined. However, such differences are likely to be small when the event occurs during early childhood when respondents could not likely understand the legal difference. Also, it is possible that some of the children may never have known one or both of their parents. However, it was made clear to respondents that all questions regarding parents in the interview referred to the male and female head of households with whom respondents were raised.

Another study limitation is that DSM-IV diagnoses and specific historical criteria for maternal and paternal alcohol disorders and other parental emotional and behavioral disorders were not obtained. However, the AUDADIS-IV structured interview has shown good to excellent reliability and validity for parental family history measures (Grant et al., 1995, 2003; Hasin et al., 1997). Lastly, the NESARC is based on respondent self-report, which can be affected by recall bias and social desirability. However, measures were of the type commonly used in large epidemiological studies, and the NESARC employed a carefully structured interview to assess aspects of clinical history that agreed well with psychiatrist evaluations (Canino et al., 1999).

IMPLICATIONS FOR PRACTICE

Social worker practitioners should recognize that children and adolescents who experience parental divorce may be more vulnerable to developing alcohol dependence than those whose parents remain together and realize that this risk may be significantly increased when both parents have alcohol problems. Consequently, social workers should include these problem areas in client and family assessments to better identify those at particular risk for alcohol problems and develop early and targeted interventions to decrease the likelihood of the development of alcohol problems by these offspring as they age.

CONCLUSION

This research builds on prior findings related to the effects of parental divorce and parental alcohol problems on the lifetime alcohol dependence by their children by examining the effects of maternal and/or paternal alcohol problems on offspring lifetime alcohol dependence, after controlling for parental divorce and parental emotional and behavioral problems. It is the first study to examine the main and interactive effects of parental divorce and maternal versus paternal alcohol problems on offspring lifetime alcohol dependence using a large, nationally representative sample where the respondents were all assessed using DSM-IV diagnostic criteria for lifetime alcohol dependence.

Social work researchers should examine additional factors, such as gender match of custodial parent and offspring, parental remarriage, and offspring psychiatric disorders, that are likely to moderate the relationship between maternal and paternal alcohol problems and offspring lifetime alcohol dependence among those who experience parental divorce.

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Table 1
Odds ratios of offspring lifetime alcohol dependence by maternal-paternal alcohol problems

	Lifetime Alcohol Dependence			
	% (SE)	OR	95% CI	95% CI
Maternal-Paternal Alcohol Problems				
Neither Parent (n=33923)	9.60 (0.31)	1.00	1.00-1.00	1.00-1.00
Maternal Only (n=1046)	22.15 (1.61)	2.68	2.20-3.26	1.58-2.42
Paternal Only (n=6859)	20.88 (0.69)	2.48	2.25-2.74	1.87-2.29
Both Parents (n=1265)	34.96 (1.70)	5.06	4.38-5.85	3.15-4.40

* Adjusted for age, gender, race/ethnicity, education, past-year personal income, and other parental emotional and behavioral problems (i.e., drug use problems, antisocial behavior, depressive symptoms).

Table 2

Odds ratios for interaction effects of childhood or adolescent parental divorce/separation and maternal/paternal alcohol problems on offspring lifetime alcohol dependence

Parental Divorce	Parental Alcohol Problems	N	% (SE)	OR (95% C.I.)*	AOR (95% C.I.)**
No	Neither Parent	29530	8.98 (0.32)	1.00 (1.00–1.00)	1.00 (1.00–1.00)
Yes	Neither Parent	4333	14.12 (0.75)	1.67 (1.46–1.91)	1.33 (1.15–1.53)
No	Maternal Only	712	19.50 (1.78)	2.46 (1.94–3.11)	1.85 (1.44–2.38)
Yes	Maternal Only	333	27.63 (3.03)	3.87 (2.85–5.26)	2.49 (1.77–3.51)
No	Paternal Only	5019	19.83 (0.79)	2.51 (2.23–2.82)	2.18 (1.95–2.44)
Yes	Paternal Only	1836	23.73 (1.22)	3.16 (2.71–3.67)	2.16 (1.83–2.55)
No	Both Parents	853	35.26 (2.02)	5.52 (4.61–6.61)	4.31 (3.56–5.22)
Yes	Both Parents	412	34.38 (3.14)	5.31 (4.04–6.98)	3.25 (2.35–4.49)

* Three-way Interaction term (divorce, maternal alcohol problem, paternal alcohol problem) significant ($p=0.01$).

** Adjusted for age, gender, race/ethnicity, education, past-year personal income, and other parental emotional and behavioral problems (i.e., drug use problems, antisocial behavior, depressive symptoms); three-way Interaction term (divorce, maternal alcohol problem, paternal alcohol problem) significant ($p=0.02$).