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Parental Divorce, Parental Depression, and Gender Differences in Adult Offspring Suicide Attempt

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Abstract

Research suggests parental divorce during childhood increases risk of suicide attempt for male but not female offspring. The negative impact on offspring associated with parental divorce may be better explained by parental psychopathology, such as depression. We examined whether adult offspring of parental divorce experience elevated risk of suicide attempt, controlling for parental history of depression, and whether the risk varies by the gender of the offspring. Using the 2001 to 2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), the sample consists of respondents who experienced parental divorce ($N = 4895$). Multivariable regressions controlled for age, race/ethnicity, income, marital status, and parental history of depression. Females living with their fathers were significantly more likely to report lifetime suicide attempts than females living with their mothers, even after controlling for parental depression. Findings suggest that childhood/adolescent parental divorce may have a stronger impact on suicide attempt risk in female offspring than previously recognized.

Keywords

Parental divorce; gender; offspring; suicide attempt; depression

Approximately half of first marriages end in divorce (Cherlin, 1992), a disruptive experience that affects over 1.5 million children and adolescents in the United States each year (Summers et al., 1998). It is estimated that in the United States by age 18 approximately 50% of children will experience divorce (Steinberg, 1996). It is generally accepted that parental divorce may have negative consequences for offspring, especially regarding offspring psychosocial impairment (Garnefski and Diekstra, 1997; Hetherington, 1991; Herthington, 1993; Storksen et al., 2005). Furthermore, parental divorce during childhood has consistently been linked to increased risk of suicide attempt among offspring (Adams et al., 1994; Donald et al., 2006; Dube et al., 2001; Garnefski and Diekstra, 1997; Rubenstein et al., 1998; Sher, 2005). However, of the studies examining parental divorce and suicide

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attempt, only one addressed whether the effects differed by gender. This study found that the risk was higher for male offspring (Donald et al., 2006). However, this study did not account for the gender of parent the offspring lived with postdivorce and was limited to adolescent and young adults. Donald et al. (2006) propose that the absence of a parent as a result of divorce may be particularly troublesome for males, as it is typically the father who is absent. This would suggest that females experience less parental disconnection because they are more likely to remain with their same sex parent, and residing with a same-sex parent may be a protective factor against suicidal behavior that to date has gone unrecognized. As yet, no study has examined the long-term impact of the gender of parent lived with postchildhood parental divorce on adult offspring suicide attempt risk.

Parental history of depression is a significant risk factor for offspring depression as well as offspring attempted and completed suicide (Brennan et al., 2002; Brent et al., 1994; Gould et al., 1996; Hammen et al., 2004; Kendler and Davis, 1997; Klein et al., 2001; Kovacs et al., 1997; Nomura et al., 2002; Shiner and Marmorstein, 1998; Tsuang, 1983; Weissman et al., 1992, 1997; Wender et al., 1986). Research demonstrates that offspring of depressed parents are at increased risk for suicide compared with offspring of nondepressed parents (Brent et al., 2004). This risk is even greater among offspring of depressed parents with a history of suicidal behavior as compared with offspring of depressed parents without suicidal behavior (Brent et al., 2002; Mann et al., 2005). However, few studies have examined the impact of parental depression on offspring suicide attempt as it relates to the gender of offspring. Those studies that have were largely focused on adolescents (Keller et al., 1986; Mitchell et al., 1989; Nomura et al., 2002; Orvaschel et al., 1988; Tisher et al., 1994; Weissman et al., 1997).

Parental depression has also been found to be associated with parental divorce. Research has firmly established a relationship between parental mental illness and marital status with divorced individuals experiencing higher levels of depression than married individuals, particularly among females (Afifi et al., 2006; Davies et al., 1997; Lipman et al., 2001). One explanation for this phenomenon is that the stress of divorce may result in psychiatric illness, considered social causation (Afifi et al., 2006; Mastekaasa, 1992). Conversely, it may be the case that the presence of a psychiatric illness causes significant stress on marital relations and may result in divorce, considered social selection (Afifi et al., 2006; Mastekaasa, 1992). In support of these explanations, research has found higher rates of psychiatric illness among women experiencing divorce both before and after change in marital status. Thus, to accurately determine the impact of parental divorce on off-spring well-being, it is necessary to take into consideration the presence of parental depression.

No prior study could be identified that controlled for parental depression while examining the association between parental divorce and suicide risk of adult offspring in a representative sample. Furthermore, research in this area has not examined whether the impact of parental depression on adult offspring suicide attempt risk varies according to the gender of the offspring within the context of divorced families. A better understanding of how gender and divorce are related to suicidal behavior is essential for targeting prevention efforts to those at increased risk, and for tailoring responsive and effective intervention strategies.

Accordingly, the goals of this study are (1) to investigate the impact of parental divorce on offspring suicide attempt after controlling for parental depression and (2) to determine whether residing with the same sex parent as compared with an opposite sex parent postparental divorce results in differences in the risk of suicide attempt for female and male offsprings, after controlling for parental depression. This will be the first study to control for

the impact of parental depression on the risk of suicide attempt among adult offspring of divorced parents in a nationally representative sample.

METHODS

Sample

This sample consists of participants in the 2001 to 2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a nationally representative United States survey of 43,093 civilian noninstitutionalized participants aged 18 and older, interviewed in person. The National Institute on Alcohol Abuse and Alcoholism sponsored the study and supervised the fieldwork, conducted by the US Bureau of the Census. Details of the interviewers, training, and field quality control are described elsewhere (Grant et al., 2003a, 2004). Young adults, Hispanics, and African-Americans were oversampled, and rates are weighted to the 2000 decennial census in terms of age, race, sex, and ethnicity and are further weighted to adjust for sampling probabilities. The overall response rate was 81%. Further details of the sampling frame are described elsewhere (Grant et al., 2003a, 2004, 2007). The research protocol, including informed consent procedures, received full ethical review and approval from the US Census Bureau and US Office of Management and Budget.

Measures

The Alcohol Use Disorder and Associated Disabilities Interview Schedule (AUDADIS; Grant et al., 2003b), a state-of-the-art structured diagnostic interview, was administered to the (NESARC) participants. This instrument was specifically designed for experienced lay interviewers and was developed to advance measurement of substance use and mental disorders in large scale surveys.

Assessment of Suicide Attempt

Lifetime suicide attempt was assessed among those who screened into the major depression section of the survey. Individuals screened into the major depression section of the interview if they reported feeling low mood or loss of interest for at least 2 weeks ever in their lifetime (N = 13,753), regardless of whether or not they met full criteria for major depression. All respondents with ≥2 weeks of low mood or anhedonia were asked “During that time when your mood was at its lowest and you enjoyed or cared the least about things, did you attempt suicide?” A total of 1074 respondents who screened into the major depression section of the interview reported attempting suicide in their lifetime. Individuals who did not report a suicide attempt and who did not screen into the depression section.

To examine the effects of limiting queries on suicide attempts to respondents reporting ≥2 weeks of low mood or anhedonia, we used data from the National Longitudinal Alcohol Epidemiologic Survey, (Grant, 1997; Hasin and Grant, 2002) conducted in 1991 to 1992 with a similar sample size, design, and interview (Grant et al., 1997). This version covered lifetime risk of suicidal behavior in all respondents. Our analyses of these data indicated that of respondents never reporting ≥2 weeks of low mood or anhedonia, (N = 26,534), only 0.1% (N = 30) reported a suicide attempt, suggesting that NESARC coverage of suicide attempts missed only a very small number of respondents.

Assessment of Childhood Divorce

Childhood divorce was assessed with this question: “Did your (biological/adoptive) parents get divorced or permanently stop living together before you were 18?” Hereafter, we refer to this experience as divorce. A follow-up question was asked to ascertain the age of the respondent at the time this occurred, and an additional follow-up question ascertained

whether the respondent lived with a stepparent before the age of 18. Because the AUDADIS does not ask the age at which a reported suicide attempt occurred, individuals whose parents divorced when the respondent was between the ages of 13 and 17 years were excluded from the analysis (N = 1556) to better establish that the parental divorce preceded the suicide attempt. Finally, the interview ascertained which parent the respondent primarily lived with after the divorce. Options included mother, father, both equally, or neither. For the present analysis of the effect of gender of the parent after divorce on suicide attempt, only respondents primarily living mother or father were considered (N = 4895). The analyses were conducted this way to more clearly understand the impact of residing primarily with a parent of the same or opposite sex postparental divorce.

Assessment of Parental Depression

As described previously (Heiman et al., 2008), parental history of depression was examined in a separate module of the AUDADIS. In assessing family history, interviewers read definitions to respondents, which included examples of the diagnostic criteria. Rather than reading the full diagnostic criteria, the definitions included readily observable manifestations of the disorder, as 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 relatives experienced the condition as defined, covering relatives by category. From this information, a variable was created representing parental history of depression. The test-retest reliability of AUDADIS family history variable is very good to excellent (Grant et al., 1995, 2003a).

Additional Demographics

Four control variables were used in multivariable regression: age (18–24, 25–44, 45–64, 65+), race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, and other), family income (<$20,000; $20,000–34,999; $35,000–69,999; $70,000+) and marital status (never married, widowed/separated/divorced, married) based on baseline analyses that showed an association between these variables and suicide attempt.

Statistical Analysis

The prevalence of lifetime suicide attempt by childhood divorce status was calculated with cross-tabulations, first in the whole sample, and then by sex. Odds ratios (ORs) and 95% confidence intervals were calculated using logistic regression models to estimate the effect of childhood divorce on lifetime suicide attempt in unadjusted models and then controlling for age, family income, marital status, and race/ethnicity. The sample was then subset to include only respondents who experienced childhood divorce that lived primarily with either their mother or their father. The interaction of sex of respondent and gender of the primary parent after divorce was estimated using a logistic regression model, both unadjusted and adjusted for age, race/ethnicity, family income, marital status, living with a stepparent, and parental depression. T tests were used to estimate the statistical significance of the inclusion of interaction terms in the model, and sex-specific odds ratios and confidence interval estimates were calculated using the beta estimate for the interaction and the beta estimate for sex in each 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

Table 1 presents the characteristics of the study sample (N = 4895). The average age of the study sample was 38.7. The majority of the study sample was female (53.1%), white

(71.4%), married, or living with someone as if married (54.5%). Most were suicide nonattempters (96%) and approximately 32% had a parental history of depression.

Table 2 indicates the effect of parental divorce on the lifetime prevalence of suicide attempt, both in the full sample and by gender. In models adjusted for age, race/ethnicity, income, marital status, and parental depression those who experienced parental divorce were 1.33 times as likely (95% CI: 1.06–1.67) to report a suicide attempt than those who did not experience parental divorce. This association held only among women. There was a trend toward a significant interaction between parental divorce and sex in predicting lifetime suicide attempt ($t = 1.54$, $p = 0.13$), preliminarily indicating that the effect of divorce on the odds of suicide attempt may vary between men and women.

Table 3 reports results of the logistic regression stratified by sex. The prevalence of suicide attempt among women who lived with their mothers was 4.7% ($SE = 0.5$), compared with 9.4% ($SE = 1.7$) among women who lived with their fathers (Table 3). In adjusted logistic regression, compared with men who lived with their fathers after parental divorce, women who lived with their fathers (OR = 3.58, 95% CI: 1.99–6.46) were significantly more likely to make suicide attempts. We also tested whether gender of the parent lived with postdivorce affected the risk of suicide attempt(s). Using controlled logistic regression, we found that women who lived with their fathers were significantly more likely to report a suicide attempt than women who lived with their mothers (OR = 1.99, 95% CI: 1.22–3.24). There was no statistically significant difference in prevalence of suicide attempt among men by gender of the parent they lived with postdivorce. There was a trend toward significance in the interaction between gender of the parent and gender of the respondent in predicting lifetime suicide attempt ($t = 1.95$, $p = 0.06$).

DISCUSSION

This is the first study to address the relationship of childhood parental divorce and gender of parent lived with postdivorce on adult offspring suicide attempt controlling for parental depression in a large, nationally representative US sample. The findings indicate that parental divorce is a significant risk factor for suicide attempts in the whole sample, and when males and females were considered separately, even after controlling for parental divorce. The findings also suggest that females living with their fathers had a significantly higher risk of suicide attempt than females living with their mothers. Additionally, there was a trend toward significant differences in the prevalence of lifetime suicide attempt in male and female offspring residing with same as compared with opposite sex parents.

The issue of gender of parent with whom offspring reside, while important because of the theoretical considerations and clinical implications, has received little research attention. In this study, only females were found to have higher odds of lifetime suicide attempt as a result of residing with an opposite sex parent. It is important to note that research has demonstrated that living in a one-parent family in general is greater risk factor for emotional problems for females as compared with males (Garnefski and Diekstra, 1997; Storksen et al., 2004). Specifically, females residing in one-parent families are more likely than males residing in one-parent families to report emotional problems including depression and loneliness. Garnefski and Diekstra (1997) further find that girls from one parent families report more emotional problems than girls from stepparent families.

Why is it that female offspring of parental divorce who primarily reside with their opposite sex parent may be at greater risk for suicide attempt than those who reside with their same sex parent? Poor parent-child communication may provide some explanation for this finding. Research indicates that offspring of divorce have poorer parent-child

communication than offspring of intact couples (Hetherington et al., 1982). Gould et al. (1998) examined the effect of poor mother-child as compared with poor father-child communication on suicide risk among offspring of parental divorce. They found an interactive effect of poor father-child communication with divorce on suicide, but not poor mother-child communication. If a father is not living with the offspring postparental divorce, it may be the case that poor father-child communication is a long-standing issue that may not prove to be especially disruptive. However, if the father is living in the home, and he and the child fail to communicate in an effective manner, this may be indicative of a larger dysfunctional relationship and may cause the child significant distress. For example, one study found that lack of closeness to father mediated depression among female offspring of divorce (Palosaari et al., 1996).

Alternative explanations also need to be considered. It is generally the case that mothers retain primary custody of children (Furstenberg, 1990). Perhaps it is the case that in instances where fathers retain custody of female offspring, mothers may exhibit severe psychiatric illness or substance abuse. Research has consistently indicated that maternal mental illness, alcohol abuse, and substance abuse are associated with higher rates of custody loss (Ackerson, 2003; Bagedahl-Strindlund, 1997; Jacobsen and Miller, 1998; Miller and Finnerty, 1996; White et al., 1995; Zuravin and DePanfilis; 1997; Zuravin and Greif, 1989).

Conversely, it may be the case that female offspring who reside with their father are at greater risk for suicide attempt as they are at greater risk for abuse. Research indicates that abusive fathers are far more likely than nonabusive parents to fight for child custody (Grieg and Hegar, 1991). It has also been noted that judges are no less inclined to award custody of children to abusive fathers (Ackerman and Ackerman, 1996; Lowenstein, 1991; Neustein and Goetting, 1999). Furthermore, among children in single-parent households, those living with only their fathers were approximately one and two-thirds times more likely to be physically abused than those living with only their mothers (National Center on Child Abuse and Neglect, 1993).

The impact of childhood parental divorce and adult offspring suicide attempt remained even after controlling for parental psychopathology, specifically depression. This is significant given that psychopathology of first-degree relatives has been repeatedly shown to be significantly associated with adolescent and adult offspring suicide attempt Brent et al., 1994; (Pfeffer et al., 1994; Shaffer, 1988; Schulsinger et al., 1979; Tsuang, 1983) and that it has been suggested that divorce itself may not be as great a predictor of offspring psychopathology as is paternal psychopathology (Pilowsky et al., 2006). Our finding suggests that divorce itself does have an impact on adult offspring suicide attempt risk and that this risk varies according to gender of offspring and gender of parent with whom offspring reside postparental divorce. Future studies should continue to explore the impact of other forms of parental psychopathology to better understand the relation ship between parental divorce, parental mental illness, and offspring suicide attempt.

Although findings did not reach statistical significance, there was a trend indicating that female adult offspring are at greater risk of suicide attempt than male adult offspring. This is consistent with prior research that has established that females are at greater risk of suicide attempt than males (Houle, 2008; Lefebvre et al., 1998; Moscicki et al., 1988; Pirkis et al., 2000; Suominen, 2004). This is inconsistent with the only previous study that explored this issue directly among offspring of divorce. Donald et al. (2006) found that the increased rates of suicidality among male offspring of parental divorce, yet not among female offspring. However, the study of Donald et al. (2006) was not US population based, was limited to

adolescents and young adults (ages, 18–24), and was based on a much smaller sample. Thus, our findings are more likely to be broadly generalizable.

Limitations

Study limitations require consideration. As with all cross-sectional studies, the NESARC is based on respondent self-report that can be affected by recall bias and social desirability. However, self-reports are commonly used in large epidemiological studies, and the NESARC employed a carefully structured interview to assess aspects of clinical history such as suicidal behavior. Using respondents' reports of depression in their parents rather than direct interviews of the parents may have resulted in some under-reporting of parental depression or a failure to capture the wide range of parental depressive symptoms. However, prompting respondents with observable manifestations of depressive disorders should have limited any under-reporting to milder cases or those that resolved early, prior to respondents' awareness. We noted above that NE-SARC limited queries about suicide attempts to only those reporting ≥2 weeks of low mood or anhedonia. While this appears to have resulted in a very small number of missed cases, it is possible that some individuals with a history of suicide attempt may have been missed. Furthermore, the question regarding divorce combines both legal divorce and permanent separation. Thus, any differences in offspring maladjustment as a result of permanent separation as compared with parental divorce cannot be determined in this study. Additionally, this study only included offspring who lived primarily with their mother or father. Therefore, findings may not be generalizable to offspring who live with both their mother and father equally. Lastly, the NESARC did not gather information about the role of the nonprimary caregiver of offspring. It is possible that the quality and quantity of involvement of the nonprimary parent may influence degree of offspring impairment.

This study also has a number of strengths. First, this study uses a large, nationally representative sample. Second, it is one of the only studies to examine the impact of parental divorce on adult male and female offspring suicide attempt. Given the extensive debate over the effect of parental divorce, this study addresses a major gap in existing research. Third, the study controls for parental depression in examining the effect of parental divorce.

CONCLUSION

The current study suggests that the gender of the parent with whom offspring primarily reside postparental divorce is important to take into account when assessing for offspring suicide attempt risk. Clinicians treating patients with a history of parental divorce should further assess whether the client primarily remained with one parent postparental divorce and whether that parent was of the same or opposite sex as the client to most accurately evaluate suicide attempt risk. Early detection is crucial in reducing and preventing suicide attempts. Identification of easily recognizable factors that indicate an increased risk for suicide attempt is imperative. Future research should continue to explore the impact of parental divorce, a highly prevalent issue in the United States, and the relationship between gender of offspring and gender of parent with whom offspring primarily reside to better understand how these factors may affect the risk of suicide attempt and whether they serve as an easily identifiable indicator of suicide attempt risk.

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TABLE 1

Demographic Characteristics of Offspring of Those Who Lived With Either Mother or Father After Parent Divorce/Separation, Excluding Those Aged 13- to 18-Year-Old at Time of Divorce/Separation ($N = 4895$)

Sociodemographic and Clinical Characteristic	N	% (*SE*)
Sex		
Male	2045	46.91 (0.93)
Female	2850	53.09 (0.93)
Age		
18–29	1561	33.69 (0.81)
30–44	1752	35.90 (0.78)
45–64	1100	22.13 (0.69)
65+	482	8.29 (0.47)
Race		
White	2720	71.44 (1.52)
Black	1151	14.19 (0.90)
American Indian/Alaska Native/Asian/Native Hawaiian/Pacific Islander	172	4.42 (0.39)
Hispanic	852	9.95 (1.24)
Income		
1–19,999	1432	24.83 (0.91)
20,000–34,999	1130	21.39 (0.75)
35,000–69,999	1523	33.41 (0.95)
70,000+	810	20.38 (0.77)
Marital status		
Married/living with someone as if married	2186	54.46 (0.94)
Widowed/divorced/separated	1194	17.53 (0.61)
Never married	1515	28.01 (0.92)
Parental psychiatric illness		
Depression	1471	31.49 (1.02)
Suicide		
Attempter	199	3.99 (0.35)
Nonattempter	4696	96.01 (0.35)

TABLE 2

Prevalence and Odds of Lifetime Suicide Attempt (n = 1011) by Parental Divorce and Gender[a]

	Suicide Attempt % (*SE*)	OR	AOR[b]
Total			
Parental divorce (n = 5194)	4.0 (0.3)	1.95 (1.58–2.40) *	1.33 (1.06–1.67) **
No parental divorce (n = 36,049)	2.1 (0.1)	1.00	1.00
Men			
Parental divorce (n = 2174)	2.2 (0.4)	1.48 (1.00–2.19) **	1.01 (0.66–1.54)
No parental divorce (n = 15,502)	1.5 (0.1)	1.00	1.00
Women			
Parental divorce (n = 3020)	5.6 (0.5)	2.19 (1.74–2.75) *	1.50 (1.18–1.92) *
No parental divorce (n = 20,547)	2.6 (0.2)	1.00	1.00

[a] Interaction of gender and divorce trended toward significance in unadjusted (t = 1.80, p = 0.08) and adjusted models (t = 1.54, p = 0.13).

[b] Controlled for age, sex, race/ethnicity, family income, marital status, and parental depression.

* $p < 0.01$.

** $p < 0.05$.

TABLE 3

Among Respondents With Parental Divorce Before Age 13 Who Lived With 1 Parent (N = 4895), Prevalence and Odds of Suicide Attempt by Gender of Respondent and Parent Lived With After Divorce

	Suicide Attempt % (*SE*)	OR (95% CI)	AOR (95% CI)[a]
Gender of respondent and of parent lived with after divorce[b]			
Women			
Lived with father after divorce (n = 506)	9.4 (1.7)	4.77 (2.00–1.40) *	3.58 (1.99–6.46) *
Lived with mother after divorce (n = 2344)	4.7 (0.5)	2.27 (1.00–5.14) **	1.62 (1.02–2.59) **
Men			
Lived with mother after divorce (n = 1653)	2.2 (0.5)	1.05 (0.45–2.46)	0.88 (0.38–2.01)
Lived with father after divorce (n = 392)	2.1 (0.8)	1.00	1.00

[a] Controlled for age, race/ethnicity, family income, marital status, and living with a stepparent, and parental depression.

[b] Interaction of gender of parent and gender of respondent not significant in unadjusted (t = 1.65, p = 0.10) model, significant at a trend level in adjusted model (t = 1.95, p = 0.06).

* $p < 0.01$.

** $p < 0.05$.