

Relationship Between Specific Adverse Life Events and Psychiatric Disorders

Quyen Q. Tiet,^{1,3} Hector R. Bird,¹ Christina W. Hoven,¹ Robert Moore,¹ Ping Wu,¹ Judy Wicks,¹ Peter S. Jensen,¹ Sherryl Goodman,² and Patricia Cohen¹

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This study examines whether certain psychiatric disorders are associated more closely with adverse life events than other disorders are, and whether some adverse life events are associated with a specific group of disorders (e.g., depressive disorders), but not with other disorders (e.g., anxiety disorders). A probability sample of youth aged 9–17 at 4 sites is used ($N = 1,285$). Univariate and multivariate logistic regressions identify specific relationships between 25 adverse life events and 9 common child and adolescent psychiatric disorders, measured by the Diagnostic Interview Schedule for Children. Conduct Disorder, Oppositional Defiant Disorder, Major Depressive Disorder, and Dysthymia are significantly associated with many of the adverse life events examined, whereas Attention Deficit/Hyperactivity Disorder, Agoraphobia, and Social Phobia are related to very few. This study suggests that certain psychiatric disorders may be more closely associated with adverse life events than other psychiatric disorders are, and that some adverse life events seem to be related to specific types of disorders.

KEY WORDS: Adverse life events; psychopathology; epidemiology; children and adolescents; depressive disorders; disruptive disorders; anxiety disorders.

Studies have documented the relationship between adverse life events and psychiatric disorders in children and adolescents (e.g., Coddington, 1972a, 1972b; Goodyer, 1990). These studies focused on relationships between adverse life events and a number of conditions, such as depression (Dohrenwend, Shrout, Link, Skodol, & Stueve, 1995; Friedrich, Reams, & Jacobs, 1982), Conduct Disorder (CD), Oppositional Defiant Disorder (ODD), disruptive behaviors (Finkelhor, 1995; Green, Russo, Navratil, & Loeber, 1999; Hetherington & Jodle, 1994), substance use or abuse (Biafora, Warheit, Vega, & Gil, 1994; Brown, 1989; Duncan, 1977), suicidal behavior (de Wilde, Kienhorst, Diekstra, & Wolters, 1992; Spirito, Brown, Overholser, & Fritz, 1989), and anxiety (Goodyer & Altham, 1991). Many of these studies have relied on

clinical samples and few have been based on epidemiological samples.

Research on the relationship between adverse life events and psychiatric disorders has been extremely fruitful. However, studies have tended to approach the issue in two ways. One group of studies examined the relationship between a single type of adverse life event (e.g., maltreatment, parental marital problems) and a number of psychiatric disorders or symptoms. For example, experiences of loss and grief, such as death of a parent (e.g., Breier et al., 1988; Brown, 1998), have been associated with depressive disorders. Parental divorce (Ferri, 1984; Hetherington & Jodle, 1994; Zill, 1994), imprisonment of a parent (Lowenstein, 1986; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999), and being a victim of abuse or maltreatment (e.g., Finkelhor, 1995; Green et al., 1999; Widom, 1989; Wolfe, Zak, Wilson, & Jaffe, 1986) have been associated with both disruptive behaviors (CD and ODD) and depressive symptoms. However, few studies have found a relationship between such events and other psychiatric disorders.

The second group of studies has relied on composite measures of adverse life events (as noted by Jensen,

¹Columbia University, New York, and the New York State Psychiatric Institute, New York, New York.

²Emory University.

³Address all correspondence to Quyen Q. Tiet, Department of Veterans Affairs/Stanford University School of Medicine, VAPAHCS (152), 795 Willow Road, Menlo Park, CA 94025.

Richters, Ussery, Bloedau, & Davis, 1991; Johnson, 1986). These studies examined the relationship between psychiatric disorders and the *cumulative* effects of adverse life events, but not the effects of *specific* adverse life events. These studies have repeatedly found a relationship between cumulative effects of adverse life events and depressive disorders and disruptive behaviors, but, again, few studies have examined the relationship with other psychiatric disorders, such as social phobia (Brown, Juster, Heimberg, & Winning, 1998).

Notwithstanding the contributions of previous studies, two important questions have not been addressed directly. First, are some psychiatric disorders associated more closely with adverse life events than others are? Based on previous findings (as cited), there is evidence showing that depressive disorders, disruptive disorders (CD and ODD), and, to some extent, anxious disorders are reactive to life events, whereas phobias and Attention Deficit/Hyperactivity Disorder (ADHD) are not. Therefore, we hypothesized that depressive disorders (Major Depressive Disorder and Dysthymia) and disruptive disorders (CD and ODD) would be highly associated with many adverse life events. We also hypothesized that Social Phobia, Agoraphobia, and ADHD would not be associated with adverse life events. Second, are certain adverse life events associated with a specific group of psychiatric disorders (e.g., depressive disorders), but not with others? Also based on previous findings, we hypothesized that some life events are associated with a specific disorder or a specific group of psychiatric disorders. More precisely, experiences of loss and grief would be associated with depressive disorders; being a victim or witnessing violence would be associated with disruptive disorders (ODD and CD) and depressive disorders; parental separation, divorce, or remarriage would be associated with depressive disorders, disruptive disorders, and anxiety disorders.

Distinctions have been made on types of life events, including favorable versus adverse, chronic versus acute, or those that are controllable by the child versus those over which the child has little, or no control (see Gersten, Langner, Eisenberg, & Simcha-Fagan, 1977; Jensen et al., 1991; Masten et al., 1988). There are also adverse events that can be strongly correlated with other risk factors (e.g., parental divorce as an event and poor family functioning as a risk factor). To be consistent with a number of other investigations (e.g., Garnezy, Masten, & Tellegen, 1984; Luthar, 1991; Masten et al., 1988; Tiet et al., 1998), we examined only those life events that the child considered adverse. Furthermore, because the cumulative effects of adverse life events have been associated with psychiatric disorders (e.g., Bird, Gould, Yager, Staghezza, & Canino, 1989; Dohrenwend et al., 1995; Goodyer, 1990; Rutter,

1979), when the relationship between a specific adverse life event and psychiatric disorders was examined, we controlled for the cumulative effects of the remaining adverse life events. The measure of adverse life events in this study was based on Johnson's revision (Brand & Johnson, 1982; Johnson & McCutcheon, 1980) of a measure developed by Coddington (1972a, 1972b).

A caveat is in order: A number of adverse life events may overlap each other. Therefore, it is crucial to examine the extent to which they are associated. Furthermore, regardless of the extent to which they overlap empirically, a number of events can conceptually be grouped together. For example, parental separation and parental divorce are conceptually similar, and therefore may have similar effects on youth functioning, even when these two events are not highly correlated empirically.

Psychiatric disorders as well as adverse life events have been associated with a number of demographic factors, including age, gender, socioeconomic status, and ethnicity (e.g., Anderson, Williams, McGee, & Silva, 1987; Bird et al., 1988; Cohen et al., 1993; Dohrenwend et al., 1998; Holzer, Swanson, & Shea, 1995; Rutter, 1989). It is therefore critical to control for the effects of these factors when the relationship between adverse life events and psychopathology is examined. The moderating effect of gender on the relationship between adverse life events and psychiatric disorders has been found to be inconsistent (e.g., Luthar, Doernberger, & Zigler, 1993; Tiet et al., 1998). Some studies have found that the relationship between adversity and psychopathology is weaker in girls than in boys (being a female is a protective factor, e.g., Luthar et al., 1993; Masten et al., 1988; Rutter, 1979, 1990), but others report the opposite (e.g., Werner & Smith, 1992). We therefore examined the relationship between specific adverse life events and psychiatric disorders separately for boys and girls.

The relationship between adverse life events and psychiatric disorders may also interact with the age of the child. Because of the limit of statistical power (imposed by sample sizes, base rates of disorders and life events), it was not possible to test potential interaction effects between age and adverse life events, or between gender and adverse life events in this study. Nevertheless, the effect of age was statistically controlled in this study.

METHODS

Sample

Data were obtained from the NIMH Methods for the Epidemiology of Child and Adolescent Mental Disorders

(MECA) Study, a collaborative study conducted to develop methods for surveys of mental disorder and service utilization in population samples of children and adolescents. Details of the study design and sampling procedures were reported by Lahey et al. (1996). In brief, the sample was obtained at four geographic sites in Connecticut, Georgia, New York, and Puerto Rico. Probability samples of youth aged 9–17 residing in each of the four geographic areas were selected, and a total of 1,285 dyads of youth and their caretakers were interviewed. Children were evenly distributed across the age range at every site: each year of age contributed 10%–12% of the total sample at every site. Forty-seven percent of the MECA sample was female. Fifty-one percent was non-Hispanic white, 15% African American, 28% Latino, and 6% other.

Dependent Variables

DSM-III-R psychiatric disorders occurring in the past 6 months were ascertained through the NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3) (Shaffer et al., 1996). Previous studies have reported the prevalence of psychiatric disorders in children and adolescents (e.g., Cohen et al., 1993; Costello et al., 1988; Kashani et al., 1987; Shaffer et al., 1996) (for a review, see Bird, 1996). Based on the prevalence of disorders reported by previous studies, the current study examines the nine most common psychiatric disorders among children and adolescents, including ADHD, CD, ODD, Major Depressive Disorder (MDD), Dysthymia, Overanxious Disorder, Separation Anxiety Disorder, Agoraphobia, and Social Phobia. Following the methodology adopted by Bird, Gould, and Staghezza (1992) and Piacentini, Cohen, and Cohen (1992), a diagnostic criterion is considered to have been met if reported as present by *either* the parent *or* the child. It should be noted that parents and children are often known to disagree on the presence or absence of a symptom (Shaffer et al., 1996). In this study, the so-called "combined" or "and/or" rule was used at the diagnostic symptom level. A symptom was considered absent only if there were negative responses from both informants. Impairment criteria were not used in this study. For a detailed discussion of the DISC-2.3, see Shaffer et al. (1996).

Adverse Life Events

A modified 26-item Life Events Checklist (LEC; Brand & Johnson, 1982; Coddington, 1972a, 1972b; Johnson & McCutcheon, 1980) was administered to the

youth (Goodman et al., 1998). The LEC has acceptable validity and test-retest reliability (Brand & Johnson, 1982; Johnson & McCutcheon, 1980). Youth were asked to report whether each item on a list of life events had happened to them in the previous year and, if so, to categorize the event as a "mostly good" or "mostly bad" experience. Of the events included in this study, only those that the youth considered bad were counted as adverse events. One item was excluded because too few youth ($n = 5$) considered having a new brother or sister as an adverse life event. Subsequently, 25 adverse life events were examined. Two items (family member had drug/alcohol problem and family member had mental/emotional problem) are likely to be chronic conditions that might also be associated with the genetic basis of the psychopathology of the youth. Because questions about the occurrence of life events were asked with a "past year" time frame, these items were originally included in this measure to capture the stressors related to living with a family member who is mentally ill or abuses drugs or alcohol.

Covariates

In assessing the associations of each event, four covariates were controlled: age, socioeconomic status (SES), ethnicity, and the cumulative effect of the remaining adverse life events. Age was used as a continuous variable. SES was measured by Hollingshead's two-factor index of social position (Hollingshead, 1971; Hollingshead & Redlich, 1958). Ethnicity was orthogonally coded by three dummy variables for four ethnic groups (non-Hispanic White, Hispanic, African American, and other). Cumulative effect of the remaining adverse life events was calculated by subtracting the event that was being analyzed from the sum of all 24 adverse life events that were being examined.

Analyses

Frequencies of the adverse life events and prevalence of the psychiatric disorders were examined. Spearman correlations were computed to examine the correlations among adverse life events in order to rule out collinearity among the adverse life events examined.

Univariate logistic regression analyses were conducted to examine the relationship between each of the 25 adverse life events and nine common psychiatric disorders in children and adolescents. The numbers of diagnoses that were related to each of the life events were tallied, and the numbers of events that were related to each of the diagnoses were recorded. Multivariate logistic regressions were conducted separately for boys and girls while age,

ethnicity, SES, and the cumulative effect of the remaining adverse life events were controlled. To fully exploit the exploratory component of this study, we present all significant results at the .05 level without adjusting the alpha in order to avoid missing important trends.

RESULTS

Of the 300 correlations, many pairs of adverse life events were not statistically significant ($p > .05$), and the majority of the events were weakly related to each other ($r < .10$; data not shown). Pairs of adverse life events with a correlation of .3 or greater were parental separation and "one parent was away from home more" ($r = .33$); parental separation and parental divorce ($r = .51$); loss of a close friend and death of a close friend ($r = .47$); family member arrested and family member's drug/alcohol problem ($r = .30$); family member arrested and a parent going to jail ($r = .37$).

Table I shows frequencies of psychiatric disorders and adverse life events as well as the relationships between adverse life events and psychiatric disorders. Consistent with the prevalence reported by Shaffer et al. (1996), frequencies of the nine psychiatric disorders examined based on the full sample ($N = 1,285$) were as follows: ADHD ($n = 83$, 6.5%), CD ($n = 74$, 5.8%), ODD ($n = 91$, 7%), MDD ($n = 91$, 7%), Dysthymia ($n = 55$, 4.3%), Over-anxious Disorder ($n = 146$, 11.4%), Separation Anxiety Disorder ($n = 84$, 6.5%), Agoraphobia ($n = 84$, 6.5%), and Social Phobia ($n = 194$, 15.1%). This table also shows the frequencies of the adverse life events (events reported by youth as adverse). Death in the family ($n = 302$) had the highest frequency whereas parent getting a new job ($n = 14$) had the lowest frequency among the events examined. These frequencies reflected only those events that were considered adverse by the youth.

Four psychiatric disorders were significantly associated with the majority of the 25 adverse life events examined (Table I): CD (22 adverse life events), ODD (21), MDD (19), and Dysthymia (17). Over-anxious Disorder and Separation Anxiety Disorder were related to 11 and 8 events, respectively. Three disorders were related to only a few adverse life events: Agoraphobia (3), ADHD (3), and Social Phobia (1).

Some adverse life events were significantly associated with many psychiatric disorders whereas other adverse life events are related to only one or a few. For example, drug/alcohol problem of a family member was related to seven of the nine diagnoses examined. Starting a new school and increase in parental argument were related to six of the diagnoses. On the other hand, some adverse life events were more specific in their relation-

ship with psychiatric disorders. For example, parent getting a new job was associated with Separation Anxiety Disorder, and parental divorce was related to CD. Serious illness or injury of a family member was significantly associated with Over-anxious Disorder and Separation Anxiety Disorder; the child's serious sickness or injury was related to externalizing disorders (ADHD, CD, and ODD).

An odds ratio of approximately two has been identified as "strong" (e.g., Fleiss, Williams, & Dubro, 1986); therefore, this study considers any association with an odds ratio of four or above to be a very strong effect. Based on this criterion, 16 of the 25 events examined have a very strong association with one or more psychiatric disorders. For example, being a victim of crime, violence, or assault was related to a 12-fold increase in CD, and an eightfold increase in ODD. Increase in parental argument, and parental separation were associated with a fourfold increase in Dysthymia.

Multivariate Logistic Regression

Multivariate logistic regressions were conducted separately for boys and girls with age, ethnicity, SES and cumulative effect of the remaining adverse life events controlled. Being a victim of crime, violence, or assault was associated independently with disruptive behaviors (CD and ODD) in both boys and girls (see Table II). In boys, being a victim was independently associated with more than a twofold increase of ODD and approximately a fivefold increase of CD; in girls this event was related to an eightfold increase of CD and a 15-fold increase of ODD. A family move was associated with approximately a fourfold increase of ODD in both boys and girls; an arrest of someone in the family was related to approximately a threefold increase of CD in both boys and girls.

As shown in Table II, adverse life events have very different effects for boys and girls. For girls (see Table II), a drug or alcohol problem of a family member was related to five psychiatric disorders. Parental legal troubles and a parent going to jail were strongly related to CD, an increase of more than six and nine times, respectively. Death in the family was associated with Dysthymia; parental job loss was associated with MDD.

For boys (Table II), starting a new school was associated with six psychiatric disorders, four of which had more than a fourfold increase. Moving was related to more than a fivefold increase in MDD, and loss of a close friend was associated with a fourfold increase in MDD. A parent going to jail was related to a 13-fold increase in Dysthymia. Having a new stepparent was related to more than a tenfold increase in CD and Dysthymia; a brother or a sister

Table 1. Relationship (Unadjusted Odds Ratios) Between Each Adverse Life Event in the Past Year and Nine Common Psychiatric Disorders in the Past 6 Months in 1,285 Youth Aged 9–17

Adverse life events in the past year that youth endorsed as a negative experience	ADHD (<i>N</i> = 83) ^a	CD (<i>N</i> = 74)	ODD (<i>N</i> = 91)	MDD (<i>N</i> = 91)	Dysthymia (<i>N</i> = 55)	Separation			# of Dx related to event
						anxiety disorder (<i>N</i> = 84)	Overanxious disorder (<i>N</i> = 146)	Agoraphobia (<i>N</i> = 84)	
Seriously sick or injured (<i>N</i> = 123) ^b	2.3	1.9	2.2						3
Saw crime/accident (<i>N</i> = 219)	2.1	4.0	3.1	2.0		1.7			5
Victim of crime/violence/assault (<i>N</i> = 50)		12.2	8.3	3.2	3.4		2.5		5
Serious sickness/injury of close friend (<i>N</i> = 157)		3.1	2.0	2.2					3
Death of close friend (<i>N</i> = 83)		3.5	2.4	3.0			2.1		4
Breakup with boyfriend/girlfriend (<i>N</i> = 185)		2.9	1.9	3.3	3.4	2.4	2.8		6
Loss of a close friend (<i>N</i> = 188)		2.7	2.4	4.0	3.0		2.5		5
Started going to a new school (<i>N</i> = 29)	3.2	4.6	6.5	3.6	5.0	2.6	4.9		6
Family moved (<i>N</i> = 29)		4.6	7.6	4.4	4.4				4
Family member had drug/alcohol problem (<i>N</i> = 131)		2.9	2.2	3.9	4.4	2.8	2.2	1.9	7
Family member had mental/emotional problem (<i>N</i> = 80)		3.6		4.9	5.4		1.7		4
Family member was seriously ill/injured (<i>N</i> = 239)			1.6	2.0	2.0	1.6			2
Someone in family died (<i>N</i> = 302)		6.3	3.0	3.6	4.1	2.4			3
Someone in the family was arrested (<i>N</i> = 83)		2.8	2.2	2.2	2.9				5
Brother or sister left home (<i>N</i> = 67)		2.6	3.1	2.9	4.2	1.8	2.0		4
Parents argued more than previously (<i>N</i> = 106)		2.9	3.9	3.3	4.1	2.5			6
Parental separation (<i>N</i> = 42)		4.3							5
Parental divorce (<i>N</i> = 25)		4.6	5.4		6.4	4.4			1
Got new stepmother or stepfather (<i>N</i> = 14)		2.9	2.5		2.4	2.9			4
One parent was away from home more often (<i>N</i> = 88)		2.2	1.9	3.4	3.2		2.2		5
Mother/father figure lost job (<i>N</i> = 99)		2.4	2.1	2.9	4.0				4
Negative change in parent's financial situation (<i>N</i> = 143)									4
Parent got a new job (<i>N</i> = 14)		9.3	3.4	2.7	3.6		4.0		1
Parent got into trouble with the law (<i>N</i> = 30)		13.9	4.5	8.3	14.9	6.3			4
Parent went to jail (<i>N</i> = 16)		2.2	2.1	19	17	11	8	3	5
Number of events that are related to each diagnosis	3	22	21	19	17	11	8	3	1

Note. All reported odds ratios are significant ($p < .05$); (blank = not significant). Odds ratios of >4 are given in bold.

^aTotal number of youth that are positive on the disorder.

^bTotal number of youth both experiencing the event and considering it adverse.

Table II. Adjusted Odds Ratio Between Each Adverse Life Event in the Past Year and Nine Common Psychiatric Disorders in the Past 6 Months Among 604 Girls and 681 Boys Aged 9–17, With Cumulative Effect of the Remaining Adverse Life Events, Age, SES, and Ethnicity Controlled for

Adverse life events in the past year that youth endorsed as	ADHD		CD		ODD		MDD		Dysthymia		Overanxious disorder		Separation anxiety disorder		Agoraphobia		Social phobia		# of Dx related to event	
	Girl (29)	Boy (54)	Girl (19)	Boy (55)	Girl (35)	Boy (56)	Girl (54)	Boy (37)	Girl (31)	Boy (24)	Girl (80)	Boy (65)	Girl (35)	Boy (49)	Girl (47)	Boy (37)	Girl (105)	Boy (89)	Girl	Boy
Saw crime/accident (84 135)		1.9				2.2								2.5					0	3
Victim of crime/violence/assault (18 32)			8.2	4.9	14.9	2.6													2	2
Loss of a close friend (91 97)							4.0							2.3					0	2
Started going to a new school (14 15)		6.6			3.9	8.1	7.1							3.6		5.4		3.5	0	6
Family moved (16 13)							5.6												1	2
Breakup with boyfriend girlfriend (74 111)			2.9		3.0		2.3			2.2			3.0	2.4					5	1
Family member had drug/alcohol problem (66 65)							2.3		3.4	2.6					2.9		2.5		5	0
Family member had mental/emotional problem (42 38)							2.6						5.3						2	1
Someone in family died (154 148)								2.5											1	0
Someone in the family was arrested (36 47)			3.6	2.9						2.6									2	1
Brother or sister left home (35 32)										3.5									0	1
Parents argued more than previously (55 51)						2.6		3.4											1	1
Got new stepmother or stepfather (9 5)										12.7	4.5								1	2
One parent was away from home more often (48 40)												2.3							0	2
Mother/father figure lost job (51 48)																			1	0
Negative change in parent's financial situation (78 65)										2.9									0	1
Parent got into trouble with the law (11 19)																			1	0
Parent went to jail (11 5)			9.6					13.0	3.9										2	1
Number of events that are related to each diagnosis	0	2	5	5	3	5	4	3	3	4	5	1	2	4	1	2	1	1		

Note. All reported odds ratios are significant ($p < .05$); (blank = not significant). Odds ratios of ≥ 4 are given in bold. Adverse life events that are not associated with any psychiatric disorder for both boys and girls are not shown.

leaving home and negative change in the parent's financial situation were related to Dysthymia.

The covariates were also associated with psychiatric disorders. Age was related to Major Depressive Disorder in girls, and was related to CD and negatively associated with Agoraphobia and Social Phobia in boys. Lower SES was associated with ADHD in girls and Social Phobia in boys. Hispanic and black girls were less likely to be diagnosed with ADHD; Hispanic and black boys were less likely to be diagnosed with MDD and ODD in boys. The cumulative effects of other adverse life events were associated with almost all psychiatric disorders, except ADHD and Social Phobia in both boys and girls, and Agoraphobia in boys.

DISCUSSION

Strong associations existed between adverse life events and a number of psychiatric disorders. However, several limitations must be recognized in this investigation. Because of the cross-sectional nature of this study, causality cannot be inferred. Many of the events are likely to be a cause rather than the result of psychopathology (e.g., death of a relative and depressive disorders). On the other hand, a number of adverse life events might also be the result of certain psychopathology. For example, youth with CD are more likely to get involved with physically aggressive peers, and therefore would be more likely to witness crime or to have friends who were seriously injured. Moreover, it was impossible to rule out the possibility of an unmeasured factor that caused both life events and psychopathology in the youth. For example, an adverse social environment could increase the probability of a parent going to jail and increase the risk for CD in the youth. Longitudinal studies are therefore needed to evaluate the direction of the associations between specific life events and psychopathology in children and adolescents. Moreover, a number of the associations had wide confidence intervals, particularly for adverse life events or psychiatric disorders or both of these with low frequency. Finally, a few adverse life events seemed to covary (parent separation and parental divorce). Because their impacts are unlikely to be identical, analyses were conducted on each of these events separately; however, conducting separate analyses on related events might have increased Type I error. Therefore, it is essential to compare the results with future studies.

The findings (Tables I and II) suggest that psychiatric disorders cluster into groups, in their associations with adverse life events. The psychiatric disorders examined in this study seemed to cluster into four groups: depressive

disorders (MDD and Dysthymia), phobias (Social Phobia and Agoraphobia), anxiety disorders (Overanxious Disorder and Separation Disorder), and disruptive disorders (CD and ODD). ADHD did not appear to cluster into any group.

The results suggest that certain groups of psychiatric disorders are more closely associated with adverse life events than others are. Both disruptive disorders (CD and ODD) and depressive disorders (MDD and Dysthymia) were closely associated with a broad range of adverse life events (17 to 22 of the 25 adverse life events examined, Table I). On the other hand, ADHD and phobias (Social Phobia and Agoraphobia) were associated with few adverse life events (three or fewer of the events examined, Table I). These findings are similar to a large number of previous studies, which have reported that adverse life events (mostly based on composite measures) are associated with depression or depressive symptoms (e.g., Dohrenwend et al., 1995; Friedrich et al., 1982), and symptoms of CD and ODD (e.g., Ferri, 1984; Hetherington & Jodle, 1994; Moselhy, Vostanis, & Winkley, 1997; Zill, 1994); studies that have shown any relationship between adverse life events and phobias (e.g., Brown et al., 1998) or ADHD have been the exceptions rather than the rule.

As expected, depressive disorders are significantly associated with the experience of loss and grief (e.g., family member died, lost a friend, breakup with boyfriend/girlfriend). The association between loss and depression has been reported by a number of studies (e.g., Breier et al., 1988; Brown, 1998, Monroe, Rohde, Seeley, & Lewinsohn, 1999). The concept of loss covers not only a loss of a person, but also that of a role or a cherished idea (usually linked to one's self-worth, security, or meaning; Brown, 1998). In response to a loss, specific feelings of hopelessness or worthlessness are likely to occur; the person usually loses an important source of value or reinforcement, which may have been derived from a person, a role, or an idea (Brown & Harris, 1989). These feelings of hopelessness or worthlessness could lead to a full-blown clinical depression, albeit depending upon other variables of the person and the environment.

Consistent with previous findings (e.g., Finkelhor, 1995; Widom, 1989), the present study showed that being a victim of crime, violence, or assault was strongly related to CD and ODD in both boys and girls. The association between ODD and being a victim of crime, violence, or assault was, indeed, the strongest association between any adverse life event and any psychiatric disorder among girls, when a number of covariates were controlled (AOR = 14.9, Table II). Disruptive behaviors may lead children and adolescents to affiliate themselves with delinquent youth or to frequent dangerous neighborhoods; in turn,

they may have a higher chance of being a victim of violence and assault. However, adverse life events may also lead to disruptive behaviors in children and adolescents. Most studies of child victimization have focused on sexual abuse or assault; some studies have examined other types of victimization, such as physical abuse. Nevertheless, some researchers report that many symptoms seen in sexually abused children are not specific to sexual abuse but reflect more generalized responses to victimization and trauma (e.g., Finkelhor, 1995). Widom (1989) found that early childhood victimization significantly increased a person's risk for arrest during adolescence by more than 50% (26% vs. 17%). Children from violent homes showed more externalizing behavior problems than did a comparison group of children (Jaffe, Wolfe, Wilson, & Zak, 1986; Wolfe et al., 1986). Studies have also shown that maltreated or abused children may adopt highly aggressive modes of interpersonal relations (e.g., Friedrich, Beilke, & Urquiza, 1988). Explanations have been proposed for the mechanism of the relationship between victimization and antisocial behavior in children and adolescents. A number of trauma theorists posit that victimization may affect the victim's appraisal of their social interaction (e.g., distrustful or hostile worldview) and in turn may lead to their adopting more hostile modes of interpersonal relations (Rutter, 1988). Researchers also have increasingly come to believe that severe psychological trauma may have long-lasting effects on brain structure or chemistry (Eichelman, 1990; Lewis, 1992), that may in turn lead to aggressive behavior.

A parent being jailed, which also cooccurred with being arrested, was strongly associated with a number of psychiatric disorders, including CD and Dysthymia in boys, and CD and Overanxious Disorder in girls. There have been descriptive studies and anecdotal reports regarding the adjustment of children in reaction to the incarceration of their parent (only fathers in most studies; Gabel, 1992; National Coalition of State Juvenile Justice Advisory Groups, 1989). For example, Morris (1965) reported that 20% of children whose fathers were incarcerated deteriorated in their behavior, and that the mother attributed this deterioration to the father's imprisonment. Lowenstein (1986) studied reactions of children to paternal incarceration in a stratified random sample of 210 families of first-time offenders in Israel. She found that emotional and interactional problems were experienced in about 40% of the families, and behavior problems of the children were present in about 20% of the families. A number of factors have been proposed to explain psychiatric problems of children in reaction to incarceration of their parent: (1) separation from the incarcerated parent, (2) identification with the incarcerated parent, (3) social

stigma, and (4) deception of the child about the incarcerated parent's whereabouts or reason for the incarceration (Gabel, 1992).

A parent being arrested or jailed may be confounded with parental antisocial behavior. All major psychological theories of the origins of conduct problems in children suggest that parent and family functioning play critical etiological roles (e.g., Hetherington & Martin, 1986). A substantial body of evidence has also shown the correlations between several types of familial dysfunction and childhood conduct problems (e.g., Loeber & Stouthamer-Loeber, 1986; Patterson, 1986). Therefore, the impact of parental incarceration on youth functioning can possibly be conceptualized as both an adverse life event and the consequences of parental antisocial behaviors. It is not clear how much variance each of these two explanatory factors provides to account for psychiatric disorders in children and adolescents. Given the focus and design of the current study, these potential confounders are not separable. Studies with designs that are capable of differentiating these two factors would contribute immensely to our understanding of their impacts on youth with psychiatric disorders.

Getting a new stepparent had strong impact on CD and Dysthymia in boys and Overanxious Disorder in girls, and this relationship was specific. (In this study, "getting a new step-parent" was weakly associated with parental divorce or separation in the past year; parental divorce and parental separation did not share the same pattern with getting a new step-parent in the association with psychiatric disorders). Previous studies found that children who lived in step-families, compared with children growing up with two biological parents, were at higher risk of having problems in health, educational achievement, and adjustment, including both internalizing and externalizing problems (Dawson, 1991; Ferri, 1984; Hetherington & Jodle, 1994; Zill, 1994). A number of explanations have been proposed for the mental health problems of children living in step-parent families, including family conflict and the lack of coherence related to remarried families (Kurdek, Fine, & Sinclair, 1995; Sweeting, West, & Richards, in press). However, some evidence indicates that the crucial impact of divorce and remarriage on children may be felt through the experience of changes resulting from parental divorce or remarriage, rather than other associated familial variables (Capaldi & Patterson, 1991; Kurdek et al., 1995). Among 233 junior high school students, Kurdek et al. (1995) found that students with two or more parental divorces have significantly poorer school achievement and more disruptive behavior, even when a number of family and peer variables, such as age, gender, levels of parental supervision, and peer norms, were controlled for. Kurdek

et al. (1995) found no evidence of family or peer variables mediating the impact of multiple parental divorces in their study.

One of the most striking findings of this study was the strong association between school change and several psychiatric disorders in boys. Boys who started a new school had more than a threefold increase in Separation Anxiety Disorder and Social Phobia, and more than fivefold increase in ADHD, ODD, Depression, and Agoraphobia, even when controlling for age, SES, ethnicity, and the cumulative effects of other adverse life events. However, similar relationships were absent in girls. Adams and Adams (1991) examined the relation between starting a new school and depression among children and adolescents, in a sample of 135 tenth graders. They found that school change was associated with higher levels of depression. No study has examined gender differences in the impact that starting a new school has on other psychiatric disorders of children and adolescents.

Because of the lack of research on school changes that may impact boys and girls differently, it may be fruitful to rely on a related area of literature. Findings on gender differences in a school setting are informative. Studies on school setting and gender differences (e.g., Maccoby, 1986; Rigby, Cox, & Black, 1997) suggest that peer and school environments are harsher, more critical, and more competitive for boys than for girls. These differences make it more difficult for boys than for girls to adjust to a new school environment. Gender differences in school environments and peer relations have long been recognized (e.g., Maccoby, 1986). Male students may receive harsher punishment, sanctions, and more disapproval from teachers and guidance counselors for the same behaviors (however, they also receive more attention; Lueptow, 1984; Weitzman, 1979). Teachers controlled, criticized, and punished boys more often and more severely than they did their female peers (Stanworth, 1984), and they tended to punish boys physically while verbally chastising girls (Meighan, 1981).

An alternative explanation of the relationship between psychiatric disorders and starting a new school found among boys could also be the expulsion of boys, but not girls, as a result of their psychiatric disorders. Post hoc analyses were conducted to examine the relationship between school expulsion and moving, separately for boys and girls. The results were not statistically significant. Because our analyses were based on cross-sectional data and lifetime school expulsion data, the temporal relation between the event and the onset of the symptoms could not be established. Future longitudinal studies are necessary to examine whether this relationship is true, and, if so, to examine the mechanisms by which the boys who have

psychiatric disorders are more likely to be expelled than girls with similar psychiatric disorders.

A number of adverse life events examined seem to be related to one or two groups of psychiatric disorders. If the relationship between adverse life event and psychiatric disorder was not specific, adverse life events that were significantly associated with one disorder would also be related to the majority of the disorders examined; however, that is not the case. Most events examined were associated with only a few psychiatric disorders, rather than with most or all of the disorders examined. For example, being a victim of crime, violence, or assault is associated with disruptive behavior (ODD and CD) but not with other psychiatric disorders among both boys and girls; death in the family is related to Dysthymia in girls. Replications of these findings by future studies are needed, because no previous study with a similar design has examined the specificity of the relationship between adverse life events and psychiatric disorders.

This study has implications for prevention of and intervention in child and adolescent psychopathology. The findings suggest that clinical and preventive interventions may be helpful to children and adolescents who have experienced certain adverse life events. These adverse life events include being a victim of crime/violence/assault, moving, having a new step-parent, parent going to jail, parent getting into trouble with the law (particularly for girls), losing a friend (particularly for boys), and starting a new school (especially for boys).

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MH46718: Hector R. Bird, MD, David Shaffer, MD, Myrna Weissman, PhD, Patricia Cohen, PhD, Denise Kandel, PhD, Christina W. Hoven, DrPH, Mark Davies, MPH, Madelyn S. Gould, PhD, and Agnes Whitaker, MD; Yale University, New Haven, Connecticut, UOI
 MH46717: Mary Schwab-Stone, MD, Philip J. Leaf, PhD, Sarah Horwitz, PhD, and Judith H. Lichtman, MPH; University of Puerto Rico, San Juan, Puerto Rico, UOI
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