

Family Environment and Adult Attachment as Predictors of Psychopathology and Personality Dysfunction Among Inpatient Abuse Survivors

Shelley A. Riggs, PhD

University of North Texas

Gayla Sahl, PhD

Ellen Greenwald, MA

Heather Atkison, MA

Adrienne Paulson, MA

Texas Woman's University

Colin A. Ross, MD

Timberlawn Psychiatric Hospital

The current study explored the role of early family environment and adult attachment style in explaining long-term outcomes among child abuse survivors. Adult patients ($N = 80$) in a trauma treatment program were assessed for clinical diagnosis and administered a multiscale questionnaire. Hierarchical regression analyses were significant for dissociative identity disorder (DID), substance abuse, anxiety disorder, posttraumatic stress, somatization, and six personality disorder dimensions. Adult attachment styles were significant predictors of most outcome variables. Of particular note was the strong contribution of attachment avoidance to DID. Five family environment scales (Independence, Organization, Control, Conflict, Expressiveness) also contributed to various psychopathological outcomes. Evidence emerged supporting a mediating role for attachment style in the link between family independence and five personality disorder dimensions.

Keywords: child abuse; family environment; attachment style; psychopathology

A large body of evidence consistently indicates that adult survivors of physical, sexual, or psychological abuse in childhood are more likely than adults without a history of abuse to experience a wide range of psychological and personality dysfunction. Yet, not all abuse survivors suffer negative consequences, and those who do demonstrate a broad variety of clinical symptoms and personality disturbance. Significant heterogeneity within this population suggests that other factors, such as abuse characteristics and pathogenic early home environments, contribute to diverse developmental trajectories

following abuse experiences. The research of Alexander and her colleagues (1992, 1993; Alexander et al., 1998; Anderson & Alexander, 1996) suggests that adult attachment style may mediate the association of child abuse with later distress, thus accounting for some of the variability in outcomes. The current study extends past research to an inpatient population and is the first to explore the combined contributions of early family characteristics and adult attachment style to specific clinical syndromes and personality disturbance.

CHILDHOOD ABUSE, FAMILY BACKGROUND, AND ADULT OUTCOMES

A variety of negative long-term consequences of child abuse have been reported, including low self-esteem, interpersonal problems, and increased rates of depression, anxiety, substance abuse, somatization, and personality disorders (Jumper, 1995; Molnar, Buka, & Kessler, 2001; Mullen, Martin, Anderson, Romans, & Herbison, 1996; Polusny & Follette, 1995). Although mixed, there is growing evidence that different types of abuse are associated with specific symptomatology (Briere & Runtz, 1990; Engels, Moisan, & Harris, 1994; Molnar et al., 2001). Moreover, compared to single forms of abuse, compound trauma involving both sexual and physical abuse is specifically associated with depression, disordered eating, dissociation, posttraumatic stress symptoms, and psychiatric comorbidity (Krupnick et al., 2004; see Higgins & McCabe, 2001, for review).

Because protection is the primary biological and evolutionary function of family caregivers, childhood abuse may be especially traumatic when it occurs within the context of family attachment relationships (Allen, 2001; Bowlby, 1980). However, while some studies support the expectation that a closer family relationship to the perpetrator is associated with increased levels of maladjustment and symptomatology, other studies report no differences in outcome between survivors of intrafamilial or extrafamilial abuse (see Tyler, 2002, for review). The literature also indicates that parental psychopathology and parental substance abuse are associated with increased risk for later psychological difficulties (Benedict & Zautra, 1993; Trull, 2001; Yama, Tovey, Fogas, & Morris, 1995). These parental problems, in turn, increase the risk of dysfunctional family environments (Ellis & Zucker, 1997; Mullen et al., 1996) and may influence outcomes indirectly through associations with disturbed parent-child interactions and increased levels of conflict and disorganization within the family (Cummins & Davies, 1994; Rutter & Quinton, 1984).

Families with a history of physical or sexual abuse are generally characterized as less supportive, less organized, and more isolated. They may also demonstrate low levels of independence and high levels of control (Justice & Calvert, 1990; Moos & Moos, 2002). Low family cohesion and high conflict and/or control has been linked to depression, anxiety, and posttraumatic stress symptoms in college and community samples of child abuse survivors (Kamsner & McCabe, 2000; Myerson, Long, Miranda, & Marx, 2002; Yama, Tovey, & Fogas, 1993). In samples unselected for child abuse, dependent personality disorder was related to high levels of family control and low levels of expressiveness and independence; histrionic personality disorder was associated with low cohesion and high control (Baker, Capron, & Azorlosa, 1996; Head, Baker, & Williamson, 1991). High family conflict and disorganization may characterize the early family experiences of patients diagnosed with borderline personality disorder (Ludolph et al., 1990). Some researchers have suggested that family background factors are better predictors of psychological outcomes than abuse-specific variables (Higgins & McCabe, 2003; Mullen et al., 1996; Nash,

Hulsey, Sexton, Harralson, & Lambert, 1993); however, other research indicates no strong pattern of associations (Harter & Vanecek, 2000; Polusny & Follette, 1995). More research is needed to clarify the role of family environment in the development of specific Axis I and II disorders among adults with histories of childhood abuse.

ADULT ATTACHMENT

Although scarce, evidence is emerging to support theoretical links between adult attachment security and healthy early family environments (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998; Mikulincer & Florian, 1999; Pfaller, Kiselica, & Gerstein, 1998). Adult romantic attachment style is presumed to be an outgrowth of early attachment organization, and research has shown that adult attachment insecurity is related to memories of unavailable and nonsupportive parenting (Brennan & Shaver, 1998; Mickelson, Kessler, & Shaver, 1997). Researchers have described adult romantic attachment as comprising two polar dimensions of anxiety and avoidance (Brennan, Clark, & Shaver, 1998), which form four quadrants or categories of attachment. According to Bartholomew and Horowitz (1991), secure individuals show a balance between a healthy connection to others and self-reliance; they tend to have a positive self-image (low anxiety) and demonstrate trust and open communication in relationships (low avoidance). In contrast, preoccupied adults question their self-worth and fear abandonment (high anxiety), whereas dismissing-avoidant adults distrust others and minimize or shun interpersonal intimacy (high avoidance). Fearful-avoidant adults experience high levels of both attachment anxiety and avoidance, which may contribute to ongoing struggles regarding approach/avoidance behaviors in personal relationships (Simpson & Rholes, 2002), a conflict frequently observed in clinical work with abuse survivors.

Insecure models of attachment, while not synonymous with psychopathology, create a risk for the development of psychological problems. Preoccupied adult attachment style is characterized by hyperactivating strategies of coping and emotional regulation (Mikulincer & Shaver, 2003) and has been linked to low self-control and tolerance, interpersonal dependence/reliance, as well as histrionic, dependent, and borderline personality traits (Allen, Coyne, & Huntoon, 1998; Brennan & Shaver, 1998; Diehl et al., 1998; Onishi, Gjerde, & Block, 2001). In contrast, dismissing-avoidant attachment is characterized by deactivating strategies (Mikulincer & Shaver, 2003) and in nonclinical samples has been associated with substance abuse, somatization, and repressive tendencies (Mickelson et al., 1997; Mikulincer, Florian, & Weller, 1993; Onishi et al., 2001), with possible links suggested to dissociation and narcissistic, schizoid, antisocial, paranoid, and obsessive-compulsive personality traits (e.g., Blatt & Levy, 2003). Findings in nonclinical samples also have documented significant relationships between fearful-avoidant attachment and depression, somatic anxiety, substance abuse, dissociation, and paranoid, schizoid, schizotypal, avoidant, self-defeating, borderline, narcissistic, and obsessive-compulsive personality traits (Anderson & Alexander, 1996; Brennan & Shaver, 1998; Brennan, Shaver, & Tobey, 1991). Among inpatients, Allen et al. (1998) reported that high attachment anxiety and an inability to depend (i.e., fearful avoidance) were related to paranoid, schizotypal, and borderline personality.

Recently, researchers have become interested in the role of the attachment system in long-term outcomes of abuse survivors. Retrospective reports of maltreatment in childhood are linked to insecure romantic attachment among undergraduates (Gauthier, Stollak, Messe, & Aronoff, 1996; Roche, Runtz, & Hunter, 1999; Styron & Janoff-Bulman, 1997).

For example, Roche et al. (1999) reported that a negative model of other/attachment avoidance was related to depression and trauma symptomatology (e.g., defensive avoidance, dissociation). Negative view of self/attachment anxiety has been linked to symptoms of depression, anxiety, and traumatic stress in college and community samples (Muller, Lemieux, & Sicoli, 2001; Roche et al.). Among female incest victims, preoccupied attachment was associated with dependent personality traits, whereas fearful-avoidant attachment was associated with borderline and avoidant personality traits (Alexander, 1993; Alexander et al., 1998). Anderson and Alexander (1996) reported that fearful-avoidant attachment was related to high levels of dissociation and was much more likely to characterize a small subsample ($n = 8$) of women identified as having dissociative identity disorder (DID). Moreover, several researchers have reported recently that internal models of attachment can both mediate and moderate the impact of childhood abuse and long-term psychological outcomes, including dissociation, depression, and traumatic stress (Roche et al., 1999; Shapiro & Levendosky, 1999; Wekerle & Wolfe, 1998).

THE CURRENT STUDY

Although family systems and attachment theories clearly share similar concepts regarding development (Hill, Fonagy, Safier, & Sargent, 2003; Marvin & Stewart, 1990), little effort has been made to integrate these two bodies of literature, and systematic research exploring the interrelationships among family and attachment constructs is lacking. Further, the bulk of studies examining either of these constructs in relation to psychological outcomes among abuse survivors have used college or community samples (e.g., Anderson & Alexander, 1996; Muller et al., 2001; Roche et al., 1999), with rare exceptions using outpatient clinical samples (Gold, Hyman, & Andres-Hyman, 2004; Nash et al., 1993). However, college samples, and to a lesser extent community samples, generally show small effect sizes for the long-term consequences of child abuse and tend to report shorter, less violent, and less invasive abuse experiences than survivors in clinical samples (Jumper, 1995). The current study used a geographically diverse sample of inpatients admitted to a specialized treatment program for survivors of severe trauma. Because the sample was characterized by a wide range of Axis I and Axis II psychopathology, it was possible to explore the relative contributions of family environment and adult attachment style in the prediction of specific types of disorders and personality dysfunction, beyond what is accounted for by multitype abuse, parental psychopathology, and parental substance abuse. Notably, due to the nature of the trauma program, a high number of participants were diagnosed with DID, which offered a unique opportunity to study a disorder thought to originate in the context of extreme child abuse but rarely seen in practice. A second goal of the study was to address the suggestion that adult romantic attachment style mediates the association between early family experiences and later outcomes among child abuse survivors.

Six family environment qualities were examined: five identified by Reichertz and Frankel (1990) as characteristic of conflicted families (i.e., high conflict and high control, as well as low cohesion, expressiveness, and independence), and a sixth scale (low organization) reported to be associated with a history of child sexual abuse (Moos & Moos, 2002). Although research examining early family environment and adult romantic attachment in relation to specific psychological disorders among trauma survivors is relatively scarce, based on the existing theory and literature previously reviewed, two general hypotheses were tested. First, we expected family environment and adult attachment style to explain

a significant amount of variance in the full regression models for psychopathology outcomes, beyond what can be accounted for by multitype or intrafamilial abuse, and parent mental disorder or substance abuse. Second, we predicted that romantic attachment style would mediate the relationship between some family environment variables (e.g., cohesion and independence, which seem to best represent the polar dimensions of attachment and self-reliance) and psychopathology. More specific hypotheses included:

1. Nonoptimal family environments (i.e., high levels of conflict and control; low levels of cohesion, expressiveness, independence, and organization) will predict greater psychopathology. For example: (a) Low cohesion and high conflict or control will predict depression, anxiety, and posttraumatic stress symptoms, (b) dependent personality will be related to high family control, and low expressiveness and independence, and (c) borderline personality will be related to high family conflict and low organization.
2. Adult attachment style will predict diagnostic category and personality dimensions. Specifically: (a) Attachment anxiety will predict bipolar, anxiety, and dependent personality disorders, (b) attachment avoidance will predict substance abuse, DID, somatoform disorder, and schizoid, antisocial, and compulsive personality, and (c) high attachment anxiety and high attachment avoidance will predict major depression and posttraumatic stress disorder (PTSD), and avoidant, borderline, schizotypal, and paranoid personality, but pathologically low levels of histrionic and narcissistic personality representing low sociability and low self-esteem (Millon, Davis, & Millon, 1997).

METHOD

Sample

Participants were 80 patients (74 females, 6 males) with a mean age of 36.56 (range = 18 to 66) recruited over a 7-month period from a specialized hospital treatment program for trauma-related disorders. Patients were excluded from the study if they were psychotic, did not speak fluent English, or were judged to be too unstable by the attending physician. Ethnicity was predominantly White (81.3%; $n = 65$), but also included 3 Hispanics, 3 Native Americans, 1 African American, 1 Asian American, 5 multiracial backgrounds, and 2 reporting "other" ethnicity. Educational attainment was fairly high, with 43.8% of participants reporting a college degree, 47.5% some college or technical school, and 8.8% a high school degree or less. Marital status was fairly evenly distributed among single (38.8%), married (33.8%), and divorced (27.5%) individuals. Similarly, participants reported varied annual family income, with 22.5% reporting below \$15,000, 21.3% reporting \$15,000–\$30,000, 16.3% reporting \$30,000–\$45,000, 16.3% reporting \$45,000–\$75,000, and 22.5% reporting more than \$75,000. About two thirds (66.3%) of the participants claimed heterosexual orientation, 20% claimed bisexual orientation, and 7.5% claimed gay/lesbian sexual orientation.

Procedure

All procedures were reviewed and approved by the hospital staff and medical director, as well as the Institutional Review Board of the Principal Investigator's educational institution. Prior to recruitment during hospital intake interviews, patients were independently

assessed by their attending physicians to determine a diagnosis according to the *Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition-Text Revision (DSM-IV-TR;* American Psychiatric Association [APA], 2000) and to determine their appropriateness for participation in the study based on clinical status. Eligible patients interested in participating scheduled an appointment with a research assistant. After the study was explained in depth, the patient signed a consent form and a release of information form for diagnostic records. Doctoral-level counseling psychology students provided specific verbal and written instructions as they individually administered study instruments. Questionnaires were completed that day if possible, or returned within 48 hours, at which time participants could ask questions or discuss any concerns about the study.

Instruments

A background questionnaire was developed to assess age, ethnicity, income, marital status, education level, employment status, and sexual orientation. Participants also responded yes/no to items regarding family history of psychological difficulties (i.e., alcoholism, drug abuse, suicide attempt, psychiatric hospitalization, diagnosed mental disorder); for each “yes” response, participants identified the relevant family member and specific disorder. In addition, five self-report instruments measured family environment, adult attachment style, and psychopathological symptoms.

Experiences in Close Relationships Scale (ECR; Brennan et al., 1998). The ECR is the latest benchmark self-report measuring adult romantic attachment style. Using a large number of items chosen from existing measures, the authors identified two major factors. Based on the highest absolute-value correlations with one of the two major factors, a 36-item instrument was created with two 18-item scales: attachment anxiety and attachment avoidance. Each item is rated on a 7-point Likert scale ranging from “*not at all like me*” to “*very much like me.*” The scales were almost uncorrelated ($r = .11$) and demonstrated coefficient alphas above .90. Item-total correlations ranged from .50 to .73. Crowell, Fraley, and Shaver (1999) reported that the two scales demonstrated internal consistency and test-retest reliability and had high construct, predictive, and discriminant validity.

Family Environment Scale (FES; Moos & Moos, 2002). The FES is a self-report measure consisting of 90 true/false items designed to assess early family environment. The FES has been used extensively with college, community, and clinical populations, with norms for both normal and distressed families. Of the 10 subscales, the current study used the Cohesion (mutual commitment, support), Expressiveness (encouragement of emotional expression), Conflict (open anger/conflict), Independence (assertiveness, self-sufficiency, independent decision-making), Organization (structured activities, responsibilities), and Control (set rules, procedures) scales. Content and construct validity, test-retest reliability, and good item total correlations have been reported. Cronbach’s alphas range from .61 to .82. Standard scores below 40 are generally considered low, and scores above 60 are considered elevated.

Millon Multiaxial Clinical Inventory-III (MCMI-III; Millon, 1994). The MCMI-III is the latest revision of the MCMI, a widely used 175-item, true/false instrument designed to assess both personality disorders and symptom syndromes in clinical populations. The 22 scales are based on Millon’s (1990; Millon & Davis, 1996; Millon, Davis, Millon, Escovar, & Meagher, 2000) evolutionary theory of personality and psychopathology, as well as *DSM-IV* (APA, 1994) diagnostic criteria. The present study used 10 personality disorder scales (Schizoid, Avoidant, Dependent, Histrionic, Narcissistic, Antisocial, Compulsive, Schizotypal, Borderline, Paranoid) and 8 clinical syndrome scales (Anxiety,

Somatiform, Bipolar/Manic, Dysthymia, Alcohol Dependence, Drug Dependence, Post-traumatic Stress, Major Depression). Raw scores were transformed into base rate (BR) scores to allow comparison to a normative group of patients and to reflect the nonnormal distribution and actual prevalence of the disorder among patient populations. A BR score of 85 or above indicates the prominence or likely presence of a particular disorder (Millon et al., 1997). Extensive research supports the validity and reliability of earlier versions of the MCMI (Choca & Van Denburg, 1997; Craig, 1993). Internal consistency for the clinical scales ranged from .66 to .90, and test-retest reliabilities ranged from .82 to .96. Answer forms were mailed to the publisher for computer scoring. Because missing data constituted a low proportion (10%), mean substitution was used to replace missing values to maximize power for MCMI analyses.

Dissociative Experiences Survey (DES; Bernstein & Putnam, 1986). The DES is a 28-item self-report designed to measure the frequency of dissociative experiences in clinical populations. Using 10% increments ranging from 0% (never) to 100% (always), respondents circle the degree to which a particular experience applies. The DES has demonstrated good validity and reliability, and good overall psychometric properties (Carlson & Putnam, 1993; Carlson et al., 1993; van IJzendoorn & Schuengel, 1996), especially in the ability to discriminate DID from other diagnostic groups. Carlson et al. (1993) reported that a cutoff score of 30 optimally maximized the accuracy of predicting a DID diagnosis.

Dissociative Disorders Interview Schedule (DDIS; Ross et al., 1989). The DDIS is a 131-item structured interview that assesses the presence of *DSM-IV* (APA, 1994) disorders, including somatization disorder, major depressive disorder, borderline personality disorder, and five dissociative disorders. The interview also includes questions pertaining to details of childhood abuse (e.g., type, severity, onset, duration, frequency, perpetrators), substance abuse, schizophrenia, extrasensory/paranormal experiences, and general psychiatric history. The DDIS showed excellent diagnostic concordance for DID and dissociative disorder not otherwise specified (DDNOS) with the DES-T ($\kappa = .81$), SCID-D ($\kappa = .74$), and clinician diagnosis based on clinical interview ($\kappa = .71$) (Ross, Duffy, & Ellason, 2002). For this study, a self-report version was administered.

RESULTS

Preliminary Analyses

Descriptive statistics for MCMI-III, DES, and FES scales are presented in Table 1. MCMI descriptive data are comparable to similar samples reported in the literature (Allen et al., 1998; Ellason, Ross, & Fuch, 1995). Although MCMI debasement and disclosure scale elevations may be indicative of "faking bad," these scale elevations in an inpatient psychiatric sample are more likely to indicate severe emotional distress and psychopathology (Allen et al., 1998; Wetzler & Marlowe, 1990). The DES mean score of 36 is higher than the cutoff score of 30 for identifying severely dissociative features and comparable to previously reported DES means for PTSD and DID/DDNOS populations (Bernstein & Putnam, 1986; Carlson et al., 1993; Coons, Bowman, Pellow, & Schneider, 1989; Frischholz et al., 1990; Ross et al., 1989). FES descriptive data show that this sample was generally characterized by high levels of conflict and control and low levels of cohesion, expressiveness, and independence. These findings reflect the expected profile of conflicted families (Reichertz Frankel, 1990) and families characterized by physical and/or sexual abuse (Justice & Calvert, 1990).

TABLE 1. Descriptive Statistics for MCMI-III, DES, and FES

Scale	<i>M</i>	<i>SD</i>	% Clinically Significant	
MCMI personality dimensions				
Schizoid	72.93	17.52	22.5	
Avoidant	73.98	21.76	33.8	
Dependent	75.90	20.76	37.5	
Histrionic	26.33	23.64	1.3	
Narcissistic	35.25	25.29	3.8	
Antisocial	55.05	15.82	2.5	
Compulsive	50.50	17.64	1.3	
Schizotypal	65.71	14.64	10.0	
Borderline	73.05	14.48	22.5	
Paranoid	61.19	17.53	6.3	
MCMI syndromes				
Anxiety	89.11	15.15	68.8	
Somatoform	71.86	19.87	23.8	
Bipolar	57.85	20.91	11.3	
Dysthymia	84.42	19.82	45.8	
Alcohol abuse	57.55	14.44	1.3	
Drug abuse	53.40	21.49	6.3	
PTSD	81.33	17.10	33.8	
Major depression	95.08	22.23	80.0	
<hr/>				
DES score	36.19	19.97	56.3	
<hr/>				
FES scales			<40	>60
Cohesion	21.32	15.28	90.0	3.8
Expressiveness	27.23	10.98	86.3	0.0
Conflict	65.23	12.54	13.8	75.0
Independence	31.69	19.98	70.0	7.6
Organization	49.78	13.16	23.8	20.0
Control	64.67	12.11	5.0	65.0

Note. Clinical significance for MCMI > 85. Clinical significance for DES > 30; for FES, low < 40 or high > 60.

To increase diagnostic certainty, the assignment of clinical diagnoses considered several sources of information, including clinician diagnosis, MCMI-III scale scores 85 or greater, DDIS indices, and a DES cutoff score of 30 or greater. To receive a particular diagnosis, two or more data sources were required to indicate the presence of each disorder. For example, the participant was assigned a DID diagnosis if the clinician's diagnosis was DID and either the DDIS or DES score (>30) supported this diagnosis. Using this multisource method, 87.5% of participants were diagnosed with depression, 17.5% with bipolar disorder, 48.8% with any anxiety-related disorder other than PTSD, 8.8% with somatoform disorder, 13.8% with PTSD, 16.3% with substance abuse, 55% with DID, and 21.3% with borderline personality disorder. The mean number of comorbid diagnoses was 3.09 (*SD* = 1.43). Of the 10 *DSM-IV-TR* personality disorders, only borderline personality disorder (BPD) could be assessed using the criteria of two or more instruments, so subsequent

analyses utilized MCMI personality dimensions to operationalize the other nine *DSM-IV-TR* personality disorders (the borderline personality scale was not considered separately from its contribution to the diagnostic category). In addition, to offset the inability to run analyses with PTSD and somatoform diagnostic categories due to low frequencies, these MCMI syndrome scales were added as outcome variables.

The sample was characterized by extreme traumatic experiences and parental dysfunction. Parental psychopathology (e.g., depression, anxiety) was reported by 37% of the participants and parental alcohol and/or drug abuse was reported by 55%. Over 91% of the sample reported a history of child sexual abuse, with 75% reporting both sexual and physical abuse, and 7.5% reporting neither sexual nor physical abuse but a significant degree of psychological abuse (e.g., harsh rejection) or neglect by caregivers. Of those reporting sexual abuse, 66% ($n = 48$) indicated the perpetrator was in the immediate family (i.e., parent, stepparent, or sibling) and 24% reported one perpetrator, 28% reported two, and 47% reported three or more perpetrators. Types of sexual abuse ranged from intercourse with penetration (78%), oral sex (73%), anal sex (44%), to pornographic photography/film (31%). Chronic sexual abuse was the norm with only 11% reporting fewer than 6 separate incidents and 58% reporting more than 50 separate incidents before the age of 18.

To assess the need to control for variables previously linked to adult outcomes, dummy variables were created for reported history of parent mental disorder, parent substance abuse, intrafamilial abuse, and multitype (vs. single type) abuse. Pearson chi-square tests compared each dummy variable with each diagnostic category. With the Bonferroni correction rate established at .008, results were significant for multitype abuse and DID, $\chi^2(1, 79) = 8.75, p < .003$, as well as anxiety disorder, $\chi^2(1, 79) = 8.02, p < .005$. DID was also marginally significantly associated with reported parent substance abuse, $\chi^2(1, 79) = 5.28, p < .02$. Next, multivariate analyses of variance (MANOVAs) were conducted to assess the relationship between these dummy variables and MCMI-III scales representing nine *DSM-IV-TR* personality disorders. Because MANOVAs control for the possibility of inflated overall type I error rate and also incorporate correlations among variables into the test statistic (Stevens, 1996), it was determined that a .05 alpha was sufficient to determine significance. Wilks's Lambda multivariate tests showed significant associations for parental substance abuse, $F(1, 79) = 2.26, p < .03$, and multitype abuse, $F(1, 79) = 2.43, p < .02$, and a marginal association with parental psychopathology, $F(1, 80) = 1.90, p < .06$, but not intrafamilial abuse, $F(1, 73) = .90, p < .54$. Similar findings emerged for the posthoc MANOVA with the two MCMI Axis I syndromes (i.e., PTSD, somatoform). As a result of these findings, intrafamilial abuse was dropped from consideration, but parental psychopathology, parental substance abuse, and/or multitype abuse where significant were included in the full regression analyses.

Analyses to determine if age, gender, or ethnicity were related to key variables were nonsignificant. However, higher income was associated with MCMI-III Antisocial, $F(2, 78) = 5.57, p < .005$, and Borderline, $F(2, 78) = 3.04, p < .05$, scales. In addition, divorced participants reported higher attachment anxiety than single participants, $F(2, 79) = 3.06, p < .05$, and college graduates reported higher attachment avoidance than participants with less than a high school education, $F(2, 79) = 4.30, p < .02$.

Multiple Regressions

As part of the determination for mediation (Baron & Kenny, 1986), three sets of initial simultaneous regressions were run to establish simple direct associations among family

environment, attachment style, and psychopathology outcome variables. Results of the initial regressions indicated that mediation effects of attachment anxiety and avoidance could be tested for only associations between FES Independence and five personality dimensions (schizoid, avoidant, dependent, histrionic, narcissistic). Subsequently, dummy variables and any predictors associated with outcome variables in preliminary analyses were included in the full regression models to test the primary hypothesis that family environment and adult attachment significantly contribute to the prediction of five diagnostic categories (bipolar, anxiety, substance abuse, DID, and BPD) and 10 MCMI-III scales (schizoid, avoidant, dependent, histrionic, narcissistic, compulsive, schizotypal, paranoid, somatoform, PTSD). Dummy variables were entered in the first block, followed by FES scale(s) in the second block and adult attachment style scale(s) in the third and last step of the model. To protect against the possibility of Type I error in the full regression models, a more conservative .001 alpha level was used for the model chi-square or final F value, though subsequent interpretation of betas and t -values used the standard .05 significance level. Tolerance and variance inflation factor (VIF) values indicated that multicollinearity was not a problem in this sample. Results of all full regressions are presented in Tables 2 and 3, but only those meeting the .001 level are reported and discussed in text to highlight important findings.

As shown in Table 2, three of the full logistic regression models were significant at the .001 level or better (DID, substance abuse, anxiety), and three were only marginally significant at the .01 or .05 levels (depression, bipolar, BPD). As predicted, attachment avoidance significantly contributed to DID, raising the odds of this diagnosis by about 84%. Similarly, higher family control significantly increased the odds of a DID diagnosis by a factor of 1.08. Although multitype abuse significantly predicted DID in the first step (OR = .17, 95% CI = .05–.61, $p < .006$) and maintained significance in the second step after adding family control (OR = .20, 95% CI = .05–.75, $p < .02$), it was not a significant contributor to DID in the final model, which accounted for 43% of the variance according to the Nagelkerke R^2 .

Attachment anxiety significantly increased the odds of a substance abuse diagnosis by a factor of 2.66, and the full regression model accounted for 37% of the variance. Although family expressiveness was initially a significant predictor of substance abuse (OR = 1.06, 95% CI = 1.00–1.12, $p < .04$), it dropped to nonsignificance when attachment anxiety was added. In contrast, family organization went from a trend in the first step (OR = .96, 95% CI = .91–1.00, $p < .06$) to significance in the final model, indicating that higher family organization decreased the odds of a substance abuse diagnosis. Contrary to predictions, attachment anxiety was not associated with anxiety disorder; however, multitype abuse and family control significantly decreased the odds of an anxiety diagnosis in a full model accounting for 22% of the variance.

The full regression models for most MCMI-III scales were significant, except for two personality dimensions (compulsive, paranoid) that did not reach the .001 significance level (see Table 3). All independent variables significantly contributed to the prediction of schizoid personality when first entered into the equation; however, in the final model only the contributions of parent substance abuse and attachment avoidance remained significant, together accounting for 26% of the variance. Although higher levels of FES independence were associated with fewer schizoid personality traits in the second step, its unique contribution dropped to nonsignificance after attachment avoidance was included. Likewise, all predictor variables significantly contributed to MCMI avoidant personality score initially, but only parent substance abuse and both attachment scales remained significant, explaining 30% of the variance. Similarly, for histrionic and narcissistic personality

TABLE 2. Full Logistic Regression Models for Diagnostic Categories

Criterion	Step/Predictors	Block/Model χ^2	Nagelkerke R^2	Wald Test	Final OR	95% CI
DID <i>N</i> = 78	1. Multitype abuse	13.42***	.21	2.71 [†]	.31	.08–1.25
	Parent substance abuse			2.59	.40	.13–1.22
	2. FES control	10.30***	.35	8.30**	1.08	1.02–1.13
Substance abuse <i>N</i> = 80	3. ECR avoidance	6.68**	.43	6.04*	1.84	1.13–3.00
	Full model	30.39***				
	1. FES expressiveness	8.74**	.18	1.79	1.04	.98–1.10
Anxiety <i>N</i> = 79	FES organization			4.57*	.94	.89–.99
	2. ECR anxiety	11.18***	.37	8.01**	2.66	1.35–5.24
	Full model	19.91***				
Major depression <i>N</i> = 80	1. Multitype abuse	8.45**	.13	9.27**	.12	.03–.47
	2. FES control	5.80*	.22	5.05*	.95	.91–.99
	Full model	14.25***				
Bipolar <i>N</i> = 80	1. ECR avoidance	5.82*	.13	5.21*	1.93	1.10–3.41
	1. FES conflict	2.16	.04	3.02 [†]	.96	.91–1.01
Borderline personality disorder <i>N</i> = 80	2. ECR anxiety	8.30**	.20	6.55**	2.13	1.19–3.80
	Full model	10.46**				
	1. FES organization	3.41 [†]	.06	3.97*	.96	.92–1.0
	2. ECR anxiety	3.60 [†]	.13	3.37 [†]	1.51	.97–2.35
	Full model	7.01*				

Note. OR = odds ratio; CI = confidence interval.

[†]*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

TABLE 3. Full Regression Models for MCMI-III Personality and Syndrome Scales

Criterion	Step/Predictors	df	Adj R ²	F	Initial β	Final β
Schizoid	1. Multitype abuse	3, 74	.16	5.91***	.26*	.13
	Parent substance abuse				-.21*	-.23*
	Parent mental disorder				-.28**	-.19†
Avoidant	2. FES independence	4, 73	.19	5.62***	-.22*	-.16
	3. ECR avoidance	5, 72	.26	6.47***	-.31**	.31**
Dependent	1. Parent substance abuse	2, 78	.11	5.79**	-.24*	-.28**
	Parent mental disorder				-.30**	-.13
	2. FES independence	3, 75	.19	7.15***	-.31**	-.19†
	3. ECR avoidance	5, 73	.30	7.74***	-.34**	.34**
	ECR anxiety				-.26**	.26**
Histrionic	1. Parent substance abuse	2, 76	.05	2.90†	-.13	-.16
	Parent mental disorder				-.25*	-.16
	2. FES independence	5, 73	.20	4.92***	-.35**	-.26*
	FES conflict				-.25*	-.26**
	FES organization				-.22*	-.26**
	3. ECR avoidance	7, 71	.27	5.21***	.18†	.18†
Narcissistic	ECR anxiety				.30**	.30**
	1. Multitype abuse	3, 74	.15	5.69***	-.28*	-.16
	Parent substance abuse				.18†	.20*
	Parent mental disorder				.26*	.14
Schizotypal	2. FES independence	4, 73	.22	6.46***	.29**	.20†
	3. ECR avoidance	6, 71	.30	6.42***	-.28**	-.28**
	ECR anxiety				-.24*	-.24*
Borderline	1. Multitype abuse	3, 74	.09	3.59*	-.28*	-.13
	Parent substance abuse				.04	.05
Antisocial	Parent mental disorder				.18	.04

Compulsive	2. FES independence	4, 73	.15	4.48**	.28**	.17
	3. ECR avoidance	6, 71	.27	5.69***	-.37**	-.37**
	ECR anxiety				-.24*	-.24*
Compulsive	1. FES independence	1, 78	.03	3.84*	.22*	.17
	2. ECR anxiety	2, 77	.10	5.40**	-.28**	-.28**
Schizotypal	1. Multitype abuse	2, 75	.09	4.87**	.32**	.25*
	Parent substance abuse				.07	.09
	2. FES expressiveness	3, 74	.16	5.84***	-.28**	-.29**
Schizotypal	3. ECR avoidance	5, 72	.21	5.00***	.07	.07
	ECR anxiety				.26**	.26**
Paranoid	1. Multitype abuse	2, 78	.09	4.74**	.22*	.13
	Parent mental disorder				-.21†	-.13
	2. FES conflict	3, 75	.11	4.19**	.19†	.17
Paranoid	3. ECR avoidance	5, 73	.16	3.99**	.20†	.20†
	ECR anxiety				.23*	.23*
Somatoform	1. Multitype abuse	3, 74	.16	6.06***	.27**	.18
	Parent substance abuse				-.29**	-.29**
	Parent mental disorder				-.23*	-.16
Somatoform	2. ECR avoidance	4, 73	.23	6.71***	.30**	.30**
	1. Multitype abuse	1, 77	.15	17.87***	.40***	.28**
PTSD	2. FES independence	2, 76	.17	9.05***	-.18†	-.08
	3. ECR avoidance	4, 74	.26	7.82***	.31**	.31**
PTSD	ECR anxiety				.22*	.22*

Note. The "Initial β " column represents the standardized beta weight value and t significance levels for predictors when first entered into the equation. "Final β " indicates the standardized beta weight value and t significance levels for predictors in the final step of the model.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

dimensions, FES independence was no longer a significant contributor after adding the two ECR scales, which together accounted for an additional 8% and 12% of the variance, respectively. Patients reporting high levels of attachment anxiety and avoidance endorsed fewer histrionic and narcissistic traits. Given results of initial regressions, these findings suggest that attachment style fully mediates the relationship between family independence and MCMI schizoid, avoidant, histrionic, and narcissistic personality scales, after accounting for multitype abuse, parent mental illness and parent substance abuse.

However, FES scales remained significant in the final regression models for the MCMI dependent and schizotypal personality scales. The dependent personality dimension was significantly and negatively related to the FES independence, conflict and organization scales in the second step, which accounted for 20% of the variance. In the final step of the full model, higher ECR anxiety scores explained an additional 7% of the variance. For schizotypal personality, the final regression indicated that high schizotypal scores were significantly associated with low levels of FES expressiveness, more multitype abuse, and high levels of attachment anxiety, with the full model explaining 21% of the variance.

In contrast to the previous findings, FES variables did not demonstrate unique contributions to the prediction of MCMI somatoform, or PTSD scales. The somatoform scale was significantly associated with parent substance abuse and attachment avoidance, which together explained 23% of the variance. In addition, both ECR scales, along with multitype abuse, significantly predicted the PTSD syndrome scale, with the final model accounting for 26% of the variance.

DISCUSSION

Results of the present study generally support the view that early family environment and adult attachment style contribute to psychological outcomes among adult trauma survivors beyond what can be explained by multitype abuse, parent mental disorder, and parent substance abuse. In addition, evidence emerged that bolstered the suggestion that adult attachment style mediates the relationship between some types of early family environments and later psychopathology. After briefly addressing results related to the control variables, significant findings ($< .001$) for the full regression models predicting diagnostic categories and MCMI-III scales will be discussed.

Control Variables

Preliminary analyses indicated that multitype abuse, parent mental disorder, and parent substance abuse were rarely associated with diagnostic category and frequently were reduced to nonsignificance in the final regression models for MCMI-III scales. For example, parent mental disorder significantly predicted the criterion in the first two steps of five regression analyses (schizoid, avoidant, dependent, histrionic, somatoform), but in each case it dropped to nonsignificance after the attachment scales were added in the final step. Similarly, multitype abuse dropped to nonsignificance in four of six regressions, retaining significance only for schizotypal personality and PTSD. These results suggest that multitype abuse and parent mental disorder often influence personality functioning only indirectly through associations with adult attachment style.

Similarly, parent substance abuse was not related to a participant diagnosis of substance abuse as expected. This finding may be due to sample characteristics. Specifically,

although not screened for substance abuse, participants were drawn from a specialized trauma treatment program rather than a substance abuse program. It is possible that the more severe cases of substance abuse showing the typical intergenerational pattern might have been referred to a program specifically targeting chemical dependency. In addition, the current sample contained a preponderance of women, who generally are less likely than men to abuse substances (APA, 2000). In contrast, current findings imply that parent substance abuse has a direct impact on some personality dimensions, independent of family environment or attachment style. However, counter to hypotheses and previous suggestions (Cummings & Davies, 1994; Rutter & Quinton, 1984), participants reporting parent substance abuse and/or mental disorder scored lower than those without such a history on the schizoid, avoidant, and somatoform scales and higher on the histrionic scale. According to Jacob and Leonard (1994), social learning theory would predict that children are most likely to model parent behaviors, such as alcohol abuse, when they admire, respect, or identify with the parent in some way. In this trauma sample where parent-child relations were marked by extreme parental abuse or neglect, the optimal conditions that promote parental modeling may not be present (e.g., Johnson & Pandina, 1991; Russell, 1990; Stein, Burden, & Nyamathi, 2002). Although there are clearly cases when adults do not admire parents and still unconsciously exhibit the same behaviors, it is plausible that some survivors might attribute abusive or neglectful behavior by parents to a mental illness or chemical dependency that is beyond parents' control. As a result, these individuals might be able to break the typical intergenerational pattern by preserving or developing in therapy more positive internal representations of self and other, which would increase well-being and decrease the risk of psychological dysfunction. However, current results are only suggestive, and additional research is needed with psychiatric samples to directly test these inferences.

Diagnostic Categories

Full regressions were significant at the required .001 level for 3 of the 6 diagnostic categories: DID, substance abuse, and anxiety disorder. Consistent with research suggesting that sexually abused children are often rigidly controlled and isolated by their perpetrators (Justice & Calvert, 1990; Moos & Moos, 2002; Yama et al., 1993), the odds of a DID diagnosis rose by 8% with increases in family control. Most striking, however, was the 84% gain in the odds of DID when attachment avoidance increased. Together family control and attachment avoidance accounted for a robust 43% of the variance. Dissociation often occurs when individuals feel they have no control over their physical situation and thus resort to passive avoidance by dissociating mentally to separate themselves from the aversive experience (Nijenhuis, Vanderlinden, & Spinhoven, 1998). While dissociation may be temporarily adaptive during abuse experiences, repeated use of this defense may produce an enduring predisposition to avoid stressful emotions and close relationships, which may be perceived as threatening. Current findings extend previous research showing associations of infant avoidant attachment and adult fearful-avoidant attachment to dissociative tendencies in adolescence or adulthood (Carlson, 1998; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997) and reinforce the only prior report linking adult attachment style to DID in eight incest survivors (Anderson & Alexander, 1996).

Regression results for substance abuse were also highly significant. Family organization decreased the odds of this diagnosis, which suggests that the early provision of a clear family structure may deter later use of alcohol or drugs. Contrary to predictions

based on previous findings (Mickelson *et al.*, 1997), however, it was not attachment avoidance, but instead attachment anxiety that increased the odds of this diagnosis by a factor of 2.66. Much of the recent literature suggests that males and females have different reasons for abusing substances; males use drugs and/or alcohol as a mechanism to avoid thinking about problems or enhance positive emotions and socialization, whereas females use psychoactive substances to alleviate internalized distress or increase self-confidence (Boys, Marsden, & Strang, 2001; Chassin, Pitts, DeLucia, & Todd, 1999; Lillehoj, Trudeau, Spoth, & Wickrama, 2004). Because this sample was predominantly women, current findings suggest that attachment anxiety might be more likely than attachment avoidance to contribute to substance use among female inpatients.

In contrast to Muller *et al.*'s (2001) findings, attachment anxiety was not related to anxiety disorder. Different measures and sample composition may account for this finding. Unlike the current study's use of inpatient diagnostic category, Muller *et al.* used the Beck Anxiety Inventory (Beck & Steer, 1990) in a community sample. Even though one major incident of abuse in childhood met study criteria for abuse, rates of child abuse were substantially lower than the current sample, so it is possible that the severity of abuse and psychological disturbance may have produced a restricted range that obscured the relationship between attachment style and anxiety disorder in this study. Alternatively, the grouping of all anxiety disorders other than PTSD may have compromised the results and contributed to the unexpected finding that multitype abuse significantly decreased the odds of an anxiety diagnosis. Although physical violence may somehow reduce anxiety associated with concurrent sexual abuse or neglect, current findings suggest that multitype abuse experiences contribute to anxious symptomatology more characteristic of PTSD than other anxiety disorders. Finally, while low levels of family control might suggest other family factors obviating the need for control (e.g., clear rules), according to Moos and Moos (2002), very low levels of control can reflect an underorganized system lacking rules and standard procedures, which may stimulate a generalized anxiety regarding consequences of behavior.

MCMI Dimensions

The full regression models were significant at the required .001 level for 8 of 10 MCMI scales (schizoid, avoidant, dependent, histrionic, narcissistic, schizotypal, PTSD, somatoform). A pattern of findings emerged partially supporting the hypothesis that adult attachment style would mediate the relationship between family environment and personality dysfunction. Following preliminary tests of direct associations, in full regression models for 4 of 5 personality dimensions, family independence was a significant predictor at initial entry but dropped to nonsignificance after the attachment predictor(s) were entered. From a theoretical standpoint, the family's fostering of independence and attachment represent two complementary behavioral systems, which should be balanced for optimal development (Bowlby, 1988). Consequently, family environments that inappropriately discourage or conversely insist on independence can deleteriously influence the emergent attachment style, which in turn may influence personality development.

Patients reporting high levels of both adult attachment anxiety and attachment avoidance scored significantly higher on the PTSD and avoidant personality scales. The negatively skewed self–other perspective represented by high levels of both attachment anxiety and avoidance is consistent with descriptions of trauma survivors, who tend to view the self as less worthy and the world as more malevolent (Janoff-Bulman, 1992). Similarly,

a negative sense of self and social inhibition characterize avoidant personality disorder. Expectations formed in childhood for others to be hurtful and the self to be inadequate may engender contradictory behavioral tendencies theoretically consonant with the irresolvable approach–avoidance dilemma described by Main and Hesse (1990) in relation to disorganized infants. The inability of individuals with high attachment anxiety and avoidance to resolve this paradox could conceivably produce disorganization (Simpson & Rholes, 2002), increasing the risk for PTSD and personality disturbance.

In contrast to results for other personality disorder scales, high FES independence scores were associated with high scores on the histrionic and narcissistic personality dimensions. Conversely, the two attachment scales were negatively related to these two personality scales. Because this sample of severely traumatized adults was characterized by extremely low mean scores on these two personality dimensions, the finding that greater security (i.e., low attachment anxiety and low attachment avoidance) is associated with higher histrionic and narcissistic features is consistent with Millon et al.'s (1997) report that moderate levels of these two personality dimensions represent healthier functioning in sociability and self-esteem. Similarly, a greater emphasis on independence in families of child abuse survivors would predict better functioning.

Results suggested that low family independence is uniquely salient in the etiology of dependent personality disorder. This finding fits with prior theory and research describing families of individuals with dependent personality disorder as enmeshed, overprotective, discouraging of autonomy, and indulgent (Millon et al., 2000). In addition, dependent personality was associated with low family organization and conflict, which may reflect *DSM-IV-TR* (APA, 2000) criteria involving a need for others to assume responsibility and reluctance to express disagreement. Low family organization indicates a lack of structured responsibilities entrusted to children, who then may fail to acquire appropriate competencies or the psychological maturity to form personal opinions differing from parent decisions, leading to low conflict levels. The tendency of individuals with dependent personality disorder to idealize and/or try to please attachment figures and to devalue the self extends to romantic love (Millon et al., 2000), which may account for present associations with romantic attachment anxiety and is consistent with previous links of preoccupied attachment to dependent personality disorder (Brennan & Shaver, 1998).

Schizotypal personality style was predicted by multitype abuse, low family expressiveness, and high attachment anxiety. In contrast to the term “expressed emotion,” which in the schizophrenia literature refers to critical and/or emotional overinvolvement (Asarnow, Tompson, Hamilton, Goldstein, & Guthrie, 1994; Miklowitz, 2004), the developers of the FES define expressiveness as “the extent to which family members are encouraged to express their feelings directly” (Moos & Moos, 2002, p. 1). Low levels of expressiveness would be more closely related to parental neglect and/or rejection than critical overinvolvement, and thus current results are in line with previous research indicating that childhood neglect may be a precursor to schizotypal personality (Berenbaum, Valera, & Kerns, 2003; Johnson, Smailes, Cohen, Brown, & Bernstein, 2000; Torgesen & Alnaes, 1992). Additionally, consistent with predictions based on the *DSM-IV-TR* (APA, 2000) criterion of social anxiety, high levels of attachment anxiety were associated with schizotypal personality. However, contrary to expectations based on descriptions of schizotypal persons as paranoid and lacking close relationships, attachment avoidance did not predict schizotypal personality in the final regression model. In this predominantly female sample, this finding may reflect previously reported gender differences in schizotypy that greater social anxiety is found among women and higher negative symptoms (withdrawal, no

friends) are found among men (Fossati, Raine, Carretta, Leonardi, & Maffei, 2003; Miller & Burns, 1995). Social avoidance may be relevant to schizotypy only among men or alternatively in larger social contexts consisting of people outside the established attachment network. Therefore, avoidant behaviors would not necessarily manifest in close romantic relationships.

Consistent with predictions and previous findings (Brennan & Shaver, 1998), results indicated that attachment avoidance significantly predicted schizoid traits. Although multitype abuse, parent mental disorder, and low family independence initially were unique predictors, all three variables dropped to nonsignificance after attachment avoidance was included in the model. Only parent substance abuse continued to significantly predict schizoid personality in the final model with attachment avoidance. Results indicated that somatoform syndrome was also associated with attachment avoidance. In clinical reports, somatic complaints have been linked frequently with the reluctance to experience or express emotion (Brewin, Dalgleish, & Joseph, 1996; Zerbe, 1999) and childhood trauma (Heim, Ehler, Hanker, & Hellhammer, 1998; Thakkar & McCanne, 2000). Because physical illness and inhibition of negative emotions may increase nurturance and diminish aversive behaviors in perpetrators, somatic expressions of distress may develop in an attempt to adapt to an abusive and/or neglectful home environment. This tendency to express negative emotion in bodily functions may persist into adult romantic attachments as a way to gain attention or avert partner abuse, which is more commonly reported by child abuse survivors than nonabused controls (Acierno, Resnick, Kilpatrick, Saunders, & Best, 1999; Cloitre, Scarvalone, & Difede, 1997).

Clinical Implications

From a clinical standpoint, current results have a number of interesting implications for intervention. First, an examination of family experiences may help identify at-risk children and early prevention efforts. Clinicians might effectively target family environment characteristics in family therapy with at-risk or abused children and their families, specifically working to improve the family's organization, control, and expressiveness. In particular, given current findings suggesting the importance of family independence and attachment relationships, family therapy can be designed to help parents establish an optimal balance between the encouragement of autonomy and maintenance of family connection, which will foster secure attachment among family members.

On the other hand, clinicians working with adult abuse survivors might find an exploration of current romantic attachment style useful in ameliorating the long-term impact of abuse. Attachment theory is easy to explain and provides a solid framework that makes intuitive sense to help survivors understand the effects of attachment trauma and the role of close relationships in coping responses and emotional regulation strategies (Allen, 2001). In addition to psycho-education and the provision of a secure therapeutic alliance, interventions designed to promote more adaptive interpersonal skills and foster a sense of security in current attachment relationships with partners or other attachment figures (e.g., couples therapy) may counteract earlier adverse attachment experiences, decreasing psychological distress and improving overall functioning. Due to the risk of revictimization among individuals with a history of childhood abuse (Acierno *et al.*, 1999; Cloitre *et al.*, 1997), a therapeutic focus on the potential re-enactment of early attachment trauma in current romantic relationships also may be beneficial in treating psychopathology among adults with a history of child abuse. Allen (2001) provides specific recommendations for clinicians on the application of attachment theory to intervention approaches and techniques with adult trauma survivors.

LIMITATIONS AND CONCLUSIONS

Overall, this study shed new light on the role of family environment and adult romantic attachment in personality functioning and psychopathology among child abuse survivors. Current results should be interpreted in light of the study's strengths and limitations. Multiple diagnostic measures raise confidence in the accuracy of participant diagnosis for logistic regressions, although comorbidity must be taken into account as representative of a psychiatric sample. However, the possibility of inflated findings for the MCMI analyses due to common method variance in using self-reports for predictors and criterion must be considered. The use of a psychiatric trauma sample extends previous research with community or college samples and offers a unique opportunity to explore attachment processes in relation to specific forms of psychopathology, most notably DID. By the same token, however, the sample composition and size may have narrowed the range of possible outcomes and obscured potential associations. For example, although there is some evidence that a history of child sexual abuse is more common among homosexual adults (Beitchman et al., 1992; Hughes, Johnson, & Wilsnack, 2001), the high proportion of homosexual and bisexual participants in this study may indicate a sampling bias that possibly affected results. Additionally, retrospective reports of childhood trauma and early family environment may have introduced subjective biases reflected in distorted memories or lack of self-disclosure. In particular, we had no corroborating evidence of childhood sexual or physical abuse. Finally, the correlational nature of this study precludes an examination of temporal and causal relationships between adult attachment and psychopathology.

Clearly, more research using larger samples with psychiatric and control groups is needed to clarify how these constructs relate to one another and differentially relate to personality and psychopathology. Longitudinal research following at-risk children into adulthood would better address questions related to specific developmental trajectories arising from particular abuse experiences and dysfunctional family environments. Despite the need for continued investigation, results of the current study enhance our understanding of family and relationship factors that contribute to different psychopathological outcomes. In particular, while early family environments and experiences with parents are important, this study's findings regarding the mediation effects of adult attachment style highlight the importance of considering patients' current approaches to adult relationships. Clinically, the central role of present-day romantic attachment style is encouraging and offers an optimistic outlook for change in spite of traumatic early experiences.

REFERENCES

- Alexander, P. (1992). Application of attachment theory to the study of sexual abuse. *Journal of Consulting and Clinical Psychology, 60*, 185–195.
- Alexander, P. C. (1993). The differential effects of abuse characteristics and attachment in the prediction of long-term effects of sexual abuse. *Journal of Interpersonal Violence, 9*, 346–362.
- Alexander, P. C., Anderson, C. L., Brand, B., Schaeffer, C. M., Grelling, B., & Kretz, L. (1998). Adult attachment and longterm effects in survivors of incest. *Child Abuse & Neglect, 22*, 45–61.
- Allen, J. (2001). *Traumatic relationships and serious mental disorders*. Chichester, England: Wiley & Sons.
- Allen, J., Coyne, L., & Huntoon, J. (1998). Complex posttraumatic stress disorder in women from a psychometric perspective. *Journal of Personality Assessment, 70*, 277–298.

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.
- Anderson, C. L., & Alexander, P. C. (1996). The relationship between attachment and dissociation in adult survivors of incest. *Psychiatry, 59*, 240–254.
- Asarnow, J. R., Tompson, M., Hamilton, E. G., Goldstein, M. J., & Guthrie, D. (1994). Family-expressed emotion, childhood-onset depression, and childhood-onset schizophrenia spectrum disorders: Is expressed emotion a nonspecific correlate of child psychopathology or a specific risk factor for depression? *Journal of Abnormal Child Psychology, 22*, 129–147.
- Baker, J. D., Capron, E. W., & Azorlosa, J. (1996). Family environment characteristics of persons with histrionic and dependent personality disorders. *Journal of Personality Disorders, 10*, 82–87.
- Baron, R. M., & Kenny, D. A. (1986). The mediator-moderator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226–244.
- Beck, A. T., & Steer, R. A. (1990). *Manual for the Beck Anxiety Inventory*. San Antonio, TX: Psychological Corporation.
- Beitchman, J. H., Zucker, K. J., Hood, J. E., DaCosta, G. A., Akman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse & Neglect, 16*, 101–118.
- Benedict, L. L. W., & Zautra, A. A. J. (1993). Family environmental characteristics as risk factors of childhood sexual abuse. *Journal of Clinical Child Psychology, 22*, 363–374.
- Berenbaum, H., Valera, E. M., & Kerns, J. G. (2003). Psychological trauma and schizotypal symptoms. *Schizophrenia Bulletin, 29*, 143–152.
- Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*, 727–735.
- Blatt, S. J., & Levy, K. N. (2003). Attachment theory, psychoanalysis, personality development and psychopathology. *Psychoanalytic Inquiry, 23*, 102–150.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss*. New York: Basic Books.
- Bowlby, J. (1988). Developmental psychiatry comes of age. *American Journal of Psychiatry, 145*, 1–10.
- Boys, A., Marsden, J., & Strang, J. (2001). Understanding reasons for drug use amongst young people: A functional perspective. *Health Education Research, 16*, 457–469.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York: Guilford.
- Brennan, K. A., & Shaver, P. R. (1998). Attachment styles and personality disorders: Their connections to each other and to parental divorce, parental death, and perceptions of parental caregiving. *Journal of Personality, 66*, 835–878.
- Brennan, K. A., Shaver, P. R., & Tobey, A. E. (1991). Attachment styles, gender, and parental problem drinking. *Journal of Social and Personality Relationships, 8*, 451–466.
- Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of post-traumatic stress disorder. *Psychological Review, 103*, 670–686.
- Briere, J., & Runtz, M. (1990). Differential adult symptomatology associated with three types of child abuse histories. *Child Abuse & Neglect, 14*, 357–364.
- Carlson, E. A. (1998). A prospective longitudinal study of attachment disorganization/disorientation. *Child Development, 69*, 1107–1128.
- Carlson, E. B., & Putnam, F. W. (1993). An update on the Dissociative Experiences Scale. *Dissociation, 6*, 16–27.
- Carlson, E. B., Putnam, F. W., Ross, C. A., Torem, M., Coons, P., Dill, D., et al. (1993). Validity of the Dissociative Experiences Scale in screening for multiple personality disorder: A multicenter study. *American Journal of Psychiatry, 150*, 1030–1036.

- Chassin, L., Pitts, S. E., DeLucia, C., & Todd, M. (1999). A longitudinal study of children of alcoholics: Predicting young adult substance use disorders, anxiety, and depression. *Journal of Abnormal Psychology, 108*, 106–119.
- Choca, J. P., & Van Denburg, E. (1997). *Interpretive guide to the Millon Clinical Multiaxial Inventory (MCMI)* (2nd ed.). Washington, DC: American Psychological Association.
- Cloitre, M., Scarvalone, P., & Difede, J. (1997). Posttraumatic stress disorder, self, and interpersonal dysfunction among sexually retraumatized women. *Journal of Traumatic Stress, 10*, 437–482.
- Craig, R. J. (Ed.). (1993). *The Millon Clinical Multiaxial Inventory: A clinical research information synthesis*. Hillsdale, NJ: Erlbaum.
- Crowell, J. A., Fraley, R. C., & Shaver, P. R. (1999). Measurement of individual differences in adolescent and adult attachment. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 434–465). New York: Guilford.
- Cummings, E. M., & Davies, P. T. (1994). Maternal depression and child development. *Journal of Child Psychology and Psychiatry, 35*, 73–112.
- Diehl, M., Elnick, A. B., Bourbeau, L., & Labouvie-Vief, G. (1998). Adult attachment styles: Their relations to family context and personality. *Journal of Personality and Social Psychology, 74*, 1656–1669.
- Ellis, D. A., & Zucker, R. A. (1997). The role of family influences in development and risk. *Alcohol Health and Research World, 21*, 218–227.
- Engels, M., Moisan, D., & Harris, R. (1994). MMPI indices of childhood trauma among 110 female outpatients. *Journal of Personality Assessment, 63*, 135–147.
- Fossati, A., Raine, A., Carretta, I., Leonardi, B., & Maffei, C. (2003). The three-factor model of schizotypal personality: Invariance across age and gender. *Personality and Individual Difference, 35*, 1007–1019.
- Gauthier, L., Stollak, G., Messe, L., & Aronoff, J. (1996). Recall of childhood neglect and physical abuse as differential predictors of current psychological functioning. *Child Abuse & Neglect, 20*, 549–559.
- Gold, S. N., Hyman, S. M., & Andres-Hyman, R. C. (2004). Family of origin environments in two clinical samples of survivors of intra-familial, extra-familial, and both types of sexual abuse. *Child Abuse & Neglect, 28*, 1199–1212.
- Harter, S. L., & Vanecek, R. J. (2000). Cognitive assumptions and long-term distress in survivors of childhood abuse, parental alcoholism, and dysfunctional family environments. *Cognitive Therapy and Research, 24*, 445–472.
- Head, S. B., Baker, J. D., & Williamson, D. A. (1991). Family environment characteristics and dependent personality disorder. *Journal of Personality Disorders, 5*, 256–263.
- Heim, C., Ehler, U., Hanker, J. P., & Hellhammer, D. H. (1998). Abuse-related post-traumatic stress disorder and alterations of the hypothalamic-pituitary-adrenal axis in women with chronic pelvic pain. *Psychosomatic Medicine, 60*, 309–318.
- Higgins, D. J., & McCabe, M. P. (2001). Multiple forms of child abuse and neglect: Adult retrospective reports. *Aggression and Violent Behavior, 6*, 547–578.
- Higgins, D. J., & McCabe, M. P. (2003). Maltreatment and family dysfunction in childhood and the subsequent adjustment of children and adults. *Journal of Family Violence, 18*, 107–120.
- Hill, J., Fonagy, P., Safier, E., & Sargent, J. (2003). The ecology of attachment in the family. *Family Process, 42*, 205–221.
- Hughes, T. L., Johnson, T., & Wilsnack, S. C. (2001). Sexual assault and alcohol abuse: A comparison of lesbians and heterosexual women. *Journal of Substance Abuse, 13*, 515–532.
- Jacob, T., & Leonard, K. (1994). Family and peer influences in the development of adolescent alcohol abuse. In R. A. Zucker, G. Boyd, & J. Howard (Eds.), *The development of alcohol problems: Exploring the biopsychosocial matrix of risk* (pp. 123–156). National Institute on Alcohol Abuse and Alcoholism Research Monograph No. 26. NIH Pub. No. 94–3495. Bethesda, MD: the Institute.
- Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. New York: Free Press.

- Johnson, V., & Pandina, R. (1991). Effects of the family environment on adolescent substance use, delinquency and coping styles. *American Journal of Drug and Alcohol Abuse, 17*, 71–88.
- Johnson, J. J., Smailes, E. M., Cohen, P., Brown, J., & Bernstein, D. P. (2000). Associations between four types of childhood neglect and personality disorder symptoms during adolescence, and early adulthood: Findings of a community-based longitudinal study. *Journal of Personality Disorders, 14*, 171–187.
- Jumper, S. A. (1995). A meta-analysis of the relationship of child sexual abuse to adult psychological adjustment. *Child Abuse & Neglect, 19*, 715–728.
- Justice, B., & Calvert, A. (1990). Family environment factors associated with child abuse. *Psychological Reports, 66*, 458.
- Kamsner, S., & McCabe, M. P. (2000). The relationship between adult psychological adjustment and childhood sexual abuse, childhood physical abuse, and family-of-origin characteristics. *Journal of Interpersonal Violence, 15*, 1243–1261.
- Krupnick, J. L., Green, B. L., Stockton, P., Goodman, L., Corcoran, C., & Petty, R. (2004). Mental health effects of adolescent trauma exposure in a female college sample: Exploring differential outcomes based on experiences of unique trauma types and dimensions. *Psychiatry, 67*, 264–279.
- Lillehoj, C. J., Trudeau, L., Spoth, R., & Wickrama, K. A. S. (2004). Internalizing, social competence, and substance initiation: Influence of gender moderation and a preventive intervention. *Substance Use & Misuse, 39*, 963–991.
- Ludolph, P. S., Westen, D., Mistle, B., Jackson, A., Wixom, J., & Wiss, F. C. (1990). The borderline diagnosis in adolescents: Symptoms and developmental history. *American Journal of Psychiatry, 147*, 470–476.
- Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161–182). Chicago: University of Chicago Press.
- Marvin, R. S. (2003). Implications of attachment research for the field of family therapy. In P. Erdman & T. Caffery (Eds.), *Attachment and family systems: Conceptual, empirical, and therapeutic relatedness* (pp. 3–27). New York: Brunner-Routledge.
- Marvin, R. S., & Stewart, R. B. (1990). A family systems framework for the study of attachment. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 51–86). Chicago: University of Chicago Press.
- Mickelson, K., Kessler, R., & Shaver, P. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology, 73*, 1092–1106.
- Mikulincer, M., & Florian, V. (1999). The association between parental reports of attachment style and family dynamics and offspring's reports of adult attachment style. *Family Process, 38*, 243–257.
- Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and posttraumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology, 58*, 273–280.
- Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 25 (pp. 56–152). San Diego, CA: Academic Press.
- Miller, L. S., & Burns, S. A. (1995). Gender differences in schizotypic features in a large sample of young adults. *Journal of Nervous and Mental Disease, 183*, 657–661.
- Millon, T. (1990). *Toward a new personology*. New York: Wiley.
- Millon, T. (1994). *Millon Clinical Multi-axial Inventory-III manual*. Minneapolis, MN: National Computer Systems.
- Millon, T., Davis, R. D., & Millon, C. (1997). *MCMI-III manual* (2nd ed.). Minneapolis, MN: National Computer Systems.
- Millon, T., Davis, R. D., Millon, C., Escovar, L., & Meagher, S. (2000). *Personality disorders in modern life*. New York: Wiley.

- Molnar, B. E., Buka, S. L., & Kessler, R. C. (2001). Child sexual abuse and subsequent psychopathology: Results from the National Comorbidity Survey. *American Journal of Public Health, 91*, 753–760.
- Moos, R. H., & Moos, B. S. (2002). *Family Environment Scale Manual: Development, applications, research* (3rd ed.). Palo Alto, CA: Center for Health Care Evaluation, Department of Veterans Affairs and Stanford University Medical Centers.
- Mullen, P. E., Martin, J. L., Anderson, J. C., Romans, S. E., & Herbison, G. P. (1996). The long-term impact of the physical, emotional, and sexual abuse of children: A community study. *Child Abuse & Neglect, 20*, 7–21.
- Muller, R., Lemieux, K., & Sicoli, L. (2001). Attachment and psychopathology among formerly maltreated adults. *Journal of Family Violence, 16*, 151–169.
- Myerson, L. A., Long, P. J., Miranda, R., & Marx, B. P. (2002). The influence of childhood sexual abuse, physical abuse, family environment, and gender on the psychological adjustment of adolescents. *Child Abuse & Neglect, 26*, 387–405.
- Nash, M. R., Hulsey, T. L., Sexton, M. C., Harralson, T. O., & Lambert, W. (1993). Long-term sequelae of childhood sexual abuse: Perceived family environment, psychopathology, and dissociation. *Journal of Consulting and Clinical Psychology, 61*, 276–283.
- Nijenhuis, E. R. S., Vanderlinden, J., Spinhoven, P. (1998). Animal defensive reactions as a model for trauma-induced dissociative reactions. *Journal of Traumatic Stress, 11*, 243–260.
- Ogawa, J. R., Sroufe, L. A., Weinfield, N. S., Carlson, E. A., & Egeland, B. (1997). Development and the fragmented self: Longitudinal study of dissociative symptomatology in a nonclinical sample. *Development and Psychopathology, 9*, 855–879.
- Onishi, M., Gjerde, P. F., & Block, J. (2001). Personality implications of romantic attachment patterns in young adults: A multi-method, multi-informant study. *Personality and Social Psychology Bulletin, 27*, 1097–1110.
- Pfaller, J., Kiselica, M., & Gerstein, L. (1998). Attachment style and family dynamics in young adults. *Journal of Counseling Psychology, 45*, 353–357.
- Polusny, M. A., & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied and Preventive Psychology, 4*, 143–166.
- Reichertz, D., & Frankel, H. (1990). Family environments and problematic adolescents: Toward an empirically based typology. *Community Alternatives: International Journal of Family Care, 2*, 51–74.
- Roche, D., Runtz, M., & Hunter, M. (1999). Adult attachment: A mediator between child sexual abuse and later psychological adjustment. *Journal of Interpersonal Violence, 14*, 184–207.
- Ross, C. A., Duffy, M. M., & Ellason, J. W. (2002). Prevalence, reliability, and validity of dissociative disorders in an inpatient setting. *Journal of Trauma & Dissociation, 3*, 7–17.
- Ross, C. A., Heber, S., Norton, G. R., Anderson, D., Anderson, G., & Barchet, P. (1989). The Dissociative Disorders Interview Schedule: A structured interview. *Dissociation, 2*, 169–189.
- Rutter, M., & Quinton, D. (1984). Parental psychiatric disorder: Effects on children. *Psychological Medicine, 14*, 853–880.
- Shapiro, D. L., & Levendosky, A. A. (1999). Adolescent survivors of childhood sexual abuse: The mediating role of attachment style and coping in psychological and interpersonal functioning. *Child Abuse & Neglect, 23*, 1175–1191.
- Simpson, J. A., & Rholes, W. S. (2002). Fearful-avoidance, disorganization, and multiple working models: Some directions for future theory and research. *Attachment and Human Development, 4*, 223–229.
- Stein, J. A., Burden, L. M., & Nyamathi, A. (2002). Relative contributions of parent substance use and childhood maltreatment to chronic homelessness, depression, and substance abuse problems among homeless women: Mediating roles of self-esteem and abuse in adulthood. *Child Abuse & Neglect, 26*, 1011–1027.
- Styron, T., & Janoff-Bulman, R. (1997). Childhood attachment and abuse: Long-term effects on adult attachment, depression, and conflict resolution. *Child Abuse & Neglect, 10*, 1015–1023.

- Thakkar, R. R., & McCanne, T. R. (2000). The effects of daily stressors on physical health in women with and without a history of childhood sexual abuse. *Child Abuse and Neglect, 24*, 209–221.
- Trull, T. (2001). Relationships of borderline features to parental mental illness, childhood abuse, Axis I disorder, and current functioning. *Journal of Personality Disorders, 15*, 19–32.
- Tyler, K. A. (2002). Social and emotional outcomes of childhood sexual abuse: A review of recent research. *Aggression and Violent Behavior, 7*, 567–589.
- van IJzendoorn, M., & Schuengel, C. (1996). The measurement of dissociation in normal and clinical populations: Meta-analytic validation of the Dissociative Experiences Scale. *Clinical Psychology Review, 16*, 365–383.
- Wekerle, C., & Wolfe, D. A. (1998). The role of child maltreatment and attachment style in adolescent relationship violence. *Development and Psychopathology, 10*, 571–586.
- Yama, M., Tovey, S. L., & Fogas, B. S. (1993). Childhood family environment and sexual abuse as predictors of anxiety and depression in adult women. *American Journal of Orthopsychiatry, 63*, 136–141.
- Yama, M., Tovey, S. L., Fogas, B. S., & Morris, J. (1995). The relationship among childhood sexual abuse, parental alcoholism, family environment, and suicidal behavior in female college students. *Journal of Child Sexual Abuse, 4*, 19–93.
- Zerbe, K. J. (1999). *Women's mental health in primary care*. Philadelphia: Saunders.

Acknowledgments. This project was partially funded by the Department of Psychology and Philosophy at Texas Woman's University and the Ross Institute. We are grateful to the staff and patients of the Timberlawn Psychiatric Hospital Trauma Program for their time.

Correspondence regarding this article should be directed to Shelley A. Riggs, PhD, University of North Texas, Department of Psychology, P.O. Box 311280, Denton, TX 76203–1280. E-mail: riggs@unt.edu

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.