EMOTIONAL AND SEXUAL MALTREATMENT: ANXIOUS ATTACHMENT MEDIATES PSYCHOLOGICAL ADJUSTMENT

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The role of attachment as a possible mediator of adjustment differences was examined in two samples of college students who had experienced childhood maltreatment before age 15. Although both emotionally and sexually maltreated samples had elevated scores on self-report measures of anxious and avoidant attachment compared to demographically-yoked controls, only anxious attachment mediated deficits in psychological adjustment. Discussion focuses on the possible differential consequences of anxious versus avoidant adult attachment; the implications of partial mediation for the emotionally maltreated sample; and evidence that maltreated samples may utilize coping strategies that range from those that are generally positive or adaptive to those that are sometimes negative or maladaptive.

In recent years, studies of vulnerable populations have increasingly focused on the phenomenon of resilience (e.g., Bonanno et al., 2002;
Hobfoll et al., 2002). There is growing interest in the processes that allow individuals who experience traumatic events or stressful environments to survive with minimal adverse consequence and, in some cases, even advantage. For example, social stigma has been associated with relatively high self-esteem (Crocker, 1989) and the experience of positive emotions during crises may buffer individuals against subsequent depression (Fredrickson, Tugade, Waugh, & Larkin, 2003). In the case of childhood maltreatment experiences, poor psychological adjustment and psychopathology is well-documented (e.g., Cook, 1991; Jumper, 1995; Romans, Martin, Morris, & Herbison, 1999). Hence, the suggestion that these negative effects are not always due to maltreatment experiences per se generated considerable controversy (cf. Rind, Tromovitch, & Bauserman, 1998).

The self-concept may serve as an important mediator of any negative consequences of childhood maltreatment (Showers, Zeigler-Hill, & Limke, 2006; Westen, 1994). If maltreated individuals internalize abusive statements by caregivers or infer low self-worth from coerced sexual experiences, the negative consequences for their self-concept may result in poor adjustment. However, because maltreatment has a relational component, another likely mediator of maltreatment effects is the attachment process (Hankin, 2005; Muller, Gragtmans, & Baker, 2008; Swanson & Mallinckrodt, 2001). When maltreatment disrupts attachment or occurs in an environment of insecure attachment, it may have powerful consequences for adjustment. In contrast, those maltreated individuals who maintain secure attachments or develop them despite their abuse may fare much better on standard indices of adjustment. In other words, secure attachment may be an important avenue to resilience.

Although there have been important studies supporting the link between attachment and adjustment in maltreated samples (cf. Carlson, 1998; Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008; Hankin, 2005; Merrill, Thomsen, Sinclair, Gold, & Milner, 2001; Muller, Lemieux, & Sicoli, 2001; Muller et al., 2008; Schreiber & Lyddon, 1998), overall, there is still a lack of explicit mediational tests in the maltreatment literature (cf. Wright, Crawford, & Del Castillo, 2009), and there is a specific void in the research suggesting that attachment is a contributing factor to the greater psychological difficulties experienced by victims of childhood emotional and sexual maltreatment using a comparison group. Thus, the present
study examined the mediational effects of anxious and avoidant attachment in a sample of college students who reported histories of childhood emotional and/or sexual maltreatment compared to a control group to determine the exact role of attachment in the link between childhood maltreatment and long-term psychological consequences.

OVERVIEW OF PRESENT STUDY

Participants were identified by a screening questionnaire that included self-report measures of childhood maltreatment, adult attachment, and demographics. Individuals who met the criteria for maltreatment completed additional measures of psychological adjustment in the laboratory. Because many studies compare maltreated individuals to nonmaltreated individuals without taking demographic differences into account, each maltreated participant was matched to a low maltreatment participant with the same gender, race/ethnicity, household structure, and level of parental education (cf. Rind et al., 1998 for a discussion of this problem).

METHOD

SCREENING SESSIONS

Procedure

Over three semesters, 1,457 Introductory Psychology students completed a modified version of the Life Experiences Questionnaire (LEQ; Gibb et al., 2001) in 90-minute screening sessions. The LEQ items provided self-report measures of childhood emotional and sexual maltreatment. Both emotionally and sexually maltreated participants and low maltreatment controls were recruited in the first two semesters of screening. Only sexually maltreated participants and controls were recruited in the third semester.

Sexually Maltreated Eligibles

Endorsement of sexual maltreatment items on the LEQ ranged from zero (86% of the screening sample) to 14 (less than 1% of the screen-
ing sample), \( M = 0.41, SD = 1.38 \). Individuals who endorsed one or more sexual events, 203 individuals (155 females, 48 males) out of 1,457 individuals screened, were recruited for the study, regardless of the number of emotional events they reported.

**Emotionally Maltreated Eligibles**

After individuals with one or more sexual events had been identified, individuals in the highest quintile of emotional events, 9 events or more; 173 (93 females, 80 males) of 990 individuals screened during the first two semesters, were recruited for the study.

**Low Maltreatment Eligibles**

Individuals with low maltreatment events were also recruited to form a control group. The criteria for this group were set to identify approximately half the screening population (so as not to focus on an extreme group). Those criteria were 0 to 4 emotional events and 0 sexual events (49% of the 1,457 individuals screened). From this group, a subset of 415 individuals (a number comparable to the number of maltreated eligibles) was identified whose demographic characteristics were similar to the overall demographic characteristics of the maltreated group. That is, each eligible control invited to participate in the study specifically matched the demographic and background characteristics of a maltreated eligible invited to participate. This design allowed for within-groups analysis as well as simplified interpretation of psychological adjustment differences attributed to “maltreated” status.

**Demographic Variables**

The demographic items on the screening questionnaire assessed gender, race/ethnicity, age, household structure, and parental education. Compared to the screening sample, individuals in the recruitment sample were less likely to come from a household with two biological parents, \( t (1,455) = 5.40, p < .001 \); had fathers with less education, \( t (1,455) = 2.74, p < .01 \); were less likely to be White (non-Hispanic), \( t (1,455) = 2.58, p < .01 \), and were marginally more likely to be female, \( t (1,455) = 1.90, p < .06 \).
LABORATORY SESSIONS

Participants

Of 791 individuals invited to participate, 356 individuals actually attended the laboratory sessions. There were 95 participants from the emotionally maltreated eligibles (55%), 85 participants from the sexually maltreated eligibles (37%), and 176 participants from the low maltreatment group (42%).

_Emotionally Maltreated Participants._ Of the 95 emotionally maltreated participants, 76 participants were perfectly matched to a low-maltreatment control participant on gender, race/ethnicity, family structure, and parental education level. As a result, the demographic composition of the emotionally maltreated sample and their demographically-yoked controls was as follows: gender: 66% female; race: 92% White, non-Hispanic, 3% Black, 3% American Indian, 2% Asian; childhood family structure: 84% two-biological parent homes, 7% single-parent homes, and 9% other; either parent’s highest degree: 89% college or graduate degree. One sample t-tests compared the demographic composition of the final yoked pairs to the emotionally maltreated eligibles. The actual participants were more likely to be White, $t(95) = 2.06$, $p < .05$, and were more likely to have a parent with a four-year college degree, $t(95) = 2.06$, $p < .05$, than the emotionally maltreated eligibles.

_Sexually Maltreated Participants._ Because of the low proportion of male victims reporting childhood sexual maltreatment in this sample ($n = 25$) and the likelihood that their maltreatment experience would be quantitatively and qualitatively different from the sexually maltreated females (see Fiering, Taska, & Lewis, 1999, 2002, for reviews), males were excluded from all analyses of sexual maltreatment. Of 60 sexually maltreated females, 38 were perfectly matched to controls on the demographic variables. The demographic composition of the final sample was as follows: race: 82% White, non-Hispanic, 8% Black, 5% American Indian, 5% Hispanic; childhood family structure: 53% two-biological parent homes, 26% single-parent homes, and 21% other; parent’s highest degree: 84% college or graduate degree. One sample t-test compared the demographic composition of the final yoked pairs to the sexually maltreated eligibles. Actual participants were more likely to be White, $t(37) = 3.23$,
$p < .01$, and more likely to have a parent with a four-year college degree, $t (37) = 3.84, p < .001$, than the sexually maltreated eligibles.

**Laboratory Measures**

Measures of psychological adjustment ranged from those that were sensitive to the positive aspects of adjustment to those that assessed pathological symptoms:

*Well-Being.* The Scales of Psychological Well-Being (Ryff, 1989) assess positive aspects of adjustment, with 84 items representing 6 subscales (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance) and a total well-being score.

*Coping Styles.* The Ways of Coping Scale (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986) was scored for emotion-focused and problem-focused coping styles (Aldwin & Revenson, 1987).

*Negative Affectivity.* Participants completed the Beck Depression Inventory (BDI; Beck, 1967) as well as the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Self-esteem scores were reversed, and then the BDI and self-esteem scores were standardized and averaged to obtain an overall negative affectivity score.

*Defense Styles.* The Defense Styles Questionnaire (Andrews, Singh, & Bond, 1993) contains 88 items to assess four major defense styles. The styles range from immature to mature, including maladaptive action (withdrawal, acting out, regression, inhibition, passive aggression, and projection), image distorting ( omnipotence, splitting, and primitive idealization), self-sacrificing (reaction formation and pseudoaltruism), and adaptive (suppression, sublimation, and humor) defenses. The Splitting Scale (Gerson, 1984) was also included.

*Symptomatology.* The Symptom Check List-90 (SCL-90; Derogatis, 1977) includes a global severity index (GSI), which is an overall measure of symptomatology based on 9 clinical subscales.

*Attachment.* Simpson’s (1990) 5-point Likert-scale questionnaire was used to assess two basic dimensions of attachment: avoidant (versus secure) and anxious (versus secure; cf. Simpson, Rholes, & Nelligan, 1992). This measure, which includes 9 items per attachment dimension, was administered in the screening sessions.
Laboratory Procedure

Participants attended two laboratory sessions scheduled one week apart in groups of 2 to 8. Experimenters were blind to the maltreatment status of the participant. In session one, participants completed the measures of negative affectivity and well-being. In session two, participants completed the measures of defense styles, coping styles, and symptomatology. At the end of this session, participants responded to a subset of maltreatment items from the LEQ screening questionnaire to serve as a check on maltreatment status. In addition, all participants had completed the measure of anxious and avoidant attachment in the screening sessions.

RESULTS

EMOTIONAL MALTREATMENT

To examine differences associated with level of emotional maltreatment, emotionally maltreated participants were categorized as moderately or highly maltreated, based on a median split of the number of emotional maltreatment items endorsed ($M = 12.26$, $SD = 3.32$). Endorsement of 9 to 11 items (53%) constituted moderate levels of emotional maltreatment, and endorsement of 12 or more items (47%) was considered high. Moderate and high participants did not differ on gender, race (white, non-Hispanic versus minority), or household structure. However, participants with moderate maltreatment were more likely to have parents who completed a four-year college degree than were those in the high maltreatment group ($M_{\text{moderate}} = 0.85$, $M_{\text{high}} = 0.64$), $t^* (64.16) = 2.13$, $p < .05$.

Given the yoked structure of the data, the basic analysis was a 2 (maltreatment status: maltreated/control) x 2 (severity of maltreatment: moderate/high) mixed model multivariate analysis of variance (MANOVA). Maltreatment status (maltreated or control) was treated as a within-subjects variable because of the yoked structure and severity of maltreatment (moderate or high) was a between-subjects variable, determined by the maltreatment score of the maltreated participant, but applied to each yoked individual in the within-subjects design.

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1. Session one also included Showers’s (1992) card sorting measure of self-structure. Analyses of the card sort data are reported elsewhere (Showers et al., 2006).
Attachment Style. Scores for avoidant attachment ranged from 8 to 36 ($M = 20.80, SD = 5.88$). Scores for anxious attachment ranged from 5 to 25 ($M = 12.63, SD = 4.58$). The 2 x 2 MANOVA obtained a significant effect of maltreatment status for both the avoidant and anxious dimensions, $F$s (1, 74) > 5.56, $p$s < .05, such that maltreated participants were both more avoidant and more anxious than were their nonmaltreated counterparts (see Table 1). No other significant differences were found.

Psychological Adjustment. There were significant maltreatment effects for 11 of 16 adjustment variables. Significant differences were found for all categories of adjustment, including well-being (four of the six subscales and total well-being), coping styles (emotion-focused coping), negative affectivity, defense styles (maladaptive action defenses, image distorting defenses, and splitting), and the global severity index, $F$s (1, 74) > 6.02, $p$s < .05. Table 1 displays the results for each variable.

For the global severity index, there was also a main effect of maltreatment level, such that maltreated participants in the high group (and their yoked counterparts) reported more symptoms than did those in moderate group ($M_{\text{moderate}} = 43.92, M_{\text{high}} = 47.17$), $F$ (1, 74) = 4.37, $p$ < .05. No other significant effects were found.

Attachment as a Mediator of Emotional Maltreatment Effects. To examine whether insecure attachment styles account for the poor psychological adjustment of maltreated individuals, the procedures for mediational analysis outlined in Baron and Kenny (1986) were used. Because maltreatment status is associated with both anxious and avoidant attachment, both scores were entered as covariates in each of the 11 ANOVAs that obtained a significant effect for maltreatment status. The attachment scores were entered as varying covariates because the values for the maltreated individuals and their yoked controls were not the same. These analyses test both the association between attachment and each adjustment measure, as well as the reduction in the maltreatment status effect. As shown in Table 2 (columns 2 and 3), there were unique effects of

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2. Preliminary analyses also included as a varying covariate the product (after centering) of each participant’s anxious and avoidant attachment scores. This term would test the mediational role of being high on both dimensions, sometimes defined as disorganized attachment (cf. Main & Solomon, 1990). However, this term was not a significant predictor of any adjustment variable, so it was omitted from the final analyses. Moreover, maltreatment status was not associated with this index of disorganized attachment.
<table>
<thead>
<tr>
<th>Criterion</th>
<th>Maltreated</th>
<th>Nonmaltreated</th>
<th>Maltraitment Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
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<tr>
<td>Attachment Variables</td>
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<td>Avoidant</td>
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<td>Anxious</td>
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<td>1.36</td>
<td>60.45</td>
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<td>54.70</td>
<td>1.29</td>
<td>63.46</td>
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<td>Personal Growth</td>
<td>68.06</td>
<td>1.12</td>
<td>69.64</td>
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<td>Positive Relations with Others</td>
<td>61.17</td>
<td>1.40</td>
<td>68.27</td>
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<td>Purpose in Life</td>
<td>63.76</td>
<td>1.36</td>
<td>68.22</td>
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<tr>
<td>Self-Acceptance</td>
<td>58.11</td>
<td>1.78</td>
<td>66.47</td>
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<tr>
<td>Total Well-Being</td>
<td>364.83</td>
<td>6.61</td>
<td>396.49</td>
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<tr>
<td>Coping Styles</td>
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<tr>
<td>Emotion-Focused</td>
<td>2.60</td>
<td>0.06</td>
<td>2.31</td>
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<tr>
<td>Problem-Focused</td>
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<td>0.06</td>
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<tr>
<td>Negative Affectivity</td>
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<td>0.19</td>
<td>-0.57</td>
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<td>Defense Styles</td>
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<tr>
<td>Maladaptive Action</td>
<td>137.42</td>
<td>3.46</td>
<td>112.71</td>
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<tr>
<td>Image-Distorting</td>
<td>58.56</td>
<td>1.83</td>
<td>52.71</td>
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<td>Self-Sacrificing</td>
<td>38.07</td>
<td>1.19</td>
<td>38.49</td>
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<tr>
<td>Adaptive</td>
<td>40.45</td>
<td>1.04</td>
<td>40.17</td>
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<td>Splitting</td>
<td>62.78</td>
<td>1.18</td>
<td>57.45</td>
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<tr>
<td>Symptomatology (GSI)</td>
<td>49.75</td>
<td>1.18</td>
<td>41.34</td>
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Note: N_maltreated = 76; N_nonmaltreated = 76. *p < .05; **p < .01; ***p < .001.
anxious (but not avoidant) attachment on adjustment for 9 of the 11 psychological adjustment variables tested. The exceptions were emotion-focused coping and image distorting defenses. Table 2 also displays the $F$-values for the original maltreatment status effect on adjustment (column 1) and the new values (column 4) when attachment is controlled. Although there were substantial reductions in the $F$-values for all 9 variables that showed a significant attachment effect, there was only one adjustment variable (purpose in life) for which the maltreatment status effect became nonsignificant, $F(1, 74) = 2.10$, ns. Following the recommendation of Baron and Kenny (1986), Sobel tests were conducted on all 9 variables for which anxious attachment was a significant covariate to test whether the indirect effect of maltreatment on psychological adjustment through attachment is significantly different from zero. The Sobel tests were significant for all 9 adjustment variables (Table 2, column 5), confirming that anxious attachment is a significant mediator of these adjustment effects.3

To summarize, anxious attachment is a significant mediator of emotional maltreatment status effects for environmental mastery, positive relations with others, purpose in life, self-acceptance, total well-being, negative affectivity, maladaptive defenses, splitting, and the global severity index.

**SEXUAL MALTREATMENT**

To examine differences related to level of maltreatment, sexually maltreated participants were categorized as moderately or highly maltreated, based on a median split of the number of sexual maltreatment items endorsed ($M = 4.68$, $SD = 3.00$). Endorsement of 2 to 3 items (45%) constituted moderate levels of sexual maltreatment, and endorsement of 4 or more items (55%) was considered high.

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3. There has been some criticism of the Baron and Kenny (1986) approach to mediation (e.g., Fritz & MacKinnon, 2007). Thus, we repeated the mediational analyses using the product of coefficients test (i.e., A Path X B Path) with asymmetric confidence limits (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Asymmetric confidence limits and the critical values for the product of coefficients tests were computed using the PRODCLIN program (MacKinnon, Fritz, Williams, & Lockwood, 2007; MacKinnon, Lockwood, & Williams, 2004). The results of these alternate tests of mediation were highly consistent with those attained through the Baron and Kenny (1986) approach.
<table>
<thead>
<tr>
<th>Adjustment Variable</th>
<th>Raw Maltreatment Effect for Adjustment Variables</th>
<th>Attachment</th>
<th>Adjusted Maltreatment Effect for Adjustment Variables</th>
<th>Sobel Tests for Mediation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F$ (1, 74)</td>
<td>Avoidant ($\beta$)</td>
<td>Anxious ($\beta$)</td>
<td>$F$ (1, 74)</td>
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<td>Environmental Mastery</td>
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<td>.00</td>
<td>-.44***</td>
<td>15.06***</td>
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<tr>
<td>Positive relations with Others</td>
<td>16.80***</td>
<td>-.20</td>
<td>-.31**</td>
<td>6.51*</td>
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<tr>
<td>Purpose in Life</td>
<td>6.02*</td>
<td>-.03</td>
<td>-.35**</td>
<td>2.10</td>
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<td>Self-Acceptance</td>
<td>11.67***</td>
<td>-.12</td>
<td>-.46***</td>
<td>3.82*</td>
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<tr>
<td>Total Well-Being</td>
<td>11.45***</td>
<td>-.04</td>
<td>-.50***</td>
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<tr>
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<td>.06</td>
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<td>.07</td>
<td>.49***</td>
<td>14.39***</td>
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<td>Maladaptive Defenses</td>
<td>24.63***</td>
<td>.08</td>
<td>.36**</td>
<td>13.67***</td>
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<tr>
<td>Image Distorting Defenses</td>
<td>6.18*</td>
<td>-.01</td>
<td>.11</td>
<td>4.20*</td>
</tr>
<tr>
<td>Splitting</td>
<td>9.12**</td>
<td>.00</td>
<td>.37***</td>
<td>4.23*</td>
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<tr>
<td>Global Severity Index</td>
<td>22.02***</td>
<td>-.04</td>
<td>.51***</td>
<td>14.84***</td>
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</table>

Note. $N_{\text{maltreated}} = 76; N_{\text{nonmaltreated}} = 76$. The adjusted maltreatment effect reflects the maltreatment status difference controlling for both avoidant and anxious attachment. The Sobel tests for mediation are based on regression analyses with anxious attachment as the only predictor. *$p < .05$; **$p < .01$; ***$p < .001$. 
Moderate and high participants did not differ on gender, race (i.e., minority status), household structure, or parental education level.

The basic analysis was a 2 (maltreatment status: maltreated/control) x 2 (level of maltreatment: moderate/high) mixed model MANOVA. Maltreatment status (maltreated or control) was treated as a within-subjects variable because of the demographic yoking and level of maltreatment (moderate or high) was a between-subjects variable.
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F(1, 36)$</td>
<td>Avoidant ($\beta$)</td>
<td>Anxious ($\beta$)</td>
<td>$F(1, 36)$</td>
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<td>Environmental Mastery</td>
<td>6.40*</td>
<td>-.05</td>
<td>-.59***</td>
<td>.016</td>
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<td>Positive Relations with Others</td>
<td>2.92</td>
<td>-.07</td>
<td>-.46**</td>
<td>0.01</td>
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<tr>
<td>Self-Acceptance</td>
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<td>-.08</td>
<td>-.63***</td>
<td>0.17</td>
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<td>14.26***</td>
<td>-.04</td>
<td>.26</td>
<td>6.04*</td>
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</table>

Note. $N_{\text{maltreated}} = 38$; $N_{\text{nonmaltreated}} = 38$. The adjusted maltreatment effect reflects the maltreatment status difference controlling for both avoidant and anxious attachment. The Sobel tests for mediation are based on regression analyses with anxious attachment as the only predictor. *$p < .05$; **$p < .01$; ***$p < .001$. 
Attachment Style. The 2 x 2 MANOVA obtained significant effects of maltreatment status for both the avoidant and anxious dimensions of attachment, Fs (1, 36) > 11.11, ps < .01, such that maltreated participants were both more avoidant and more anxious than their nonmaltreated counterparts, as shown in Table 3. No other significant differences were found.

Psychological Adjustment. There were significant maltreatment effects for 5 of 11 adjustment variables analyzed. These 5 variables represented 4 of the 5 categories of adjustment, including well-being (two of the six subscales), negative affectivity, defense styles (maladaptive action defenses), and the global severity index, Fs (1, 36) > 4.04, ps < .05. In addition, there was a marginal maltreatment status effect for positive relations with others (a subscale of well-being), F (1, 36) = 2.92, p < .10. Table 3 displays the results for each variable.

For two variables (positive relations with others and self-acceptance), there was also a main effect of maltreatment level, such that maltreated participants in the high group (and their yoked counterparts) reported less positive relations (M_{moderate} = 70.71, M_{high} = 65.81) and lower self-acceptance (M_{moderate} = 67.50, M_{high} = 62.33) than those in the moderate group, Fs (1, 36) > 4.37, ps < .05. Although the level x status interactions were not significant, Fs (1, 36) < 1.30, ps > .26, inspection of the means showed that these level effects were most pronounced in the maltreated group. Simple effect tests for level within the nonmaltreated group were not significant, ts (36) < 0.61. No other significant effects were found.

Attachment as a Mediator of Emotional Maltreatment Effects. The procedures for mediational analysis outlined in Baron and Kenny (1986) were used to examine whether attachment style accounts for the poor psychological adjustment of the maltreated individuals. Again, maltreatment status was associated with both anxious and avoidant attachment, therefore both scores were entered as covariates in each of the 6 ANOVAs that found a significant or marginal effect of maltreatment status on adjustment. As shown in Table 4 (columns 2 and 3), there were unique effects of anxious (but not avoidant) attachment on adjustment for 4 of the 6 psychological adjustment variables tested. The exceptions were maladaptive defenses and the global severity index. Table 4 also displays the F-values for the original maltreatment status effect on adjustment (column 1) and the new values (column 4) when attachment is controlled. There were substantial reductions in the F-values for all 4 variables.
that showed a significant attachment effect, and each maltreatment status effect became nonsignificant, $F_s (1, 36) < 1.47$, ns. Sobel tests were conducted on all 4 variables for which anxious attachment was a significant covariate. The Sobel tests were significant for all 4 adjustment variables (Table 4, column 5), confirming that anxious attachment is a significant mediator of these adjustment effects.\footnote{We repeated the mediational analyses using the product of coefficients test (i.e., $A$ Path $\times$ B Path) with asymmetric confidence limits (MacKinnon et al., 2002). Asymmetric confidence limits and the critical values for the product of coefficients tests were computed using the PRODCLIN program (MacKinnon et al., 2007; MacKinnon et al., 2004). The results of these alternate tests of mediation were highly consistent with those attained through the Baron and Kenny (1986) approach.}

To summarize the results for the sexually maltreated sample, anxious attachment is a significant mediator of maltreatment status effects for environmental mastery, positive relations with others, self-acceptance, and negative affectivity, but not for maladaptive defenses or the global severity index (the adjustment variables that represent the greatest pathology).

**DISCUSSION**

In this study, emotionally and sexually maltreated individuals were similar in their self-reports of insecure attachment on both anxious and avoidant dimensions. However, it was only the anxious dimension that uniquely predicted poor psychological adjustment and played a mediational role. In the case of sexual maltreatment, this mediation was typically complete, reducing maltreatment effects on adjustment to zero. For emotional maltreatment, anxious attachment was a partial mediator, leaving a significant portion of the maltreatment effects on adjustment unexplained. This could mean that the adjustment problems associated with emotional maltreatment are less uniformly relational in nature than those associated with sexual maltreatment. In emotional maltreatment, the internalization of derogatory communications from caregivers may create deep-seated concerns about the self that affect adjustment without a mediating role of attachment. For example, an emotionally maltreated child may develop a secure attachment to an empathic partner or role model that resolves some relational issues, but does not remove individual concerns about own abilities, potential, or achievement that impede good adjustment. One possibility is that variance in the psychological adjustment of emotionally maltreated individuals that cannot be attributed to attachment could be attrib-
uted to negative cognitive style; an established mediator of adjustment effects (Gibb et al., 2001).

Given the range of psychological adjustment measures used, it is perhaps surprising that anxious (and not avoidant) attachment consistently predicted poor adjustment. However, some studies of maltreatment have found that anxious (or preoccupied) attachment is associated with poorer adjustment and greater psychopathology than are other insecure attachment styles (Cooper, Shaver, & Collins, 1998; Muller et al., 2001). One interpretation of these findings is that avoidant individuals tend not to express or be sensitized to their own distress (Fraley & Shaver, 1997; Mikulincer & Orbach, 1995). This may allow them to function quite well (Fraley, Davis, & Shaver, 1998; Hazan & Shaver, 1987, 1990; Griffin & Bartholomew, 1994), in which case the lack of avoidant attachment effects should be viewed as an accurate index of the consequences of their maltreatment. In this view, the development of an avoidant attachment style may represent an optimal solution to the problem of emotional and sexual maltreatment that allows maltreated individuals to function effectively on many dimensions and in many domains despite disruptions to close relationships. Alternatively, it may be that the present measures of adjustment, all relying on self-report, are obscuring underlying adjustment deficits that avoidantly attached individuals do not express (Mickelson, Kessler, & Shaver, 1997; Rosenstein & Horowitz, 1996). A third possibility is that the present samples do not represent the full range of maltreatment in the general population. If these samples represent a relatively healthy subset of maltreated individuals, it seems plausible that anxious attachment is most predictive of adjustment within the largely normal range, whereas extremes of avoidant attachment and its consequences for adjustment may be more readily observed in a more distressed population.

A strength of the present approach is that demographically matching participants ensures that the adjustment differences observed between maltreated and control participants are not due to the demographic differences inherent in a maltreated sample. Perhaps more importantly, it allows for more precise measurement of the mediational process of attachment; that is, without utilizing a demographically matched sample, these demographic differences would have to be controlled statistically, relying on the process of adjusting values to account for possible demographic effects. Nonetheless, the present results likely represent the process of attachment in a relatively resilient group of maltreatment survivors.
Taking into account differences in sample size, the adjustment deficits of emotionally and sexually maltreated samples were similar, with the exception of the prevalence of emotion-focused coping in emotionally-maltreated individuals, consistent with low perceived control over maltreatment events. Both maltreated groups showed some basic adjustment deficits such as negative affectivity, low self-acceptance, and high symptomatology. They also showed the intriguing combination of elevated negative coping strategies (e.g., low environmental mastery, high maladaptive defenses) and no deficit for positive coping strategies (e.g., problem-solving, adaptive defenses), consistent with the view that maltreated individuals know a wide range of coping skills. In some environments (e.g., low stress), maltreated individuals may be able to use the same coping skills as nonmaltreated individuals. Their maladaptive defenses may emerge primarily in response to their unique environments, in which contexts these ways of coping may be a very reasonable choice.

Although here we test an implied causal path from maltreatment events to attachment to adjustment, it is entirely possible that the direction of causality is sometimes reversed, namely, that poor adjustment alters attachment, or that problems in adjustment, attachment, third variables (such as temperament), or some combination thereof contribute to abuse. One limitation of the present study is its focus on number of maltreatment events rather than specific characteristics of those events, such as relationship of the perpetrator (Beitchman, Zucker, Hood, DaCosta, & Akman, 1991; Tyler, 2002; Wyatt & Newcomb, 1990), frequency and duration of the maltreatment (Beitchman et al., 1991; Kendall-Tackett, Williams, & Finkelhor, 1993), and age of onset (Belkin, Greene, Rodrigue, & Boggs, 1994; McClellan, McCurry, Ronnei, & Adam, 1996; Nash, Zivney, & Hulsey, 1993). These characteristics are often cited as potentially critical moderators of the impact of maltreatment events. In particular, it seems that attachment effects of maltreatment would be heavily influenced by whether maltreated individuals have alternative attachment figures in their lives. Of greater interest, however, would be a measure of the availability of secure attachments and whether they can serve as a source of resilience for maltreated individuals.

In conclusion, the present findings that anxious attachment mediates the psychological adjustment of emotionally and sexually maltreated individuals suggest a potential pathway of resilience for these populations. Maltreated individuals who are able to form se-
cure attachments despite the experience of emotional or sexual maltreatment or who are able to circumvent the negative consequences of anxious attachment by learning compensatory coping skills or avoiding situations that provoke their distress may be the most resilient.

REFERENCES


