Psychological Trauma and Schizotypal Symptoms

by Howard Berenbaum, Eve M. Valera, and John Q. Kerns

Abstract

In a sample of 75 women recruited from the community, we measured trauma/maltreatment history and symptoms of schizotypal personality disorder, using both questionnaire and interview measures. As hypothesized, individuals with histories of trauma/maltreatment had elevated levels of schizotypal symptoms. Among types of trauma/maltreatment, reported childhood neglect was especially strongly associated with schizotypal symptoms. Although posttraumatic stress disorder symptom severity, depression, dissociation, and difficulty identifying one’s emotions were all associated with schizotypal symptoms, they could not account completely for the association between trauma/maltreatment and schizotypal symptoms.

Keywords: Schizophrenia spectrum, schizotypal personality disorder, trauma, childhood maltreatment, stress, peculiarity.


Berenbaum and colleagues (Berenbaum and Fujita 1994; Berenbaum 1996b; Berenbaum et al. 2000) have described a multidimensional individual differences construct, labeled peculiarity, that encompasses peculiar perceptions, beliefs, and experiences. The high end of this individual differences dimension is anchored by clinically significant hallucinations and delusions. Peculiar perceptions and beliefs are associated with a broad array of psychiatric disturbances, such as mood disorders, borderline personality disorder, and posttraumatic stress disorder (PTSD), although they are most frequently associated with schizophrenia spectrum disorders, such as schizophrenia and schizotypal personality disorder.

It is well established that genetic and neurodevelopmental factors contribute to the development of elevated levels of peculiarity, at least as individuals with schizophrenia spectrum disorders exhibit them (e.g., Gottesman and Shields 1972; Fish et al. 1992; Murray et al. 1992; Kendler and Diehl 1993; Weinstein et al. 1999). Berenbaum (1996b) posited that an additional factor, psychological trauma, can contribute to the development of elevated levels of peculiarity. This hypothesis was based on research that had found that (1) childhood trauma and exposure to an earthquake were associated with elevated levels of Schneiderian symptoms of schizophrenia (Ross and Joshi 1992b; Cardena and Spiegel 1993), (2) a history of childhood trauma was associated with elevated paranormal beliefs (Irwin 1992; Ross and Joshi 1992a), and (3) psychotic symptoms sometimes appear to be elicited by extreme stress (Comer et al. 1967; Siegel 1984; Mueser and Butler 1987).

Recent research (Berenbaum 1999; Johnson et al. 1999, 2000) has provided initial support for Berenbaum’s (1996b) hypothesis that trauma/maltreatment can contribute to the development of elevated levels of peculiarity. In a sample of close to 500 unselected college students, Berenbaum (1999) found that childhood maltreatment was associated with elevated levels of peculiarity as measured by the Perceptual Aberration and Magical Ideation scales (Chapman et al. 1978; Eckblad and Chapman 1983). The associations could not be accounted for by shared variance with negative affect or by scores on the Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe 1960). In a large sample of young adults, Johnson et al. (1999, 2000) found that elevated levels of schizotypal personality disorder symptoms were significantly associated with documented cases of childhood neglect, particularly with physical and emotional neglect (as opposed to cognitive or supervisory neglect). Furthermore, these associations remained even after adjusting statistically for age, parental education, and parental psychiatric disorders.

The first goal of the present study was to test the hypothesis that trauma/maltreatment is associated with peculiarity in a sample of individuals not limited to young adults. In addition, we examined the possible role of psychological dysfunction in accounting for the association between trauma/maltreatment and peculiarity. Specifically,
we wished to examine whether the association between trauma/maltreatment and peculiarity would be accounted for by psychological dysfunction or whether trauma/maltreatment would continue to be associated with peculiarity even after taking into account psychological dysfunction. One reason to explore the possible role of psychological dysfunction is that even if, as we hypothesized, elevated levels of peculiarity are associated with a history of psychological trauma are dissociation (e.g., Sandberg and Lynn 1992; Cardena and Spiegel 1993; Vanderlinden et al. 1993) and difficulty identifying one's own emotions (e.g., Krystal et al. 1986; Zeitlin et al. 1993; Berenbaum 1996a). Thus, it seemed plausible that any link between trauma and peculiarity might be mediated by the psychological dysfunction that often follows trauma/maltreatment. Therefore, the second goal of this study was to explore whether psychological dysfunction is a partial or complete mediator of the link between trauma/maltreatment and peculiarity.

Method

Participants. Participants were 75 women ranging in age from 18 to 74 years (mean = 38.7, standard deviation [SD] = 14.2). Participants' education levels ranged from 10 to 23 years (mean = 14.9, SD = 3.7). Most (76%) of the women were European-American; of the remaining women, the largest group (19% of the total sample) was composed of African-Americans. We wanted to recruit a wide variety of women exhibiting a range of schizotypal symptoms. Sixteen women were recruited from a temporary employment agency, and the remaining participants were recruited using advertising placed in public locations (e.g., libraries, coffee shops) and local newspapers. Because we wished to recruit a larger proportion of women with high levels of schizotypal symptoms than would typically be found in a representative community sample, several newspaper advertisements sought respondents with unusual beliefs (e.g., belief in UFOs).

Procedure. Participants completed both interview and questionnaire measures of trauma history and schizotypal symptoms. A female experimenter (E.M.V.) with extensive experience working with women who have histories of psychological trauma administered the trauma instruments and was blind to information concerning schizotypal symptoms. A male experimenter (J.G.K.) with extensive experience conducting structured diagnostic interviews administered the schizotypal symptom instruments and was blind to information concerning trauma history. In addition, we measured dissociation, difficulty identifying one's emotions, and depression. Several additional instruments were administered but will not be discussed in this article. All participants were paid for participating in the study.

Trauma history. We used the Posttraumatic Diagnostic Scale (PTDS; Foa et al. 1997) to examine whether participants had experienced traumatic events. The PTDS presents participants with a list of common traumatic incidents (e.g., sexual assault, military combat) and asks them to indicate which, if any, they have experienced.

Childhood maltreatment was assessed via questionnaire using the 53-item version of the Childhood Trauma Questionnaire (CTQ; Bernstein et al. 1994; Bernstein 1995). The CTQ asks participants to indicate the degree to which they experienced a wide variety of undesirable incidents while growing up (e.g., "someone in my family yelled and screamed at me") using a 5-point scale (1 = never true; 5 = very often true). The CTQ measures the following five types of maltreatment: physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect. The CTQ has been found to have good psychometric properties and to be associated with interview-based ratings of childhood maltreatment (Bernstein et al. 1994) and with independent corroborations of childhood maltreatment (Bernstein et al. 1997).

In addition to the CTQ, interviews were used to assess childhood physical and sexual abuse. The childhood physical abuse interview was a modified/expanded version of the Self-Report of Childhood Abuse Physical (Widom and Shepard 1996). Participants were asked which of 12 specific types of physically abusive incidents/outcomes (e.g., "beat or hit you with something hard like a stick or baseball bat," "kicked you," and "hurt you so badly that you got a dental injury") occurred, who the perpetrator was, how many times it occurred, and how old the participant was. Participants were asked the same set of questions for two different time frames: (1) "up until the time you finished elementary school, so around age 12"; and (2) "between the time you finished elementary school, so about age 12, until age 16."

Childhood sexual abuse was measured using an interview procedure that followed the same approach described by Finkelhor (1979), Russell (1983), and Widom and Morris (1997). Participants were asked which of 10 specific sexual acts (e.g., "fondle/touch you sexually," "have oral or anal sex with you") occurred, whether the participants were clothed at the time (for relevant behaviors such as fondling), whether the act was voluntary, whether there was actual or threatened force, who the perpetrator was...
(including the age of the perpetrator at the time), how many times the act occurred, and how old the participant was. Because of the possibility that maltreatment occurring during the teenage years may have different consequences than maltreatment occurring earlier in childhood, and to be consistent with past research (e.g., Finkelhor 1979), participants were asked the same set of questions for two different time frames—until age 12, and from ages 12 to 16.

The information obtained in the interview was used to rate the presence/severity of childhood physical and sexual abuse occurring during two different time frames: prior to age 12, and from ages 12 to 16. Two research assistants, who were blind to all information collected other than the trauma interview, rated the severity of physical and sexual abuse using a 5-point scale (1 = definitely no abuse; 5 = extremely severe abuse). In making their ratings, the research assistants took into account all of the information collected during the interview, such as the ages at which the abuse took place, the nature and frequency of abusive incidents, who the perpetrator was, and whether force or threatened force was used. Interrater reliability, measured using intraclass correlations treating raters as random effects and the mean of the raters as the unit of reliability, was 0.90 and 0.85 for physical abuse, and 0.95 and 0.94 for sexual abuse.

**Schizotypal personality.** Schizotypal personality disorder symptoms were measured via questionnaire using the Schizotypal Personality Questionnaire (SPQ; Raine 1991). The SPQ is a 74-item true/false self-report questionnaire designed to assess all of the schizotypal traits that compose the diagnostic criteria for schizotypal personality disorder. The SPQ has been found to have good psychometric properties (Raine 1991). The correlation between SPQ total scores and dimensional scores for schizotypal personality disorder based on a semistructured diagnostic interview was found to be rather strong \((r = 0.68)\) (Raine 1991).

Schizotypal symptoms were also assessed via interview using the portion of the Structured Interview for DSM-IV Personality (SIDP IV; Pfohl et al. 1995) pertaining to schizotypal personality disorder. Four participants met diagnostic criteria for schizotypal personality disorder, an additional 5 participants were subthreshold (i.e., they met four criteria), and a further 28 participants exhibited schizotypal traits (16 met one criterion, 8 met two criteria, and 4 met three criteria). Each of the nine schizotypal personality disorder criteria were rated using a 4-point scale (0 = not present; 3 = strongly present). The SIDP IV scores we used were computed by summing the dimensional scores for the different diagnostic criteria. The psychotic disorders module from the Structured Clinical Interview for DSM-IV (First et al. 1995) was also administered to those individuals who exhibited schizotypal features; none of the participants met criteria for any Axis I psychotic disorders. All information concerning schizotypal symptoms was obtained directly from participants; information from other informants was not available.

The diagnostic criteria for schizotypal personality disorder are somewhat diverse, including some items (e.g., magical thinking) that are far more relevant to the construction of peculiarity than are others (e.g., no close friends). Therefore, for both the SPQ and the SIDP IV, in addition to examining schizotypal personality disorder total scores, we examined scores on the cognitive-perceptual facet of schizotypal personality disorder (Raine et al. 1994). The cognitive-perceptual facet of schizotypal personality disorder was measured by summing across the following symptoms: ideas of reference, magical thinking, unusual perceptual experiences, and paranoid ideation. As expected, the SIDP IV schizotypal personality disorder cognitive-perceptual and total scores were significantly \((p < 0.001)\) correlated with the corresponding SPQ scores \((r = 0.67\) and \(r = 0.70\), respectively).

**Psychological dysfunction.** In addition to measuring trauma history and schizotypal personality, we also examined the following facets of psychological dysfunction: PTSD symptom severity, depression, nonpathological dissociation, pathological dissociation, and difficulty identifying one's own emotions.

PTSD symptom severity was measured using the PTDS. On the PTDS, after being asked which traumatic events they have experienced (and which bothers them the most, if they experienced more than one type of trauma), participants are asked to indicate the degree to which they have experienced each of 17 items (e.g., “having bad dreams or nightmares about the event”) during the past month, using a 4-point scale \((0 = \text{not at all or only one time}; 3 = \text{five or more times a week/almost always})\); the 17 items correspond to the DSM-IV PTSD symptoms. The PTDS was found to have good psychometric properties and to distinguish between individuals with and without PTSD (Foa et al. 1997). In this study, we examined PTDS total scores (i.e., the sum of scores on all 17 items).

We measured depression using the Beck Depression Inventory (BDI; Beck et al. 1979). The BDI, a frequently used self-report measure of depressive symptoms, is a 21-item inventory that has been found to have good psychometric properties (Beck et al. 1988).

We measured dissociation using the Dissociative Experiences Scale (DES; Bernstein and Putnam 1986; Carlson and Putnam 1993). The DES is composed of 28 items measuring a variety of dissociative experiences. With the work of Waller and Ross (1997) as a model, we
used the DES to (1) obtain a dimensional measure of nonpathological dissociation, and (2) determine whether the participant is a member of the pathological dissociation taxon. Pathological dissociation was measured using the eight items of the DES-T subscale (Waller and Ross 1997); these items measure amnesia for dissociative states, as well as derealization and depersonalization (e.g., “feeling that other people, objects and the world are not real”). Nonpathological dissociation was measured using the remaining 20 DES items, which tap normative dissociative experiences (e.g., “watching television or a movie and becoming so absorbed in the story that they are unaware of other events happening around them”). The likelihood of participants being members of the pathological dissociation taxon was estimated using the algorithm presented in the appendix of Waller and Ross (1997). As expected, estimates of the likelihood that participants would belong to the pathological dissociation taxon were bimodally distributed. For 62 participants, the likelihood of belonging to the pathological dissociation taxon was estimated as being less than 7 percent (the mean likelihood estimate for these 62 participants was less than 1%). The lowest likelihood estimate for the remaining 13 participants was 56 percent (the mean likelihood estimate for these 13 participants was 86%). Consequently, we divided participants into two groups: 62 participants who were not estimated to belong to the pathological dissociation taxon, and 13 who were.\(^1\) The point-biserial correlation between pathological dissociation taxon membership and nonpathological dissociation scores was 0.56 (\(p < 0.001\)).

Difficulty identifying one’s feelings was measured using the Identification subscale of the most recent version of the Toronto Alexithymia Scale (TAS–20; Bagby et al. 1994a, 1994b). The TAS–20 Identification subscale is composed of seven items (e.g., “I am often confused about what emotion I am feeling”) answered using a 5-point scale (1 = strongly disagree; 5 = strongly agree). The TAS–20 and its constituent subscales have been found to have good psychometric properties and reasonable evidence of convergent and discriminant validity (Bagby et al. 1994a, 1994b).

\(^1\) Although the proportion of participants in the present study who were estimated to be in the pathological dissociation taxon is substantially higher than the proportion of the general population estimated to be in the pathological dissociation taxon (Waller and Ross, 1997), this is not surprising given that (1) we intentionally oversampled individuals with high levels of peculiarity, (2) past research has found an association between peculiarity and a history of trauma/maltreatment (e.g., Berenbaum, 1999; Johnson et al. 1999, 2000), and (3) a history of trauma/maltreatment is presumed to contribute to dissociation.

### Results

Descriptive statistics for all of the variables examined in this study, as well as the correlations among them, are presented in table 1. As predicted, individuals who had been victims of at least one traumatic incident had higher levels of schizotypal symptoms than did individuals who had never experienced a traumatic event. Schizotypal symptoms were associated with all measures of childhood maltreatment (i.e., physical abuse, sexual abuse, and neglect); some of these associations, particularly the associations between neglect and schizotypal symptoms, were particularly strong. Also, as expected, all measures of psychological dysfunction (i.e., PTSD symptomatology, depression, pathological and nonpathological dissociation, and difficulty identifying one’s feelings) were associated with schizotypal symptoms. Finally, the different measures of psychological dysfunction were all significantly correlated with each other and tended to be associated with trauma and childhood maltreatment.

Next, to explore the associations among the different variables when taking them into account simultaneously, we performed structural equation modeling (SEM) analyses using AMOS 4 (Arbuckle 1999). SEM, also known as causal modeling and analysis of covariance structures, is used to test hypothesized causal relations among latent variables. SEM is particularly well suited to examining complex relationships (e.g., testing the role of potential mediators) when, as in our case, there are multiple imperfectly measured observable indicators of the latent variables. We examined the associations among the following latent variables: sexual abuse (using CTQ sexual abuse, interview preteen sexual abuse, and interview teen sexual abuse as observable indicators), physical abuse (using CTQ physical abuse, interview preteen physical abuse, and interview teen physical abuse as observable indicators), neglect (using CTQ emotional neglect and CTQ physical neglect as observable indicators), psychological dysfunction (using the measures of PTSD, depression, pathological and nonpathological dissociation, and difficulty identifying one’s own feelings as observable indicators), and schizotypal personality disorder (using the SPQ and SIDP IV total scores as observable indicators). The major questions we wished to address with SEM were as follows: When all three forms of childhood maltreatment are examined simultaneously, which are associated with psychological dysfunction and schizotypal personality disorder? Is psychological dysfunction a partial or complete mediator of the link between trauma/maltreatment and schizotypal personality disorder? A schematic diagram illustrating the statistically significant paths is presented in figure 1. The SEM analyses indicated that neglect (but not physical or sexual abuse) predicted psychological dysfunction and
Table 1. Descriptive statistics and correlations among variables

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Note.—BDI = Beck Depression Inventory; CTQ = Childhood Trauma Questionnaire; PTSD = posttraumatic stress disorder; SD = standard deviation; SIDP IV = Structured Interview for DSM-IV Personality; SPQ = Schizotypal Personality Questionnaire.

1 Proportion

*p < 0.05  **p < 0.01
that both neglect and psychological dysfunction (but not physical or sexual abuse) predicted schizotypal personality disorder. These results suggest that psychological dysfunction is a partial mediator of the link between neglect and schizotypal personality disorder. In other words, neglect appears to influence schizotypal personality disorder both directly (as indicated by the arrow linking neglect directly with schizotypal personality disorder) and indirectly via psychological dysfunction (as indicated by the arrow linking neglect and psychological dysfunction, and the arrow linking psychological dysfunction and schizotypal personality disorder). Similar results were obtained when only the cognitive-perceptual facets of schizotypal personality disorder were examined (using the SIDP IV and SPQ cognitive-perceptual scores as observable indicators in place of the SIDP IV and SPQ total scores).

We also performed a series of partial correlation analyses to determine whether the results of the SEM analyses would be confirmed when a different data analytic strategy was used. The partial correlation analyses indicated that neglect and schizotypal personality disorder were significantly associated when controlling for childhood physical and sexual abuse, whereas childhood physical and sexual abuse and schizotypal personality disorder were not significantly associated when controlling for neglect. Also, when controlling for all five of the psychological dysfunction variables, the associations between both neglect variables and schizotypal personality disorder were reduced (relative to the zero-order correlations) but remained statistically significant. For example, the partial correlation between emotional neglect and SIDP IV total scores (when removing shared variance with PTSD, depression, pathological and nonpathological dissociation, and difficulty identifying one's own feelings) was 0.34, \( p < 0.01 \), whereas the zero-order correlation between emotional neglect and SIDP IV total scores was 0.54, \( p < 0.01 \). Thus, the results of the partial correlation analyses are consistent with the results of the SEM analyses in suggesting that psychological dysfunction is a partial mediator of the link between neglect and schizotypal personality disorder.

In our final analysis, we examined whether a reported history of psychological trauma continued to be associated with schizotypal personality disorder after shared variance with childhood neglect was removed. Removing shared variance with both emotional and physical neglect, the partial correlations between psychological trauma and the different schizotypal personality disorder scores were
SIDP IV total: 0.21 (p < 0.05), SPQ total: 0.15 (nonsignificant), SIDP IV cognitive-perceptual: 0.26 (p < 0.05), and SPQ cognitive-perceptual: 0.18 (p < 0.07).

Discussion

A great deal of research has demonstrated that psychological trauma/maltreatment, particularly during childhood, leads to numerous undesirable mental health consequences. However, such research has devoted surprisingly little attention to the possible effects of trauma/maltreatment on peculiar perceptions and beliefs. The results of the present study are consistent with the results of recent research (Berenbaum 1999; Johnson et al. 1999, 2000) in supporting Berenbaum’s (1996b) hypothesis that psychological trauma can contribute to the development of elevated levels of peculiarity. Additional research will be needed, however, to obtain a precise estimate of the strength of the association in the general population. The studies by Berenbaum (1999) and Johnson et al. (1999, 2000) were limited to young adults and did not examine sources of trauma other than childhood maltreatment. The present study did not examine men, and the female participants were not sampled randomly from the general population. Although we may not yet know how strong the association in the general population is between trauma/maltreatment and peculiarity, the results of the present study raise the possibility that the association may be rather strong.

We found that those individuals who had experienced trauma, especially childhood maltreatment, had higher levels of peculiarity and schizotypal symptoms than did those individuals who did not experience trauma. Furthermore, of the different types of childhood maltreatment, it was neglect that was most strongly associated with peculiarity and schizotypal symptoms. This finding is consistent with the results of Johnson et al. (1999, 2000), who also found that neglect was more strongly associated with schizotypal personality disorder than was physical or sexual abuse. Although childhood neglect appears to be strongly associated with levels of schizotypal symptoms, other forms of psychological trauma are also likely to play a role; we found that a history of psychological trauma is associated with levels of schizotypal symptoms even after taking childhood neglect into account.

Perhaps more important than documenting an association between trauma/maltreatment and levels of schizotypal symptoms, because this has been done before (e.g., Berenbaum 1999; Johnson et al. 1999, 2000), the present study began to address the question of what might account for the association. We found evidence consistent with the hypothesis that psychological dysfunction (as indicated by depression, PTSD, dissociation, and difficulty identifying one’s emotions) is a partial mediator of the link between trauma/maltreatment and levels of peculiarity and schizotypal symptoms. At the same time, however, we found that the association between trauma/maltreatment and levels of schizotypal symptoms could not be accounted for completely by psychological dysfunction. It will be important for future research to explore other mechanisms that might help explain how trauma/maltreatment may contribute to elevated levels of peculiarity. For example, future research should explore possible contributing factors such as absorption and proneness to fantasy; attachment security; the ways in which individuals attend to, process, and utilize emotionally valenced information (e.g., Kerns and Berenbaum 2000); and neurobiological factors that are associated with stress, such as functioning of the hypothalamic-pituitary-adrenal axis (e.g., Walker and Diforio 1997).

In interpreting the results of this study, one must distinguish between peculiarity, which represents only one aspect of schizophrenia spectrum disorders, and schizophrenia, which also encompasses a variety of deficit-like signs and symptoms. Our hypotheses concerning the effects of trauma are specific to peculiarity. The results of this study do not lead us to propose that schizophrenia is caused by trauma/maltreatment; in fact, there already exists strong evidence to the contrary (e.g., Stein et al. 1988; Brown and Anderson 1991; Pribor and Dinwiddie 1992). There are, however, two other reasons why we believe research such as that reported in this article is important for researchers interested in schizophrenia. First, the results of this study and other recent similar studies (e.g., Johnson et al. 1999, 2000) improve our understanding of schizotypal personality disorder, which is typically considered part of the schizophrenia spectrum. The finding suggesting that an important aspect of schizotypal personality disorder (i.e., peculiarity), and at least some cases of schizotypal personality disorder, may be influenced by trauma/maltreatment is particularly important for researchers conducting gene linkage studies who may be inclined to assume that most or all cases of schizotypal personality disorder are caused by genes associated with schizophrenia. Although individuals with schizotypal personality disorder who have first degree relatives with schizophrenia are likely to have been vulnerable because of genetic reasons, the same may not be true of other individuals with schizotypal personality disorder. A second reason why we believe studies such as this are relevant to schizophrenia is that they highlight the potentially important role of stress in the development and exacerbation of peculiar perceptions and beliefs (e.g., Nuechterlein et al. 1992) and can help point to potential mediating mechanisms.

Because our assessment of psychological trauma/maltreatment was based on self-report, we cannot be certain of
the veracity of the reports. It is possible that some individuals reported traumatic incidents that did not occur or exaggerated the degree of the trauma/maltreatment. An even more likely possibility is that some individuals failed to report trauma that had occurred (e.g., Williams 1994; Widom and Shepard 1996; Widom and Morris 1997). Nonetheless, there are several reasons to believe our results are not mere artifacts of reporting errors. First, although we relied on self-report, we used assessment strategies that have been found in the past to have reasonable levels of validity, including being found to be associated with independent corroborations (e.g., Widom and Shepard 1996; Bernstein et al. 1997; Widom and Morris 1997). Second, past research finding that individuals with schizophrenia are not more likely than controls to report childhood maltreatment (Stein et al. 1988; Brown and Anderson 1991; Pribor and Dinwiddie 1992) suggests that elevated levels of peculiarity are not sufficient to lead individuals to overreport childhood maltreatment. Finally, and perhaps most important, the results of this study are quite similar to those of Johnson et al. (1999, 2000), who had the benefit of using documented cases of childhood maltreatment. We recognize, however, that we cannot definitively rule out the possibility that our findings are the result of reporting biases. Even if it is the case that trauma/maltreatment is associated with elevated levels of peculiarity, it is possible that such an association results from the fact that parents who possess genes that increase their offspring's vulnerability to the schizophrenia spectrum are more likely to neglect/maltreat their children, with trauma/maltreatment playing no causal role whatsoever. Although this possibility has yet to be definitively ruled out, it is worth noting that Johnson et al. (1999) found that levels of schizotypal personality disorder were associated with documented childhood neglect even after taking into account parental psychopathology. We are optimistic that in the end, converging evidence from a variety of investigators using complementary approaches will clarify whether and how trauma/maltreatment contributes to peculiar perceptions and beliefs.

References


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**The Authors**

Howard Berenbaum, Ph.D., is Professor, Department of Psychology, University of Illinois at Urbana-Champaign, Champaign, IL. Eve M. Valera, Ph.D., was a graduate student, Department of Psychology, University of Illinois at Urbana-Champaign, at the time this study was conducted and is now Research Fellow in Psychology, Department of Psychiatry, Harvard Medical School, Cambridge, MA. John G. Kerns, Ph.D., was a graduate student, Department of Psychology, University of Illinois at Urbana-Champaign, at the time this study was conducted and is now Postdoctoral Fellow, Department of Psychiatry, University of Pittsburgh Medical School, Pittsburgh, PA.