

## Age of Onset of Child Maltreatment Predicts Long-Term Mental Health Outcomes

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The authors tested the hypothesis that children who are maltreated earlier in life are at greater risk for poor psychological functioning in adulthood than those maltreated later in life. Age of onset of maltreatment was assessed with 3 classifications: (a) continuous (ages 0–11 years); (b) dichotomous (early [ages 0–5 years] vs. later [ages 6–11 years]); and (c) developmental (infancy [ages 0–2 years], preschool [ages 3–5 years], early school age [ages 6–8 years], and school age [ages 9–11 years]). Individuals with documented cases of physical and sexual abuse and neglect prior to age 12 ( $N = 496$ ) were followed up and assessed in adulthood. Results indicated that an earlier onset of maltreatment, measured dichotomously and developmentally, predicted more symptoms of anxiety and depression in adulthood, while controlling for gender, race, current age, and other abuse reports. Later onset of maltreatment, measured continuously or developmentally, was predictive of more behavioral problems in adulthood. Implications for the assessment of maltreated children, the prevention of adult psychopathology, and the classification of age of maltreatment onset are discussed.

*Keywords:* age of onset, child maltreatment, longitudinal, mental health, risk factors

Childhood maltreatment can have profound and wide-ranging effects on later functioning, including anxiety, depression, post-traumatic stress disorder (PTSD), dissociation, somatization, anti-social personality disorder (ASPD), and drug and alcohol abuse (Burnam et al., 1988; Dubowitz, Black, Harrington, & Verschoore, 1993; Kaufman, 1991; Luntz & Widom, 1994; Pelcovitz et al., 1994; Putnam, 1997; Widom, 1999; Widom, Ireland, & Glynn, 1995). However, few researchers have examined the ways in which characteristics of the abuse experience affect subsequent outcomes of child maltreatment.

One characteristic that has received attention is age of onset of maltreatment. Specifically, some researchers have hypothesized that the age and/or developmental period at which a child is maltreated may play an important role in future psychological functioning (e.g., Cicchetti & Lynch, 1995; Manly, Kim, Rogosch, & Cicchetti, 2001; Widom, 2000). Existing theory postulates that children who are maltreated earlier in life are at greater risk for poor psychological functioning in adulthood. For example, scholars have suggested that if the harm at one developmental level is not ameliorated, future developmental tasks may be compromised (Aber, Allen, Carlson, & Cicchetti, 1989; Cicchetti, 1989; Wolfe, 1987). The earlier the maltreatment occurs in a child's life, the

more likely it is that the child will fail to achieve important developmental milestones, such as the development of self-regulation, and, in turn, this will lead to a greater likelihood of future psychopathology and emotional distress (Cicchetti, 1989). Similarly, it has been theorized that the manifestations of maltreatment may vary depending on the successful or unsuccessful negotiation of stage-specific tasks at different developmental levels (Cicchetti & Toth, 1995).

On the other hand, some researchers have theorized that younger children may be buffered against many of the phenomena that would produce distress in older children (e.g., Maccoby, 1983). Protective mechanisms in this regard may include less-developed cognitive abilities as well as a decreased propensity toward shame or egocentric thinking. Others have noted that the greater autonomy of adolescents (as opposed to younger victims of maltreatment) may increase their access to illegitimate coping strategies, which may, in turn, lead to behavioral problems (Garbarino, 1989; Kaufman & Widom, 1999).

Several prospective studies have explicitly examined the age of onset of abuse as a predictor of later psychopathology in childhood and/or adolescence. Bolger, Patterson, and Kupersmidt (1999) demonstrated that children who were abused at an earlier age (measured continuously; range = 0–12 years) had lower levels of self-esteem than children who were abused later. In one of the few prospective studies of maltreated children followed into adolescence, Keiley, Howe, Dodge, Bates, and Pettit (2001) found that the earlier children experienced physical maltreatment (i.e., prior to the age of 5; range = 0–9 years), the more likely they were to experience adjustment problems in adolescence. In another prospective study of sexually abused children, Kaplow, Dodge, Amaya-Jackson, and Saxe (2005) found that an earlier age of sexual abuse onset (measured continuously; range = 0–13 years) predicted higher levels of anxiety years later. Finally, a recent study of maltreated children found that an earlier age of the first

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report of maltreatment (measured continuously; range = 0–8 years) was a predictor of poor daily living skills (English, Graham, Litrownik, Everson, & Bangdiwala, 2005). These findings lend support to the hypothesis that an earlier age of onset of abuse will be associated with more psychological difficulties in adulthood.

Further support for an inverse relationship between age of onset of maltreatment and later psychopathology comes from the field of developmental traumatology. Recent empirical evidence suggests that there may indeed be critical periods and dose effects for stress-related alterations in brain development (De Bellis, 2001), leading to greater long-term psychological disturbance. For example, De Bellis, Keshavan, et al. (1999) found evidence to support an association between early childhood maltreatment and adverse consequences for brain development. Specifically, smaller brains were associated with an earlier age of onset of abuse (measured continuously; range = 0–10 years) and greater PTSD symptomatology; however, specific age ranges associated with brain deficits were not identified.

In contrast, some studies have reported greater disturbance in children who were abused during the adolescent years as opposed to younger ages (Adams-Tucker, 1982; Sedney & Brooks, 1984; Sirles, Smith, & Kusama, 1989). For example, Thornberry, Ireland, and Smith (2001) found that individuals who were maltreated in adolescence, defined as ages 12 through 17, displayed more consistent negative consequences (e.g., delinquency) in late adolescence compared with those individuals who experienced maltreatment prior to age 12.

It is evident that the existing literature has been equivocal, with some studies suggesting a positive relationship between age of onset of maltreatment and psychological functioning (Adams-Tucker, 1982; Sedney & Brooks, 1984; Sirles et al., 1989; Thornberry et al., 2001), some studies suggesting an inverse relationship (Bolger et al., 1999; Kaplow et al., 2005; Keiley et al., 2001), and others reporting no relationship at all (e.g., Quas, Goodman, & Jones, 2003). Therefore, it remains unclear whether maltreatment that occurs during certain ages or stages of development is associated with more detrimental long-term repercussions than others.

There may be several explanations for the ambiguity found in the extant literature. First, many studies examining the relationship between age of onset of maltreatment and psychological functioning have been retrospective, thereby allowing for potential subject reporting biases or inconsistencies in reporting. Second, of those studies that have been prospective, the participants may not have been followed long enough to identify the full extent of the consequences, particularly beyond adolescence and into adulthood (Widom, 2000). Third, it is possible that age of onset of maltreatment is associated with particular characteristics of the abuse itself and that these characteristics are what influence subsequent outcomes. For example, children who are abused earlier in life may not have experienced the same degree of force or coercion that older children or adolescents are likely to experience (Gomes-Schwartz, Horowitz, & Sauzier, 1985). Thus, it may be that characteristics of the abuse itself, as opposed to the timing of maltreatment, influence mental health outcomes, and these characteristics lead to divergent findings across different research studies.

Fourth, some studies have focused on specific diagnostic outcomes, whereas others have examined continuous outcome measures, such as psychological distress (symptoms). Results of studies are likely to vary as a function of the types of outcomes

assessed (e.g., categorical vs. continuous outcomes, externalizing vs. internalizing outcomes, etc.). Fifth, the duration of time that passes from the initial abuse to the assessment is likely to influence the degree of symptomatology present because older individuals have had a greater opportunity to develop psychological problems. Therefore, studies that fail to control for the age of the individual at the time of the assessment may not reflect the actual relationship between age of onset and psychological outcome. Finally, individual studies have used different conceptualizations of age of onset (e.g., dichotomous, continuous, etc.), which may lead to conflicting results.

Given the strong arguments put forth by developmental theorists as well as the growing evidence from recent prospective and neurobiological studies, we hypothesized that children who experienced maltreatment at an earlier point in their lives would demonstrate greater psychological problems in adulthood than children who were maltreated later in life. However, because there are competing theories and inconsistent evidence regarding effects of specific ages of onset, we examined potential differences in psychological outcomes on the basis of three different classification schemes for conceptualizing age of onset. As English et al. (2005) pointed out, "Researchers have not yet agreed upon a specific method of classifying a child's maltreatment experience longitudinally, or explored fully whether there might be differences in child outcomes based on the time frame of the experienced maltreatment" (p. 577). Using the work of English et al. as a guide, we chose to examine the effects of three distinct classifications of age of onset of maltreatment: continuous, dichotomous, and developmental. For the continuous classification, age of onset was treated as a continuous variable, ranging from 0–11, where 0 represents age of onset younger than 1 year of age. The dichotomous age of onset variable was divided into two groups (children below school age [i.e., under age 6] vs. school-age children and above [ages 6–11]) because previous empirical studies have used similar cut-offs (e.g., Keiley et al., 2001; Thornberry et al., 2001). Furthermore, theory suggests that maltreatment occurring during the preschool years may lead to greater psychological difficulties than maltreatment occurring later in life (e.g., Egeland, Yates, Appleyard, & van Dulmen, 2002). For the developmental classification, we used four developmental periods (infancy [0–2], preschool [3–5], early school age [6–8], and school age [9–11]), corresponding to Erikson's (1963) initial stages of psychosocial development.

## Purpose

We had two primary goals in this study: (a) to determine whether an earlier age of onset of maltreatment in childhood is predictive of greater psychopathology in adulthood than a later age of onset of maltreatment and (b) to examine the utility of three different characterizations of age of onset of maltreatment in predicting psychological and behavioral functioning in a sample of adults who were maltreated as children. We addressed gaps in the existing literature in a number of ways. To our knowledge, this is the first prospective study to examine whether age of onset of child maltreatment predicts long-term mental health consequences in adulthood. The study is also unique in that it used documented and substantiated cases of child physical and sexual abuse and neglect. In addition, the study controlled for the effects of current age as well as any other reports of maltreatment so that the age of onset

of maltreatment could be assessed as a unique predictor of later psychological problems. Finally, in this study, we examined a number of mental health indicators, including *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.; *DSM-III-R*; American Psychiatric Association, 1987) psychiatric diagnoses as well as continuous measures of psychological distress, allowing for a greater understanding of the multiple ways in which early childhood maltreatment may affect later psychological functioning.

## Method

### Participants

The data were drawn from a prospective cohort design study in which abused and neglected children were matched with nonvictimized children and followed prospectively into young adulthood. For the purposes of the current study, only the abused and neglected children were included as participants. (For details of the study design and subject selection criteria, see Widom, 1989a.)

Childhood physical and sexual abuse and neglect cases were drawn from the records of county juvenile and adult criminal courts in a metropolitan area in the Midwest during the years 1967 through 1971. The rationale for identifying the abused and neglected group was that their cases were serious enough to come to the attention of the authorities. That is, only court-substantiated cases of child abuse and neglect were included. Abuse and neglect cases were restricted to those in which the children were 11 years of age or younger at the time of the abuse or neglect incident. Excluded from the sample were court cases that represented (a) adoption of the child as an infant; (b) "involuntary" neglect only, usually resulting from the temporary institutionalization of the legal guardian; (c) placement only; or (d) failure to pay child support.

*Physical abuse* cases included injuries such as bruises, welts, burns, abrasions, lacerations, wounds, cuts, bone and skull fractures, and other evidence of physical injury. *Sexual abuse* charges varied from relatively nonspecific charges of "assault and battery with intent to gratify sexual desires" to more specific charges of "fondling or touching in an obscene manner," rape, sodomy, incest, and so forth. *Neglect* cases reflected a judgment that the parent's deficiencies in childcare were beyond those found acceptable by community and professional standards at the time. These cases represented extreme failure to provide adequate food, clothing, shelter, and medical attention to children.

### Procedure

The initial phase of the research identified a large group of children who were abused and/or neglected and a matched control group and followed up both groups with an examination of official juvenile and criminal records (Widom, 1989b). The second phase took place between 1989 and 1995 and involved tracing, locating, and interviewing these individuals a mean of 22.3 years ( $SD = 2.1$ ) later, when the participants were approximately 29 years old. This follow-up assessed these individuals across a number of domains, including cognitive, intellectual, emotional, psychiatric, social, and interpersonal functioning. Two-hour in-person interviews that included a series of structured and semistructured questionnaires and rating scales were conducted during that time. The third phase of the research involved another in-person interview, which took place between 2000 and 2002 when participants were approximately 40 years old. The current study used information about the abused-neglected group (because, by definition, the control group does not have an "age of onset") during all three phases of the project.

Respondents were interviewed in person, usually in their home, or, if the respondent preferred, another place appropriate for the interview. The interviewers were blind to the purpose of the study, to the inclusion of an

abused and/or neglected group, and to the participants' group membership. Similarly, the participants were blind to the purpose of the study and were told that they had been selected to participate as part of a large group of individuals who grew up in the late 1960s and early 1970s. Before beginning the interview, all respondents were asked to sign a consent form. For those individuals with limited reading ability, the consent form was read to the person and, if necessary, explained verbally. Institutional review board approval was obtained, and individuals who participated signed a consent form acknowledging that they understood the conditions of their participation and were participating voluntarily.

At the first follow-up interview (1989–1995), 737 of the original sample of 908 abused and neglected individuals were located. Of those located, 676 participants were interviewed. Of the people not interviewed, 27 were deceased (prior to interview), 8 were incapable of being interviewed, 171 were not found, and 26 refused to participate. At the second follow-up interview (2000–2002), 625 participants were located, and 500 were interviewed. Of the people not interviewed, 24 were deceased, 3 were incapable of being interviewed, 87 refused to participate, and for the remaining 11 people, access was denied. Attrition analyses compared current study participants with those who were lost to attrition on measures of gender, race, age of onset of abuse, type of abuse, and poverty level. These analyses indicated that a higher percentage of those who were lost to attrition were Caucasian,  $\chi^2(1, N = 908) = 9.47, p = .00$ . There were also differences in attrition by type of abuse and neglect: A higher percentage of those who experienced sexual abuse,  $\chi^2(1, N = 908) = 8.90, p = .00$ , were lost to attrition, whereas a higher percentage of those who had experienced neglect were retained,  $\chi^2(1, N = 908) = 12.61, p = .00$ . There were no significant differences between those who were retained and those lost to attrition with regard to gender, age of onset, or poverty level.

The current study sample consisted of 496 abused and neglected individuals (4 of the 500 participants interviewed were judged to be incapable and were excluded from these analyses). More than half (53.1%) of the sample was women. The sample was 62.0% White, non-Hispanic; 34.6% African American; and the remainder was Hispanic, American Indian, or those who reported more than one race/ethnicity. The mean age of the sample during the 1989–1995 interviews was 29.1 years ( $SD = 3.77$ ), and the mean age of the sample during the 2000–2002 interviews was 39.5 years ( $SD = 3.51$ ).

### Variables and Measures

*Age of onset of childhood abuse and neglect.* Information about the abuse or neglect incident(s), including the age of the child at the time of the petition, was obtained from the files of the juvenile (family) and adult criminal court (when the victims were 11 years of age or younger). The age of onset variable was classified in three different ways: (a) continuous (ages 0–11); (b) dichotomous (early: ages 0–5 vs. later: ages 6–11); and (c) developmental (infancy: ages 0–2; preschool: ages 3–5; early school age: ages 6–8; and school age: ages 9–11).

*Other abuse reports.* Information regarding whether the child had experienced any abuse-neglect reports in addition to the initial maltreatment report was also obtained from the files of the juvenile (family) and adult criminal courts. The other abuse variable was coded dichotomously (0 = *no other abuse-neglect reported*, 1 = *other abuse-neglect reported*); 30.2% of the sample had an additional report of abuse-neglect following the initial report.

*Psychiatric diagnoses.* At the first follow-up interview (at approximately age 29), the National Institute of Mental Health Diagnostic Interview Schedule (DIS-III-R; Robins, Helzer, Cottler, & Goldring, 1989) was used to assess a number of psychiatric symptoms and diagnoses, including lifetime alcohol abuse and/or dependence (AA), ASPD, drug abuse and/or dependence, major depressive disorder, generalized anxiety disorder, and PTSD. The DIS-III-R is a fully structured interview schedule

designed for use by lay interviewers. The interviewers were highly trained individuals, experienced in the administration of the DIS, who were supervised by the survey company and project staff. The interviewers received an intensive week of training and were carefully supervised. At the end of training, interviewers were required to conduct a full interview with a community volunteer, which was observed and critiqued by a member of the research staff. Computer programs for scoring the DIS-III-R were used to compute *DSM-III-R* diagnoses. The DIS has been used in prior community-based studies of psychiatric disorders, and adequate reliability and validity have been reported (Leaf & McEvoy, 1991).

**Psychological symptoms of distress.** Two measures of psychological distress were used to assess anxiety and depression at the second follow-up interview (at approximately age 40). The Center for Epidemiologic Studies—Depression (CES-D) Scale (Radloff, 1977), a brief 20-item self-report scale designed to measure depressive symptomatology in the general population, is made up of items used in previously validated longer scales to assess depression. Respondents indicate how often within the past week they experienced each symptom, with responses ranging from 0 (*none of the time*) to 3 (*most or all of the time*). The scale has been found to have high internal consistency and adequate test-retest reliability. Reliability, validity, and factor structure are similar across a wide variety of demographic characteristics in the general population samples tested (Radloff, 1977). Sample items include “I was bothered by things that usually don’t bother me” and “I felt lonely.” The CES-D mean for the current sample was 14.5 ( $SD = 11.65$ , range = 0–57), and internal consistency for the current sample scores was high (Cronbach’s  $\alpha = .91$ ).

The Beck Anxiety Inventory (BAI; Beck, 1987) is a 21-item self-report scale designed to measure the severity of anxiety symptoms in adults. Respondents indicate how much they have been bothered by each of the symptoms over the past week, with responses ranging from 0 (*not at all*) to 3 (*severely—I could barely stand it*). The BAI has been shown to have high internal consistency and test-retest reliability. It also has good concurrent and discriminant validity (Beck, Epstein, Brown, & Steer, 1988). Sample items include “unable to relax” and “heart pounding or racing.” The mean score for the overall sample on the BAI was 10.32 ( $SD = 11.27$ , range = 0–58). Internal consistency of the current sample scores was high (Cronbach’s  $\alpha = .93$ ). As is often the case when attempting to measure the constructs of anxiety and depression (Beck et al., 1988; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000), these two measures of psychological distress (CES-D and BAI) in the current sample were highly correlated ( $r = .72$ ), suggesting in part the effects of method variance.

**Social functioning.** Four measures, using information collected at the first follow-up interview (at approximately age 29), assessed dimensions of social functioning.

Participants were asked if they had graduated high school or received a high school diploma. The variable, high school graduate, was coded 0 if the answer was no, and 1 if the answer was yes; 52% of the current sample had graduated high school.

Occupational status of the sample was coded according to the Hollingshead Occupational Coding Index (Hollingshead, 1975), ranging from 1 (*laborer*) to 9 (*professional*). Median occupational level of the sample was semiskilled workers, and less than 7% of the overall sample was in levels 7–9 (managers to professionals). For purposes of this analysis, we classified the sample into two groups: individuals in the lowest four job categories (menial, unskilled, semiskilled, and skilled) were coded 0 (low occupational status,  $n = 372$ , 77.2%), and individuals in the top five job categories (clerical, technician, manager, administrators, executives) were coded 1 (high occupational status,  $n = 110$ , 22.8%).

Respondents were asked five questions pertaining to social activity, including how often they get together with family, close friends, or neighbors, or with other people to share an activity or hobby or attend a religious service or prayer group. Responses to questions were rated on an 8-point scale ranging from *daily* to *once per month* to *never*. If a respondent reported participating in at least one type of activity “daily” or “at least

several times a week,” they were considered socially active (coded as 1). If not, they were considered socially isolated (coded as 0); 66.8% of the current sample was considered to be socially active.

Homelessness was assessed through the use of the following question: “Has there ever been a period when you had no regular place to live for at least a month or so?” If the respondent answered “yes,” homelessness was coded as 1; if the respondent answered “no,” homelessness was coded as 0; 26.9% of the current sample indicated that they had been homeless at some point in their lives.

**Control variables.** Control variables included gender (female = 1), race (White, non-Hispanic = 1, other = 0), and age, measured by the participant’s age at the time of the first (1989–1995) interview.

### Data Analytic Plan

The overall analytic approach was to examine the predictive utility of three classifications of age of onset of maltreatment while controlling for demographic variables. Descriptive statistics were computed and rates of disorders were described. Separate hierarchical logistic regression models were estimated to examine the extent to which age of onset of abuse or neglect using the three classification systems (continuous, dichotomous, and developmental) predicts each lifetime psychiatric diagnosis. Odds ratios (ORs) were calculated for the relationships between age of onset of abuse or neglect and dichotomous dependent variables. For the blockwise analyses, ordinary least squares hierarchical regression analyses or analysis of variance (ANOVA) models were estimated for each of the outcome variables of interest, using the three classifications of age of onset (continuous, dichotomous, and developmental) as predictors. For the hierarchical regressions, control and predictor variables were entered in blocks as follows: (a) demographic variables (gender, race, age at first follow-up interview), (b) other abuse reported, and (c) age of onset of maltreatment using each of the three classification schemes (continuous, dichotomous, and developmental).

## Results

### Bivariate Relationships

Table 1 presents findings regarding the percentage of participants meeting *DSM-III-R* criteria for each psychiatric diagnosis and indicators of social functioning in addition to mean anxiety and depression symptom counts. These findings are presented for the sample overall and for the sample classified into dichotomous age of onset and developmental age of onset groups. From examination of Table 1, it is clear that, in general, rates of disorders do not appear to vary substantially across ages of onset when only the bivariate relationship is examined.

### Age of Onset of Maltreatment: Continuous

Using a classification system in which age of onset was treated as a continuous variable, ranging from 0 to 11 years of age, our results were contrary to expectations. The results indicated that individuals who were older at the time of the first abuse or neglect report were at higher risk for acquiring a lifetime diagnosis of ASPD (OR = 1.17,  $p < .05$ ) and AA (OR = 1.11,  $p < .05$ ; see Table 2), whereas no significant associations were found between age of onset, measured continuously, and the remaining four diagnoses. Individuals who were older at the time of the initial abuse–neglect report also demonstrated greater ASPD symptoms ( $\beta = .19$ ,  $p < .05$ ); however, age of maltreatment onset was not significantly associated with AA symptoms or any of the other

Table 1

*DSM-III-R Psychiatric Diagnoses, CES-D, Beck Anxiety Inventory Scores, and Social Functioning Variables for the Sample Overall, by Dichotomous and Developmental Age Groups*

Group	n	DSM-III-R diagnosis (%)						Symptom (M)		Social functioning (%)			
		PTSD	GAD	MDD	ASPD	AA	DA	DEP	ANX	Homeless	Soc Act	OCCSTAT	HSGrad
Total sample	496	34.0	7.6	28.8	18.1	55.2	37.0	14.5	10.3	26.9	66.8	22.8	52.0
Dichotomous													
0-5 years	201	35.0	5.5	31.0	17.5	51.5	35.3	16.1	11.9	22.0	67.7	21.1	54.3
6-11 years	296	33.3	9.1	27.4	18.6	57.6	38.2	13.4	9.2	30.2	66.2	24.0	50.5
Developmental													
0-2 years	89	28.1	2.2	25.8	13.5	46.1	34.8	15.5	11.0	20.2	77.5	21.8	48.9
3-5 years	112	40.5	8.0	35.1	20.7	55.9	35.7	16.5	12.7	23.4	59.8	20.6	58.7
6-8 years	142	29.8	9.2	26.1	15.5	57.4	33.8	12.6	8.3	28.9	67.6	26.8	55.0
9-11 years	154	36.6	9.1	28.6	21.4	57.8	42.2	14.2	10.1	31.4	64.9	21.3	46.4

*Note.* DSM-III-R = Diagnostic and Statistical Manual of Mental Disorders (3rd ed, rev.); CES-D = Center for Epidemiologic Studies—Depression Scale; PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ASPD = antisocial personality disorder; AA = alcohol abuse and/or dependence; DA = drug abuse and/or dependence; DEP = CES-D score; ANX = Beck Anxiety Inventory score; Homeless = ever been homeless; Soc Act = socially active; OCCSTAT = higher level occupation according to the Hollingshead Occupational Coding Index; HSGrad = graduated high school.

remaining symptom clusters (see Table 3). Children who were older at the time of the initial abuse–neglect report were less likely to have graduated high school (OR = .84,  $p < .01$ ) than those who were younger at the time of the initial report. Age of onset of maltreatment was not significantly related to any of the other functional outcomes (see Table 4).

#### *Age of Onset of Maltreatment: Dichotomous*

Using a dichotomous classification of age of onset of child maltreatment in which early onset refers to ages 0–5 and later onset refers to ages 6–11, our results indicate that age of onset of maltreatment was not predictive of any of the psychiatric diagnoses. However, individuals whose age of onset of maltreatment was younger (0–5 years of age) reported higher levels of depressive symptoms ( $\beta = -.20$ ,  $p < .01$ ) and anxiety symptoms ( $\beta = -.21$ ,  $p < .01$ ) at age 40 than did individuals with later ages of

onset (ages 6–11; see Table 5). Age of onset, measured dichotomously, was not significantly associated with any of the other symptom clusters. Consistent with earlier findings, individuals with a later onset of abuse or neglect were less likely to report having graduated from high school (OR = .51,  $p < .05$ ; see Table 4). Using this dichotomous classification, we found that age of onset of maltreatment was not associated with any of the other functional outcomes.

#### *Age of Onset of Maltreatment: Developmental*

The final classification scheme for examining the role of age of onset of child maltreatment used a developmental framework with four categories: infancy (ages 0–2), preschool (ages 3–5), early school age (ages 6–8), and school age (ages 9–11; see Table 6). Similar to the first set of regression models (continuous), age of onset was positively associated with the diagnosis of ASPD. With

Table 2

*Hierarchical Logistic Regressions Predicting Lifetime Psychiatric Diagnoses From Demographic Characteristics, Other Abuse and Neglect Reports, and Age of Onset of Abuse or Neglect (Continuous)*

Variable	Diagnosis (odds ratios)					
	PTSD (n = 470)	GAD (n = 473)	MDD (n = 472)	ASPD (n = 472)	AA (n = 471)	DA (n = 473)
Step 1						
Gender (female)	2.89**	0.95	2.04*	0.37**	0.45**	0.67*
Race (White)	1.09	1.14	1.44	1.01	1.80**	1.53*
Current age	1.05	1.05	1.01	0.90	0.96	1.03
Step 2						
Other abuse reports	1.56*	0.57	1.26	1.45	0.95	1.26
Step 3						
Age of onset	1.00	1.07	1.00	1.17*	1.11*	1.03

*Note.* Odds ratios are from final model (all steps included). PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ASPD = antisocial personality disorder; AA = alcohol abuse and/or dependence; DA = drug abuse and/or dependence.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 3

*Hierarchical Ordinary Least Squares Regression Predicting Psychiatric Symptoms and Psychological Distress From Demographic Characteristics, Other Abuse and Neglect Reports, and Age of Onset of Abuse or Neglect (Continuous)*

Variable	Symptoms (standardized $\beta$ s)							
	PTSD ( <i>n</i> = 471)	GAD ( <i>n</i> = 473)	MDD ( <i>n</i> = 473)	ASPD ( <i>n</i> = 472)	AA ( <i>n</i> = 471)	DA ( <i>n</i> = 473)	CES-D ( <i>n</i> = 471)	BAI ( <i>n</i> = 473)
<b>Step 1</b>								
Gender (female)	.24**	.13**	.16**	-.22**	-.18**	-.11*	.12*	.11*
Race (White)	.06	.04	.08	-.03	.09*	.11*	-.03	.05
Current age	.08	.01	-.01	-.12	-.01	-.01	.07	.05
<b>Step 2</b>								
Other abuse reports	.10*	.01	.04	.08	.07	.06	.07	.02
<b>Step 3</b>								
Age of onset	.04	.03	.05	.19*	.09	.08	-.12	-.10

*Note.* Standardized betas presented are from final model (all steps included). PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ASPD = antisocial personality disorder; AA = alcohol abuse and/or dependence; DA = drug abuse and/or dependence; CES-D = Center for Epidemiologic Studies—Depression Scale; BAI = Beck Anxiety Inventory.

\* $p < .05$ . \*\* $p < .01$ .

the youngest age group (ages 0–2) as the comparison group, planned contrasts for the ASPD findings revealed significant differences between infancy and preschool age ( $OR = 2.69, p < .05$ ) as well as infancy and school age ( $OR = 5.32, p < .01$ ), such that individuals who were older at the time of the maltreatment were more likely to develop ASPD. Using a developmental framework, we found that age of onset was not significantly associated with any of the remaining diagnoses.

The results of ANOVAs to assess whether differences in developmental stages at age of onset predicted differences in psychological symptoms are presented in Table 7. These results show that age of onset of maltreatment was inversely related to depressive,  $F(3, 463) = 3.43, p < .05$ , and anxiety symptoms,  $F(3, 465) = 4.32, p < .01$ , at age 40. Specifically, pairwise comparisons revealed differences in depressive symptoms between infancy and early school age, between preschool and early school age, and between preschool and school age (see Figure 1). Similarly, pairwise comparisons also revealed differences in anxiety symptoms between infancy and early school age, between preschool and early

school age, and between preschool and school age (see Figure 2). Age of onset, measured developmentally, was not significantly associated with the remaining symptom clusters. Individuals who were older (school age) at the onset of maltreatment were less likely to graduate high school. Planned contrasts revealed significant differences between infancy and school age ( $OR = .31, p < .05$ ; see Table 4). There were no significant increases in risk for the remaining functional outcomes based on a developmental classification.

## Discussion

Previous studies using this data set have shown a significant and strong relationship between childhood maltreatment and later psychiatric disorders (Luntz & Widom, 1994; Widom, 1999; Widom et al., 1995). This is the first study to prospectively examine the effects of age of onset of childhood maltreatment beyond adolescence into adulthood. In general, our findings suggest that there may be differences in consequences as a function of age of onset

Table 4

*Hierarchical Logistic Regressions Predicting Functional Outcomes From Demographic Characteristics, Number of Abuse and Neglect Reports, and Three Classification Schemes of Age of Onset of Abuse or Neglect (Continuous, Dichotomous, and Developmental)*

Variable	Functional outcome (odds ratios)			
	High school graduate ( <i>n</i> = 466)	Occupational status ( <i>n</i> = 459)	Socially active ( <i>n</i> = 473)	Homeless ( <i>n</i> = 471)
Age of onset (continuous)	0.84**	0.97	0.98	0.99
Age of onset (dichotomous)	0.51*	1.17	1.28	1.07
Age of onset (developmental)				
Overall <i>p</i> value	.00	.53	.22	.97
Contrast 1	1.15	0.94	0.51	0.85
Contrast 2	0.67	1.23	0.75	0.95
Contrast 3	0.31*	0.80	0.71	0.91

*Note.* Odds ratios are from final model (all steps included). Contrast 1 = ages 0–2 vs. ages 3–5; Contrast 2 = ages 0–2 vs. ages 6–8; Contrast 3 = ages 0–2 vs. ages 9–11.

\* $p < .05$ . \*\* $p < .01$ .

Table 5

*Hierarchical Ordinary Least Squares Regression Predicting Psychiatric Symptoms and Psychological Distress From Demographic Characteristics, Other Abuse and Neglect Reports, and Age of Onset of Abuse or Neglect (Dichotomous)*

Variable	Symptom (standardized $\beta$ s)							
	PTSD ( <i>n</i> = 471)	GAD ( <i>n</i> = 473)	MDD ( <i>n</i> = 473)	ASPD ( <i>n</i> = 472)	AA ( <i>n</i> = 471)	DA ( <i>n</i> = 473)	CES-D ( <i>n</i> = 471)	BAI ( <i>n</i> = 473)
<b>Step 1</b>								
Gender (female)	.24**	.13**	.16**	-.23**	-.19**	-.11*	.11*	.11*
Race (White)	.05	.04	.08	-.04	.09	.11*	-.04	.04
Current age	.16*	.04	.07	-.04	.04	.05	.11	.12
<b>Step 2</b>								
Other abuse reports	.11*	.01	.05	.10*	.08	.07	.07	.02
<b>Step 3</b>								
Age of onset	-.07	-.01	-.06	.10	.03	.01	-.20**	-.21**

*Note.* Standardized betas presented are from final model (all steps included). PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ASPD = antisocial personality disorder; AA = alcohol abuse and/or dependence; DA = drug abuse and/or dependence; CES-D = Center for Epidemiologic Studies—Depression Scale; BAI = Beck Anxiety Inventory.

\*  $p < .05$ . \*\*  $p < .01$ .

of the abuse or neglect that occurred prior to the age of 12. Our initial hypothesis was partially confirmed in that individuals who were abused earlier in life demonstrated higher levels of internalizing problems as adults (age 40 anxiety and depression symptoms). However, other findings were surprising in that individuals who were older at the time of the maltreatment demonstrated higher levels of externalizing problems as adults (e.g., ASPD diagnosis, AA) and a greater likelihood of not graduating high school. Age of onset of maltreatment may set the course for two different trajectories of psychological or behavioral risk.

#### *Early Age of Onset of Maltreatment*

The results of this study indicated that individuals who were maltreated earlier in life (as measured by dichotomous and devel-

opmental classification schemes) reported higher levels of current psychological distress as adults (at approximately age 40). Specifically, these individuals (i.e., those who were maltreated before the age of 6 and/or those who were maltreated during the infancy or preschool years) reported higher levels of depression and anxiety symptoms, despite controls for gender, race/ethnicity, current age, and other abuse reports. These findings are consistent with the few prospective studies of children and adolescents that also have reported earlier onset of abuse in childhood to be more predictive of negative psychological outcomes as compared with abuse later in childhood (Bolger et al., 1999; English et al., 2005; Kaplow et al., 2005; Keiley et al., 2001).

What might be some of the mechanisms to explain the effects of early onset of childhood abuse and/or neglect on adult psycholog-

Table 6

*Hierarchical Logistic Regressions Predicting Lifetime Psychiatric Diagnoses From Demographic Characteristics, Other Abuse and Neglect Reports, and Age of Onset of Abuse or Neglect (Developmental)*

Variable	Diagnosis (odds ratios)					
	PTSD ( <i>n</i> = 470)	GAD ( <i>n</i> = 473)	MDD ( <i>n</i> = 472)	ASPD ( <i>n</i> = 472)	AA ( <i>n</i> = 471)	DA ( <i>n</i> = 473)
<b>Step 1</b>						
Gender (female)	2.96**	0.96	2.07**	0.38**	0.45**	0.67*
Race (White)	1.08	1.11	1.42	1.00	1.77**	1.53*
Current age	1.06	1.07	1.03	0.90	0.98	1.04
<b>Step 2</b>						
Other abuse reports	1.57*	0.58	1.26	1.45	0.98	1.26
<b>Step 3</b>						
Age of onset						
Overall <i>p</i> value	.17	.58	.31	.05	.24	.77
Contrast 1	1.75	3.04	1.62	2.69*	1.64	0.99
Contrast 2	0.96	2.80	0.97	2.79	2.15*	0.89
Contrast 3	1.21	2.49	1.11	5.32**	2.27	1.17

*Note.* Odds ratios are from final model (all steps included). PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ASPD = antisocial personality disorder; AA = alcohol abuse and/or dependence; DA = drug abuse and/or dependence. Contrast 1 = ages 0–2 vs. ages 3–5; Contrast 2 = ages 0–2 vs. ages 6–8; Contrast 3 = ages 0–2 vs. ages 9–11.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 7

*Analysis of Variance Results Predicting Psychiatric Symptoms and Psychological Distress From Demographic Characteristics, Number of Abuse and Neglect Reports, and Age of Onset of Abuse or Neglect (Developmental)*

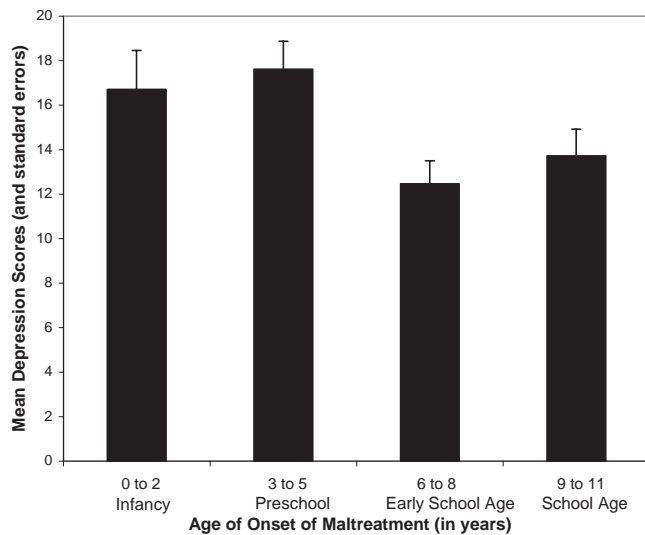
Variable	Symptom ( <i>F</i> )							
	PTSD	GAD	MDD	ASPD	AA	DA	CES-D	BAI
Gender (female)	29.9**	8.06**	13.02**	24.60**	15.77**	5.18*	6.49*	6.34*
Race (White)	1.49	.57	2.81	.51	3.70	6.02*	.64	1.09
Current age	1.96	.06	.05	2.52	.00	.00	1.08	.88
Other abuse reports	4.87*	.02	.80	3.64	2.72	1.97	2.08	.05
Age of onset	1.60	.34	1.30	2.61	1.01	.85	3.43** <sup>a</sup>	4.32** <sup>b</sup>

*Note.* Degrees of freedom (*df*) = 1 for gender, race, current age, and other abuse reports; *df* = 3 for age of onset. PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; ASPD = antisocial personality disorder; AA = alcohol abuse and/or dependence; DA = drug abuse and/or dependence; CES-D = Center for Epidemiologic Studies—Depression Scale; BAI = Beck Anxiety Inventory.

<sup>a</sup> Pairwise comparisons revealed significant differences between the following groups: ages 0–2 vs. ages 6–8; ages 3–5 vs. ages 6–8; ages 3–5 vs. ages 9–11. <sup>b</sup> Pairwise comparisons revealed significant differences between the following groups: ages 0–2 vs. ages 6–8; ages 3–5 vs. 6–8; ages 3–5 vs. 9–11.

\*  $p < .05$ . \*\*  $p < .01$ .

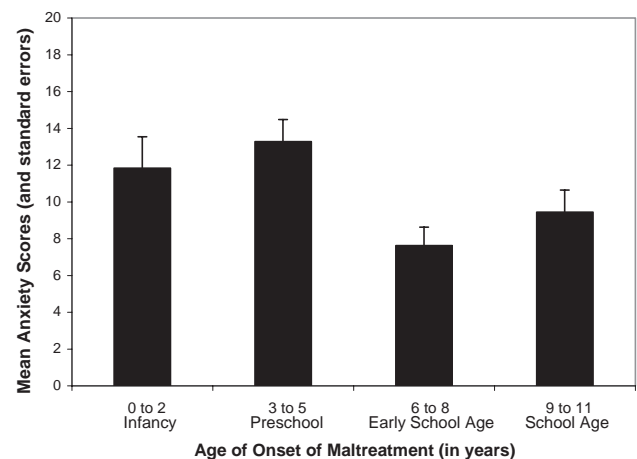
ical distress? Previous research has identified important links between early childhood maltreatment, insecure attachment relationships, and the inability to achieve critical developmental milestones such as self-regulation (Belsky, Rovine, & Taylor, 1984; Cicchetti & Barnett, 1991; Egeland & Sroufe, 1981). Children who are abused or neglected earlier in life are more likely to develop insecure attachment relationships with their primary caregivers, leading to emotion-regulation difficulties and problem-solving deficits (Cicchetti & Barnett, 1991). These early experiences may help explain the relationship between an earlier age of onset of maltreatment and greater difficulties with emotion regulation,



*Figure 1.* Mean depressive symptom scores (Center for Epidemiologic Studies—Depression Scale) by developmental age of onset of maltreatment groups (infancy [ages 0–2], preschool [ages 3–5], early school age [ages 6–8], and school age [ages 9–11]), controlling for gender, race, current age, and other abuse reports.

manifested as psychological distress (i.e., anxiety and depressive symptoms) in adulthood. In fact, using a developmental scheme to classify age of onset, our results indicate that individuals who experienced maltreatment during infancy and the preschool years were at greater risk for later psychological distress than those who experienced maltreatment during the early school-age or school-age years. Because attachment relationships and the acquisition of self-regulation skills are thought to develop during infancy and the preschool years (Ainsworth, Blehar, Waters, & Wall, 1978; Egeland & Sroufe, 1981), our findings lend support to the notion that attachment may be an important mediating factor.

Another potential mediating mechanism may be perceived control. For example, Chorpita and Barlow (1998) suggested that experiences of lack of control in the early environment lead to the



*Figure 2.* Mean anxiety symptom scores (Beck Anxiety Inventory) by developmental age of onset of maltreatment groups (infancy [ages 0–2], preschool [ages 3–5], early school age [ages 6–8], and school age [ages 9–11]), controlling for gender, race, current age, and other abuse reports.



perception of subsequent events as similarly uncontrollable, resulting in the development of anxiety problems. In support of this theory, Bolger and Patterson (2001) found that children who were maltreated earlier in life (measured continuously) were less likely to have the protective characteristic of perceived internal control and were thus more likely to demonstrate higher levels of internalizing problems later in life.

Another possible explanation for the relationship between early onset of childhood maltreatment and adult psychological distress is that the type of abuse the individuals experienced may be confounded with age or developmental stage. In other words, it is possible that one form of abuse (e.g., neglect) is more likely to occur in younger children, and this type of abuse is what leads to psychological or behavioral problems (e.g., anxiety symptoms) in adulthood. For example, Lynch and Cicchetti (1998) found that maltreated children who experienced more severe physical neglect (which tends to occur in younger children) demonstrated more symptoms of internalizing problems, whereas the severity of other maltreatment types did not predict internalizing symptoms. Because of the small sample sizes of specific maltreatment groups (e.g., sexual abuse) in the current study, we were unable to conduct multivariate analyses that would assess the potentially different effect of types of abuse and neglect. However, post hoc analyses were conducted to determine whether age of onset varied by type of abuse and/or neglect, and we found that the age of onset for sexual abuse was significantly later ( $M = 8.35$  years,  $SD = 2.55$ ) than the age of onset of neglect ( $M = 5.85$  years,  $SD = 3.33$ ). This is relatively consistent with national rates of maltreatment, with the rate of neglect being highest among young children (aged 0–3 years) and sexual abuse being most prevalent among older children (aged 12–15 years; U.S. Department of Health and Human Services, 2000). It is interesting that sexual abuse, which has an older age of onset, is most often associated with high internalizing problems (Quas et al., 2005). However, our results show a significant relationship between early onset of maltreatment and internalizing symptomatology. Thus, it seems unlikely that the type of abuse (i.e., sexual abuse) acts as a confounding factor in these analyses. Nonetheless, further research using larger samples of sexually abused, physically abused, and neglected children is needed to shed more light on this possibility.

It is also possible that the brain and its biological stress systems are genetically programmed to be influenced by early experiences. Research has found that changes in the brain resulting from early maltreatment produce alterations of biological stress systems and subsequent regulatory deficits (De Bellis, Baum, et al., 1999; De Bellis, Keshavan, et al., 1999). These regulatory deficits may include the modulation of positive and negative affect and the processing of emotional stimuli (Cicchetti & Barnett, 1991; Rieder & Cicchetti, 1989), each of which plays an important role in the development of anxiety and depressive symptoms. Future studies should examine these potential mediating variables.

It is interesting to note that our results suggest that the age of onset of child maltreatment does not have an impact on the extent of psychiatric diagnoses (lifetime or current) or symptoms assessed at age 29. These findings are surprising and warrant some discussion. First, it is important to remember that the participants in the current study experienced abuse or neglect prior to the age of 12. Thus, it is possible that age of onset of maltreatment at age 12 or older may have different long-term mental health conse-

quences. Our findings suggest that the long-term effects of early onset of childhood maltreatment (i.e., prior to the age of 6 or during infancy or preschool) are associated with psychological distress as opposed to increased risk for any of the psychiatric disorders assessed here. The CES-D and the BAI may be tapping into emotion-regulation problems, often associated with early child maltreatment. The CES-D is described as a measure that emphasizes the affective component of depressive symptomatology (Radloff, 1977), and Beck has cautioned against the use of elevated scores on self-report inventories as indicative of a diagnosis (Kendall, Hollon, Beck, Hammen, & Ingram, 1993). Nonetheless, controversy remains with regard to the interpretation of elevated scores on self-report measures of distress, such as those used in the current study (Coyne, 1994; Vredenburg, Flett, & Krames, 1993).

### *Later Age of Onset of Maltreatment*

Two of the three schemes for classifying or defining age of onset indicated that age of onset of maltreatment was positively related to *DSM-III-R* ASPD at age 29, and one of the classification schemes revealed a positive relationship between age of onset and *DSM-III-R* AA diagnosis at age 29. Similarly, a positive relationship was found between age of onset of child maltreatment and ASPD symptoms. All three classification schemes confirmed a positive relationship between age of onset and elevated risk for not completing high school. It appears that individuals whose onset of maltreatment was later in childhood (as measured continuously or developmentally) are at greater risk for externalizing problems as adults. Although this finding is counter to our initial hypothesis, a prospective study of adolescents by Thornberry et al. (2001) is relevant. Their study examined various adolescent outcome variables and showed that individuals who experienced maltreatment during early childhood only (ages 0–5) were no more likely to report being involved in delinquency or drug use but were more likely to be rated by parents as having internalizing problems in early adolescence, compared with individuals who were not maltreated. Individuals in their study who were maltreated during late childhood (ages 6–11) were more likely to be school dropouts and to be rated by parents as having externalizing problems but not internalizing problems or depressive symptoms when compared with controls.

To our knowledge, no studies to date have examined potential mediating mechanisms that might explain the relationship between later age of onset of abuse–neglect and higher levels of adult antisocial and externalizing problems. Theorists (Agnew, 1992; Garbarino, 1989) have argued that older children are more likely than younger children to respond by engaging in antisocial behavior or illegitimate coping strategies when confronted with adverse conditions that they cannot escape (e.g., abuse). In addition, if older children's behavioral responses to the maltreatment result in oppositional behaviors (e.g., rebelling against abusive parents or other adults), this may mask the underlying trauma associated with the maltreatment and prevent them from receiving appropriate treatment and interventions (Garbarino, Eckenrode, & Powers, 1997; Kaufman & Widom, 1999; Thornberry et al., 2001). This lack of treatment or intervention may then perpetuate disruptive behaviors, eventually leading to full-blown antisocial behaviors.

It is also possible that our sample may include some cases in which a child had been abused prior to the age reported in court

records. In other words, it may be that some of the individuals who were identified as having been abused later in childhood had actually experienced persistent abuse beginning early in childhood. Research has indicated that chronic maltreatment increases the risk of a variety of adjustment problems both in childhood (English et al., 2005; Manly et al., 2001) and adolescence (Thornberry et al., 2001). Although we were able to control for any additional maltreatment reports filed following the initial report, it is possible that the chronicity of maltreatment, particularly for those individuals identified as having been maltreated later in childhood, contributes to these results.

### *Maltreatment During the Preschool Years*

It is noteworthy that individuals who were maltreated during the preschool (ages 3–5) and school-age (ages 9–11) years were significantly more likely to develop ASPD by age 29 than those individuals who were maltreated in infancy. We also found that individuals who were maltreated during the preschool years reported higher levels of psychological distress (i.e., anxiety and depressive symptoms) at approximately age 40 than individuals who were maltreated later (ages 6–8 and 9–11). These results suggest that the preschool years may be a particularly sensitive developmental period during which maltreatment may exert a strong effect. This is consistent with the results of Ogawa, Sroufe, Weinfeld, Carlson, and Egeland (1997), who found that maltreatment that occurred between the ages of 3 and 5 was more likely to result in dissociation at a later age than maltreatment that occurred either earlier or later in childhood.

### *Age of Onset of Maltreatment Classifications*

An important aim of the current study was to examine the predictive utility of three different classification schemes to assess the role of age of onset of child maltreatment: continuous, dichotomous, and developmental. Our results suggest that the developmental classification scheme for examining age of onset of child abuse was the most sensitive to identifying differences in outcomes (ASPD, CES-D symptoms, BAI symptoms, and high school graduation), whereas the other classification systems (continuous and dichotomous) were predictive of fewer outcomes and were less sensitive. In addition, the developmental classification provided the most information regarding subtle age differences that would have otherwise gone unnoticed (e.g., individuals maltreated between the ages of 6 and 8 do not appear to be at higher risk for ASPD).

### *Limitations*

This study overcomes previous limitations by using documented and substantiated cases of child abuse and neglect, controlling for the effects of current age and other abuse reports, and examining psychiatric disorders in addition to measures of psychological distress and social functioning. There are a number of limitations of this study. (a) It is possible that other unmeasured variables associated with the age of onset of child maltreatment (e.g., severity and chronicity of abuse, identity of the perpetrator) may be at least partially responsible for the significant relationships between the age of onset of maltreatment and various measures of

psychological functioning. (b) Because the current study included only individuals abused or neglected up to and including age 11, we cannot generalize these findings to children maltreated at a later age (12 or older). (c) The sample sizes for our sexual and physical abuse groups were too small to permit multivariate analyses with age of onset or tests of moderation to examine whether the effects of age of onset of maltreatment vary as a function of type of abuse. (d) It is likely that other lifetime stressors, such as losses, domestic violence, and financial problems, influence adult psychopathology; these factors have not been examined here. (e) Different measures of psychological functioning were used to assess respondents at the two follow-up interviews. For example, the DIS-III-R was used to assess depressive symptoms at the first interview when respondents were approximately age 29, whereas the CES-D was used to measure depressive symptoms at the second interview when individuals were approximately age 40. Although it is possible that the administration of the CES-D at age 29 would have produced different results from the administration of this measure at age 40, this is unlikely given the strong correlation between the CES-D and depressive symptoms assessed by the DIS-III-R at age 29 in this sample. (f) The sample is skewed toward the lower end of the socioeconomic spectrum and, thus, findings cannot be generalized to cases of maltreatment in middle- or upper-class children.

### *Conclusions and Implications*

The results of this study have important implications for assessment, prevention, and intervention efforts targeting maltreated children. It is striking that the age of onset of maltreatment during childhood has a significant impact beyond adolescence into adulthood. Although previous studies have reported strong relationships between childhood maltreatment and psychopathology, the current study suggests differential effects of child maltreatment on the basis of the age of onset of the maltreatment. This information could be used to develop more appropriate prevention strategies tailored to the age of onset of maltreatment. For example, because the preschool years appear to be a particularly sensitive developmental period with regard to the potential ramifications of maltreatment during this time (adult anxiety, depression, ASPD), children identified as having experienced maltreatment during the preschool years might be prioritized over other groups for prevention efforts, particularly in the case of limited resources. Interventions that focus on the acquisition of self-regulation skills or positive parent-child interactions may be particularly useful in this regard, given the links between secure attachment relationships and self-regulation in the development of healthy psychological functioning (Belsky et al., 1984; Cicchetti & Barnett, 1991; Egeland & Sroufe, 1981). In addition, because it appears that an earlier age of onset is associated with anxiety and depressive symptoms in adulthood, those individuals who are identified as having been abused between the ages of 0 and 5 may be a particularly important target audience for interventions aimed at establishing effective coping and emotion-regulation skills.

Similar to the conclusions of English et al. (2005), our results suggest that using a developmental model to classify age of onset is the most promising of the three classification systems examined here and should be used in future research studies. This method of classification is not only theoretically driven, but it also had the

most balanced sensitivities across the behavioral, psychological, and social functioning domains. Finally, our findings provide further evidence of the importance of not restricting examinations to diagnostic categories when considering the potential negative ramifications of childhood maltreatment.

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