



Published in final edited form as:

J Am Acad Child Adolesc Psychiatry. 2007 June ; 46(6): 757–765. doi:10.1097/chi.0b013e318040b247.

Social, Emotional, and Academic Competence Among Children Who Have Had Contact With Child Protective Services: Prevalence and Stability Estimates

Dr. SARA R. JAFFEE, Ph.D.

Department of Psychology, University of Pennsylvania, Philadelphia

Dr. ROBERT GALLOP, Ph.D.

Department of Statistics, West Chester University, West Chester, PA

Abstract

Objective—To estimate the prevalence and stability of social, emotional, and academic competence in a nationally representative sample of children involved with child protective services.

Method—Children were assessed as part of the National Survey of Child and Adolescent Well-Being. Children ($N = 2,065$) ranged in age from 8 to 16 years and were assessed at baseline and at 18 and 36 months postbaseline. Caregivers, teachers, and youths provided information about children's problem behaviors, school achievement, and social competence. Children were considered resilient in a domain if they met or exceeded national norms.

Results—Thirty-seven percent to 49% of children demonstrated resilience in mental health, academic, or social domains at any time point. Eleven percent to 14% of children were resilient across domains at any time point, and only 14% to 22% of children were consistently resilient within a given domain across all three time points.

Conclusions—Resilience, as defined by competence in mental health, academic, and social domains, was demonstrated by relatively few children. The conditions that promote stable resilience may be difficult to achieve among allegedly maltreated children who are likely to face residential and caretaker instability. Future research should identify processes that promote stability in resilience over time.

Keywords

child abuse; maltreatment; resilience; National Survey of Child and Adolescent Well-Being

Many children who are physically, sexually, or psychologically abused, or neglected experience mental health problems and difficulties with school and social relationships (Cicchetti and Manly, 2001; Cicchetti and Toth, 1995). However, not all children do so. These resilient children master normative developmental tasks in the face of maltreatment and associated risks, including family and neighborhood poverty, interparental violence, and parent psychopathology (Jaffee, 2005; Luthar et al., 2000; Masten and Coatsworth, 1995, 1998). Among elementary school-age children, normative developmental tasks include the

ability to function well in the school environment, interact appropriately with peers and adults, and regulate behavior and emotions (Masten and Coatsworth, 1995). Additional tasks of adolescence include forging an independent identity and negotiating romantic relationships. This definition of resilience does not require that youths excel; rather, it requires that at-risk children function at least as well as the average child (Luthar et al., 2000; Robinson, 2000).

Many researchers recognize that resilience is a multidimensional and dynamic construct. In practice, however, researchers who study resilience to maltreatment often define resilient children in terms of one criterion: the absence of clinically significant mental health problems. Although this is an important marker of positive functioning, children who lack significant mental health problems may be struggling in other arenas (Kaufman et al., 1994). Moreover, with few exceptions (Cicchetti and Rogosch, 1997; Farber and Egeland, 1987; Herrenkohl et al., 1994), most studies of maltreated children measure children's functioning at a single point in time. Evidence that these studies overestimate rates of resilience comes from research showing that when criteria for resilience to maltreatment include competence in multiple domains and across time, only 12% to 22% of children (or adults who were abused as children) are considered resilient (Cicchetti and Rogosch, 1997; Cicchetti et al., 1993; Kaufman et al., 1994; McGloin and Widom, 2001). Most commonly, children who have faced significant adversity function well in some domains but not others and show fluctuations in functioning over time (Luthar et al., 2000). In contrast, the stability of competence over time seems to be higher in nonrisk samples (Masten and Coatsworth, 1995).

Determining the extent of resilience across domains and over time is informative for prevention and intervention efforts. If most maltreated children are not consistently competent across domains or over time, then intervention efforts must be designed to foster both the emergence and maintenance of competencies. If, in contrast, most children who are identified as resilient remain so over time, then this indicates one of two possibilities: either these are children who do not require intervention to maintain competencies (and child welfare workers can focus scarce resources on children who are struggling) or, more likely, these are children who maintain competencies because they have consistent access to services or other protective factors. Either state of affairs informs intervention needs.

The present study makes several contributions to the literature on children's resilience to maltreatment. Whereas other studies have been limited by small sample sizes, the present sample is large and nationally representative of children in the United States who had recent contact with child protective services (CPS). Thus, estimates of resilience should be generalizable to children in the United States who have had contact with CPS. Unlike many studies that measured children's functioning at a single point in time, the present sample was followed longitudinally over 3 years, which allows for estimates of the stability of resilience to maltreatment. Unlike many studies that rely on single informants to provide information about children's functioning, the present study gathered data from caregivers, teachers, and youths. Finally, developmentally appropriate measures of children's functioning across multiple domains were administered, including mental health, academic, and social domains. Because of the large sample size, the prevalence of resilience to maltreatment could be estimated for important subgroups, including boys versus girls, children who differed by race/ethnicity, and children who differed by abuse history. The goals of the study were to determine what percentage of children were resilient to maltreatment in any one domain at a single point in time or over a 3-year period and what percentage were resilient across domains of competence.

METHOD

Sample

The National Survey of Child and Adolescent Well-Being (NSCAW) is a nationally representative sample of children in the United States who have had contact with CPS (Dowd et al., 2004). The cohort includes 5,501 children (50% female), younger than 1 year to 14 years of age when sampled, who were subjects of child abuse or neglect investigations conducted by CPS from October 1999 to December 2000. The sample was selected using a two-stage stratified sample design. At the first stage, the 48 contiguous states of the United States were divided into nine sampling strata. Eight strata corresponded to the eight states with the largest child welfare caseloads and the ninth stratum consisted of the remaining 38 states and the District of Columbia. Within each of the nine strata, primary sampling units (PSUs) were formed and randomly selected. PSUs were defined as geographic areas that encompassed the population served by a single CPS agency (e.g., counties). At the second stage, equal numbers of children were selected from each PSU, regardless of PSU size. Children were selected from eight mutually exclusive and exhaustive domains such that the final sample adequately represented relevant combinations of infants versus children ages 1 to 14 years, children receiving CPS-funded agency services versus children not receiving services, children in out-of-home care versus children not in out-of-home care, and children who were investigated for allegations of sexual abuse versus other forms of abuse or neglect. Additional information about the sample composition is available from Dowd and colleagues (2004).

Field staff completed 12 days of training on the protocol. At baseline (wave 1), face-to-face interviews or assessments were conducted with children, their caregivers (e.g., biological parents, foster parents, custodial kin caregivers), their teachers (when children were of school age), and their caseworkers (when applicable). At 12 months postbaseline (wave 2), telephone interviews were conducted with current caregivers and caseworkers. At 18 and 36 months postbaseline (waves 3 and 4), face-to-face interviews were conducted with children, current caregivers, teachers, and caseworkers. Of the 5,501 children seen at baseline, 87% participated at wave 2, 87% participated at wave 3, and 85% participated at wave 4. Active consent to participate was obtained from all caregivers and caseworkers. Caregivers consented on behalf of children, although active assent was obtained from children 7 years and older. Caregivers also authorized NSCAW researchers to contact children's teachers. Seventy-seven percent of caregivers did so, but in many cases, caregivers provided inaccurate or incomplete contact data and, as a result, teacher surveys were mailed to only 80% of those for whom a signed consent was available. This problem was rectified to some degree at waves 3 and 4, with higher percentages of caregivers consenting on behalf of teachers and higher percentages of eligible teachers being mailed surveys. Current caregivers were paid \$50 for their participation, children were given gift certificates worth \$10 to \$20, and teachers were given a \$10 cash incentive to complete and return questionnaires to NSCAW staff.

Because the goal was to collect data on the same construct from multiple informants, the present analysis was restricted to children who were 8 years or older at wave 1 ($n = 2,065$; 54% female). Children younger than 8 did not report on their own symptoms of mental health problems, and teacher data were unavailable for most children younger than 8 years. Children ranged in age from 8 to 16 years at wave 1 (mean 10.96, SD 4.54; wave 1 assessments occurred 2–6 months after children's cases were closed by CPS), from 9 to 17 years at wave 3 (mean 12.22, SD 5.00), and from 10 to 18 years at wave 4 (mean 13.54, SD 5.00). Data from wave 2 were not used in our analyses because the assessment was restricted to telephone interviews with caregivers and caseworkers and not all of the relevant data

were collected. Forty-five percent of children were white (non-Hispanic), 30% were black (non-Hispanic), 16% were Hispanic, and 8% were of other races or ethnicities.

Caseworkers rated the most serious form of abuse that these children experienced based on their reading of the child's file and their ratings of the frequency, severity, and duration of each alleged or substantiated instance of abuse or neglect: for 27% of children, this was physical abuse; for 19%, it was sexual abuse; for 8%, it was emotional abuse; for 37%, it was neglect (i.e., failure to provide or lack of supervision); and for 10%, it was some other form of abuse (e.g., abandonment, exploitation, moral/legal maltreatment, educational maltreatment). Thirty-five percent experienced multiple forms of abuse. Sixty-three percent of children had substantiated cases of abuse or neglect.

To generalize the results to the population of U.S. children who have had contact with CPS, the data must be weighted. Analysis weights were calculated as the product of two probabilities: the probability that a PSU would be selected (first stage) and the probability that a child would be selected (second stage). Adjustments were made for missing data, nonresponse, and undercoverage. For further details, see Dowd and colleagues (2004). The data analyzed in the present article were derived from the Restricted Release version of the NSCAW data set.

Measures

Psychopathology—Caregivers completed the Child Behavior Checklist 4/18 (CBCL) and teachers completed the Teacher Report Form 4/18 (TRF; Achenbach, 1991a, b). The CBCL and TRF categorize children's behavior into two broadband factors: externalizing comprises aggressive and rule-breaking behavior (e.g., temper tantrums or hot temper, destroys things belonging to others); internalizing comprises somatic complaints, withdrawn, and anxious/depressed behavior (e.g., nervous, high-strung or tense, unhappy, sad, or depressed). Responses were scored on a 3-point scale (0, not true to 2, very true or often true). Age- and gender-standardized scores of 60 or higher on the CBCL and TRF are indicative of clinically significant problem behaviors (Achenbach, 1991a). The internal consistency reliabilities of the CBCL and TRF externalizing scales (0.92 and 0.90, respectively) and internalizing scales (0.90 and 0.91, respectively) were acceptable.

Youths completed the Children's Depression Inventory (Kovacs, 1992) which is a 27-item measure of children's negative mood, anhedonia, ineffectiveness, interpersonal problems, and negative self-esteem. Responses were scored on a 3-point scale (0 = absence of symptom, 1 = mild symptom, 2 = definite symptom). Children were classified as depressed if they scored at or above the 91st percentile for their age and gender group (T score = 65; Kovacs, 1992). The internal consistency reliability of the Children's Depression Inventory was acceptable for 7- to 12-year-olds ($\alpha = .81$) and for 13- to 15-year-olds ($\alpha = .87$). Youths also completed the posttraumatic stress disorder (PTSD) section of the Trauma Symptom Checklist for Children (TSCC; Briere, 1996). The PTSD section included 10 items that measured intrusive thoughts, sensations, and memories of painful past events, nightmares, fears, and cognitive avoidance of painful feelings. Responses were scored on a 4-point scale (0, never to 3, almost all the time). The internal consistency reliability of the TSCC was acceptable ($\alpha = .84$). Age and gender-standardized scores of 65 or higher are indicative of clinically significant trauma symptoms (Briere, 1996). Youths who were 11 years and older completed the Youth Self-Report (Achenbach, 1991a), which generates externalizing and internalizing subscale scores that correspond to those from the CBCL and TRF. At wave 1, the internal consistency reliability of the Youth Self-Report externalizing scale was 0.90 (the internalizing scale was not used because of data available from the CDI and TSCC). Finally, youths who were 11 years and older completed an audio computer-assisted interview about substance use in which they were asked about their lifetime and past 30-day use of alcohol,

glue or gasoline sniffing, marijuana, pills (without a prescription), and hard drugs. This interview was based on the Youth Risk Behavior Survey Questionnaire and has been shown to have adequate test-retest reliability (Brener et al., 2002).

School Achievement—Youths completed the Mini Battery of Achievement (Woodcock et al., 1994), which is a standardized test of academic achievement. The reading subtest measures sight identification, vocabulary, and comprehension ($\alpha = .74$) and the math subtest measures calculation, reasoning, and concepts ($\alpha = .61$). The Mini Battery of Achievement is normed to have a mean of 100 and an SD of 15.

Social Competence—Caregivers and teachers completed the Social Skills subscale of the Social Skills Rating System (Gresham and Elliot, 1990), which measures children's cooperation, responsibility, assertion, and self-control. Age-appropriate forms were available for children ages 6 to 10 years ($\alpha = .90$) and for children 11 years and older ($\alpha = .87$). The 39 items administered to caregivers included "How often does [CHILD] invite others to your home?" and "How often does [CHILD] control his/her temper when arguing with other children?" The 30 items administered to teachers included "How often does [CHILD] use time appropriately while waiting for help?" and "How often does [CHILD] attend to your instructions?" Responses were scored from 1 (never) to 3 (often). The SSRS produces standardized *T* scores; scores greater than 84 are indicative of moderate to high social competence (Gresham and Elliot, 1990).

RESULTS

Constructing Measures of Resilience

Our definition of resilience did not require that youths excel in any domain. Rather, children had to demonstrate adequate functioning, but they had to do so consistently across informants or measures. These criteria are consistent with those employed by Kaufman et al. (1994). Ideally, we would have measured resilience by combining data from informants such that error associated with informant bias and measurement context would have been minimized (Kraemer et al., 2003). However, the structure of the NSCAW data did not facilitate this approach.

Measures of resilience in mental health, academic achievement, and social competence domains are described in Table 1 and were constructed to be developmentally appropriate. Thus, if a child was 10 years old at wave 1 and 11.5 years old at wave 3, the mental health resilience score at wave 1 would reflect the child's reported symptoms of depression and trauma, and the caregiver and teacher reports of internalizing and externalizing problems. At wave 3, the mental health resilience score would additionally reflect the child's reports of externalizing problems and substance use.

Missing Data

Although data were missing for few (0%–18%) of the caregiver and youth reports (median 5%), 48% to 62% of the teacher reports of youth behavior were missing (see Method section). Additional analyses were conducted to determine whether teacher data were systematically missing as a function of gender, race, or maltreatment status and whether data missing patterns were associated with gender, racial, or maltreatment status differences in rates of resilience as they are reported in Table 2 (analyses available upon request).

Teacher reports of social competence were not missing as a function of maltreatment status at any wave and teacher reports of internalizing or externalizing problems were not missing as a function of gender at any wave. Moreover, even though social competence data were

systematically missing as a function of gender at wave 1 and race at wave 4, these missing data patterns were not associated with gender or racial differences in rates of resilience. Similarly, even though internalizing and externalizing data were missing as a function of race at waves 3 and 4 and maltreatment at wave 3, these missing data patterns were not associated with racial or maltreatment status differences in rates of resilience. Thus, gender, racial, or maltreatment status differences in rates of resilience are not directly attributable to systematic patterns of missing data.

Multiple imputation techniques were employed to derive estimates of missing scores. We implemented a Markov Chain Monte Carlo method through PROC MI of SAS 9.0 to create 10 imputed data sets (Yuan, 2000). This approach constructs a Markov chain long enough for the distribution of the elements to stabilize to a common, stationary distribution. By repeatedly simulating steps of the chain, it simulates approximately independent draws of the missing data from the distribution of interest. Data augmentation is applied to Bayesian inference with missing data by repeating a series of imputation and posterior steps. These two steps are iterated long enough for the results to be reliable for the imputed data set (Schafer, 1997). Upon convergence, the resulting inferences are statistically valid (Rubin, 1987).

We estimated descriptive and inferential statistics (i.e., odds ratios and *F* statistics from logistic regression analyses) in each of the 10 data sets and evaluated whether results were consistent across replicate data sets and with analyses based on listwise deletion of missing data. In Tables 2 to 4, we report estimates averaged over the 10 imputed data sets and include the SE of the estimates. All analyses were adjusted to account for survey design using Stata 8.0 (StataCorp, 2003). Adjustments for multiple comparisons were not made because all of the significant differences reported in Tables 2 and 3 were replicated across all 10 imputed data sets.

What Percentage of Children Manifest Competence at Each Time Point?

As shown in the bottom row of Table 2, 38% to 46% of youths demonstrated resilience at wave 1, 44% to 46% demonstrated resilience at wave 3, and 37% to 49% demonstrated resilience at wave 4. Youths were most likely to demonstrate resilience in the social competence domain; 46% to 49% of youths had moderate to high social competence scores at any given time point.

Resilience did not vary at each time point as a function of gender, maltreatment subtype, or whether youths had been multiply maltreated (Table 2). However, black youths were significantly less likely than white youths to have average or above-average academic achievement at wave 1 (odds ratio [OR] 0.58, 95% confidence interval [CI] 0.37–0.90), wave 3 (OR 0.51, 95% CI 0.32–0.79), and wave 4 (OR 0.36, 95% CI 0.22–0.59). Hispanic youths were more likely than white youths to be resilient in the mental health domain at wave 4 (OR 2.12, 95% CI 1.20–3.74). Data from children of other race/ethnicities or who experienced other forms of maltreatment were excluded from these analyses because of concerns that relatively small subsample sizes and heterogeneity among children in these groups would make results uninterpretable.

What Percentage of Children Are Consistently Competent Over Time?

As shown in the last three columns of the bottom row of Table 2, 14% to 22% of children were consistently resilient within a given domain across all three waves. An additional 51% had good mental health at one or two time points, 35% had average or above-average achievement test scores at one or two time points, and 64% had average or above-average social competence scores at one or two time points. Kappa coefficients, reflecting

consistency in ratings of resilience across waves, were .24 in the mental health domain (range across imputed data sets .23–.25), .46 in the academic achievement domain (range across imputed data sets .44–.46), and .15 in the social competence domain (range across imputed data sets = .14–.16). These kappa coefficients reflect slight to fair consistency in resilience over time. The percentage of youths who were consistently resilient in a domain did not differ as a function of gender, type of abuse, or whether youths were multiply maltreated. Although the odds of having consistently high achievement test scores was lower among black youths compared with white youths (OR 0.33, 95% CI 0.18–0.61), resilience in other domains did not differ as a function of race/ethnicity.

Although most youths were not consistently competent over time, resilience at wave 1 was predictive of resilience at later time points (Table 3). The odds of demonstrating resilience at waves 3 or 4 were 1.76 to 10.39 times greater among youths who demonstrated resilience at wave 1.

Are Children Resilient Across Domains?

Table 4 shows the percentage of children who were resilient in 0, 1, 2, or 3 domains at each wave. As shown in Table 4, although the majority of children were resilient in at least one domain, only 11% to 14% were resilient across all three domains at any point in time. Seven percent of children were never resilient in any domain, and only 2% of children were consistently resilient across domains and waves.

DISCUSSION

In this nationally representative sample of children who were involved with CPS, approximately 4 in 10 were functioning well at any given time with respect to mental health, school achievement, or social competence. On the whole, these findings were consistent across demographic subgroups, although black children were less likely than white children to achieve or maintain resilience in the academic domain. This difference is likely to reflect the black–white achievement test gap in the population overall (Neisser et al., 1996).

Children who were functioning well at one point in time were likely to be functioning well 3 years later, although approximately 80% failed to show consistently positive adaptation at all three time points. Moreover, resilience in one domain did not ensure resilience across other domains; at any given wave just over 1 in 10 children lacked clinically significant mental health problems, had average or above-average achievement test scores, and were at least moderately socially competent. The present findings replicate and extend those of a smaller study by Kaufman et al. (1994) who found that relatively few maltreated children were consistently competent across domains. Nevertheless, the vast majority of NSCAW children were resilient in at least one domain at each wave (Table 4), which suggests that even though many children were not able to maintain consistently competent functioning in a given domain over time, they did at least manifest competence in one domain or another at each time point.

Although most children do not consistently excel across cognitive, behavioral, and emotional domains (Masten and Coatsworth, 1995), the definition of resilience used in the present study did not require excellence. Rather, it required that children lack serious problems in any of the domains that children normally master in the middle childhood and early adolescent periods, a condition that relatively few children in the NSCAW sample satisfied. Nevertheless, our definition of resilience was stringent in requiring cross-informant or cross-measure agreement on children's functioning and children may have been identified as nonresilient simply because a particular informant had a biased perspective on the child's behavior. Less stringent definitions of resilience may yield higher estimates of

competent functioning but could also result in children being identified as resilient when, in fact, their (unmeasured) behavior in certain settings indicates a need for services.

Clinical Implications

The prevalence and stability estimates of resilience in the NSCAW sample are alarming. The majority of children in the present sample had clinically significant mental health problems, below-average achievement test scores, or demonstrated below-average levels of social competence. About one fourth were functioning poorly in all three domains. Such findings emphasize the challenges that clinicians and child welfare workers face in serving child victims of maltreatment and neglect. An article by Burns et al. (2004) showed that only one fourth of NSCAW children who had clinically significant mental health problems were receiving mental health services. Moreover, although problems in one domain are often indicative of problems in other domains, the reverse does not appear to be true in this sample of maltreated children; competence appears to be difficult to maintain across the board. This suggests that services need to be coordinated for maltreated children and even children who are demonstrating resilience in one domain should be screened for difficulties in other domains.

Limitations

This study has a number of limitations. First, the stability of resilience to maltreatment was estimated over a relatively brief 3-year period, although this is a longer follow-up period than in many studies of resilience. Longer term longitudinal studies are required to replicate our stability estimates.

Second, NSCAW lacks a demographically matched control group. We used national testing norms to determine what percentage of children were functioning as well as the average child, but we do not know whether rates of resilience would be just as low in a demographically matched control group. However, other work suggests that they would not be (Cicchetti et al., 1993).

Third, although virtually all of the instruments described in this article were standardized using nationally representative samples, it is possible that racial or ethnic differences in reports of mental health problems or social behavior reflected measurement bias resulting from racial differences in perceived stigma associated with mental health problems or perceptions of behavioral norms.

Fourth, cross-informant agreement on children's functioning is typically low and reflects informant bias, measurement error associated with the context in which children are observed, as well as children's actual characteristics. New methods are available that facilitate valid measures of child characteristics (Kraemer et al., 2003), but these approaches require careful sampling of informants and contexts that were not available in the NSCAW data. Thus, our measures of resilience reflect the aggregation of informant reports of children's functioning rather than error-free measures of children's characteristics.

Fifth, although the multiple imputation method achieved convergence across the repeated runs, the data must be missing at random for Markov Chain Monte Carlo methods to produce valid results. If data are not missing randomly or if they are informatively missing, then the imputed results may not be valid (Sinharay et al., 2001). The teacher reports of children's behavior (which comprised the majority of the missing data) were not missing systematically as a function of gender, race, or maltreatment subtype.

Sixth, determinations about the most serious type of abuse the child experienced were made on the basis of caseworkers' ratings of the frequency, severity, and duration of each alleged

or substantiated instance of abuse or neglect. The reliability and validity of these judgments are not reported in the NSCAW data documentation, although Chaffin et al. (1997) demonstrated that clinicians specializing in child abuse were in moderate to high agreement about how to rank order the seriousness of a range of physically and sexually abuse behaviors. Moreover, allegations of maltreatment were not substantiated for 37% of NSCAW children, and caseworkers' classifications of these children into abuse and neglect groups may have been less valid than their classifications of substantiated cases. That said, caseworkers' judgments about substantiation status have been shown to be unreliable (Slep and Heyman, 2006) and not predictive of subsequent reports to CPS of re-abuse or subsequent judgments of substantiation (Drake et al., 2003).

Future Directions and Conclusions

Ecological-transactional models posit that child functioning depends on the balance of risk and protective factors the child faces (Sameroff and MacKenzie, 2003). Children in the NSCAW sample face significant risks in the form of parent criminality, serious mental illness, substance abuse, and domestic violence (Phillips et al., 2004). Moreover, because many of these children have been or will be removed from the care of biological or foster caregivers, protective factors, such as supportive relationships with caregivers, teachers, or other family members, are less likely to be consistently available. Future research should focus on the processes by which consistently positive adaptation is achieved (Luthar et al., 2000) and should explore the conditions under which declines in competence are evident.

In conclusion, we found that although many youths were resilient to maltreatment, most had difficulty maintaining positive functioning over time and across domains. These findings point to a need for services that help children manifest competence over the long term and that target multiple domains of functioning.

Acknowledgments

This work was supported by grant HD050691 from the National Institute of Child Health and Human Development. Many thanks to Julia Kim-Cohen, Steve Lee, and Andrea Maikovich for their comments on an earlier draft of this manuscript.

This document includes data from the National Survey of Child and Adolescent Well-Being that were developed under contract with the Administration on Children, Youth, and Families, U.S. Department of Health and Human Services. The information and opinions expressed herein reflect solely those of the authors.

REFERENCES

- Achenbach, TM. Manual for the Child Behavior Checklist/4–18 and 1991 profile. University of Vermont, Department of Psychiatry; Burlington: 1991a.
- Achenbach, TM. Manual for the Teacher's Report Form and 1991 profile. University of Vermont, Department of Psychiatry; Burlington: 1991b.
- Brener ND, Kann L, McManus T, Kinchen SA, Sundberg EC, Ross JG. Reliability of the 1999 Youth Risk Behavior Survey Questionnaire. *J Adolesc Health*. 2002; 31:336–342. [PubMed: 12359379]
- Briere, J. Trauma Symptom Checklist. Psychological Assessment Resources; Lutz, FL: 1996.
- Burns BJ, Phillips SD, Wagner HR, et al. Mental health need and access to mental health services by youths involved with child welfare: a national survey. *J Am Acad Child Adolesc Psychiatry*. 2004; 43:960–970. [PubMed: 15266190]
- Chaffin M, Wherry JN, Newlin C, Crutchfield A, Dykman R. The Abuse Dimensions Inventory: initial data on a research measure of abuse severity. *J Interpers Viol*. 1997; 12:569–589.
- Cicchetti D, Manly JT. Operationalizing child maltreatment: developmental processes and outcomes. *Dev Psychopathol*. 2001; 13:755–757. [PubMed: 11771906]

- Cicchetti D, Rogosch FA. The role of self-organization in the promotion of resilience in maltreated children. *Dev Psychopathol.* 1997; 9:797–815. [PubMed: 9449006]
- Cicchetti D, Rogosch FA, Lynch M, Holt KD. Resilience in maltreated children: processes leading to adaptive outcome. *Dev Psychopathol.* 1993; 5:629–647.
- Cicchetti D, Toth SL. A developmental psychopathology perspective on child abuse and neglect. *J Am Acad Child Adolesc Psychiatry.* 1995; 34:541–565. [PubMed: 7775351]
- Dowd, K.; Kinsey, S.; Wheelless, S., et al. National Survey of Child and Adolescent Well-Being (NSCAW): Combined Waves 1–4 Data User's Manual. Research Triangle Institute; Durham, NC: 2004.
- Drake B, Jonson-Reid M, Way I, Chung S. Substantiation and recidivism. *Child Maltreat.* 2003; 8:248–260. [PubMed: 14604173]
- Farber, E.; Egeland, B. Invulnerability among abused and neglected children. In: Anthony, EJ.; Cohler, B., editors. *The Invulnerable Child.* Guilford; New York: 1987. p. 253-288.
- Gresham, FM.; Elliot, SN. SSRS: Social Skills Rating System. AGS; Circle Pines, MN: 1990.
- Herrenkohl EC, Herrenkohl R, Egolf M. Resilient early school-age children from maltreating homes: outcomes in late adolescence. *Am J Orthopsychiatry.* 1994; 64:301–309. [PubMed: 8037238]
- Jaffee, SR. Family violence and parent psychopathology: implications for children's socioemotional development and resilience. In: Goldstein, S.; Brooks, R., editors. *Handbook of Resilience in Children.* Kluwer; New York: 2005. p. 149-163.
- Kaufman J, Cook A, Arny L, Jones B, Pittinsky T. Problems defining resiliency: illustrations from the study of maltreated children. *Dev Psychopathol.* 1994; 6:215–229.
- Kovacs, M. *Children's Depression Inventory.* Western Psychological Services; Los Angeles: 1992.
- Kraemer HC, Measelle JR, Ablow JC, Essex MJ, Boyce WT, Kupfer DJ. A new approach to integrating data from multiple informants in psychiatric assessment and research: mixing and matching contexts and perspectives. *Am J Psychiatry.* 2003; 160:1566–1577. [PubMed: 12944328]
- Luthar SS, Cicchetti D, Becker B. The construct of resilience: a critical evaluation and guidelines for future work. *Child Dev.* 2000; 71:543–562. [PubMed: 10953923]
- Masten, AS.; Coatsworth, JD. Competence, resilience, and psychopathology. In: Cicchetti, D.; Cohen, DJ., editors. *Developmental Psychopathology, Vol. 2: Risk, Disorder, and Adaptation.* Wiley; New York: 1995. p. 715-752.
- Masten AS, Coatsworth JD. The development of competence in favorable and unfavorable environments. *Am Psychol.* 1998; 53:205–220. [PubMed: 9491748]
- Masten AS, Coatsworth JD, Neeman J, Gest SD, Tellegen A, Garmezy N. The structure and coherence of competence from childhood through adolescence. *Child Dev.* 1995; 66:1635–1659.
- McGloin JM, Widom CS. Resilience among abused and neglected children grown up. *Dev Psychopathol.* 2001; 13:1021–1038. [PubMed: 11771905]
- Neisser U, Boodoo G, Bouchard TJ. Intelligence: knowns and unknowns. *Am Psychol.* 1996; 51:77–101.
- Phillips SD, Burns BJ, Wagner HR. Parental arrest and children involved with child welfare services. *Am J Orthopsychiatry.* 2004; 74:174–186. [PubMed: 15113246]
- Robinson JL. Are there implications for prevention research from studies of resilience? *Child Dev.* 2000; 71:570–572. [PubMed: 10953926]
- Rubin, DB. *Multiple Imputation for Nonresponse in Surveys.* Wiley; New York: 1987.
- Sameroff AJ, MacKenzie MJ. Research strategies for capturing transactional models of development: the limits of the possible. *Dev Psychopathol.* 2003; 15:613–640.
- Schafer, JL. *Analysis of Incomplete Multivariate Data.* Chapman & Hall; New York: 1997.
- Sinharay S, Stern HS, Russell D. The use of multiple imputation for the analysis of missing data. *Psychol Methods.* 2001; 6:317–329. [PubMed: 11778675]
- Slep AMS, Heyman RE. Creating and field-testing child maltreatment definitions: improving the reliability of substantiation determinations. *Child Maltreat.* 2006; 11:217–236. [PubMed: 16816320]
- StataCorp. *Stata Statistical Software: Release 8.0.* Stata Press; College Station, TX: 2003.

Woodcock, R.; McGrew, KS.; Werder, JK. Mini Battery of Achievement. Riverside; Itasca, IL: 1994.
Yuan, YC. Multiple imputation for missing data: concepts and new developments. Paper presented at the 25th Annual SAS Users Group International Conference; Indianapolis. Apr 9–12. 2000

TABLE 1

Defining Resilience in Mental Health, Academic Achievement, and Social Competence Domains

Mental Health ^a		Academic Achievement	Social Competence
<u>2 out of 2</u>	and	<u>1 out of 2</u>	
Youth Report		Caregiver Report	
Depression <66 (CDI)		Internalizing <60 (CBCL)	
Youth Report		Teacher Report	
Trauma <65 (TSCC)		Internalizing <60 (TRF)	
	and		
		<u>2 out of 3</u> ^b	
		Caregiver Report Externalizing <60 (CBCL)	
		Teacher Report Externalizing <60 (TRF)	
		Youth Report Externalizing <60 (YSR)	
	and		
		Youth Report Substance Use = 0	

Note: CDI = Children's Depression Inventory; TSCC = Trauma Symptom Checklist; CBCL = Child Behavior Checklist; TRF = Teacher Report Form; YSR = Youth Self-Report; MBA = Mini Battery of Achievement; SSRS = Social Skills Rating System.

^aIf the child was younger than 11 years old, then resilience in the mental health domain was based on youth reports of depression and trauma and caregiver and teacher reports of internalizing and externalizing.

^bIf the child was younger than 11 years old, then the child had to have *T* scores <60 on the CBCL and the TRF.

TABLE 2
Percentage (SE of Imputed Estimate) of Children Who Are Resilient to Maltreatment as a Function of Gender, Race/Ethnicity, and Type of Maltreatment

	Wave 1			Wave 3			Wave 4			Waves 1, 3, and 4		
	Positive Mental Health	School Achiev.	Social Comp.	Positive Mental Health	School Achiev.	Social Comp.	Positive Mental Health	School Achiev.	Social Comp.	Positive Mental Health	School Achiev.	Social Comp.
Gender												
Boys	39% (2.29)	36% (0.92)	48% (2.20)	45% (2.38)	43% (1.35)	47% (2.26)	50% (1.43)	38% (0.67)	52% (1.97)	20% (1.93)	20% (0.52)	16% (2.72)
Girls	40% (1.24)	40% (0.78)	44% (1.34)	45% (1.58)	45% (1.27)	45% (2.91)	46% (1.32)	36% (1.33)	46% (2.02)	18% (1.14)	25% (0.94)	12% (1.23)
OR (SE)	0.96 (0.10)	0.85 (0.04)	1.16 (0.12)	0.99 (0.10)	0.93 (0.06)	1.11 (0.20)	1.17 (0.10)	1.12 (0.06)	1.28 (0.15)	1.17 (0.19)	0.74 (0.04)	1.50 (0.42)
Race/ethnicity												
Black	41% (1.78)	31% (0.30)	40% (2.52)	44% (2.90)	34% (1.70)	43% (2.88)	45% (1.96)	23% (1.27)	47% (2.57)	17% (1.90)	12% (0.93)	11% (1.51)
White	36% (1.69)	44% (0.50)	46% (0.97)	45% (0.98)	51% (0.63)	46% (2.54)	44% (1.10)	46% (0.20)	50% (2.48)	19% (1.17)	30% (0.67)	15% (1.30)
Hispanic	50% (2.73)	39% (3.21)	46% (2.80)	48% (4.77)	37% (3.43)	47% (5.92)	62% (2.16)	32% (3.54)	50% (3.53)	19% (1.89)	22% (1.91)	11% (3.23)
F statistic (SE)	2.35 (1.08)	2.97 (0.25)	1.21 (0.90)	0.41 (0.26)	5.28* (1.49)	0.90 (0.68)	3.70* (0.83)	8.67* (1.07)	0.52 (0.26)	0.33 (0.19)	6.74* (1.69)	1.30 (0.95)
Type of abuse												
Physical	37% (0.79)	39% (1.25)	42% (1.77)	42% (2.45)	45% (1.52)	45% (4.32)	48% (1.37)	40% (1.22)	47% (2.75)	17% (1.65)	23% (1.48)	17% (1.54)
Sexual	37% (3.81)	39% (2.75)	42% (3.44)	38% (6.05)	52% (4.11)	45% (5.46)	47% (4.12)	42% (5.76)	48% (5.62)	13% (6.21)	30% (3.75)	13% (6.28)
Emotional	40% (4.64)	46% (5.24)	50% (3.95)	55% (3.30)	47% (4.43)	48% (4.62)	49% (4.20)	45% (3.17)	44% (5.13)	20% (1.95)	27% (3.58)	20% (1.94)
Neglect	43% (1.94)	35% (0.67)	48% (0.97)	45% (2.41)	41% (0.53)	46% (2.27)	47% (2.37)	33% (0.54)	49% (3.28)	21% (2.06)	20% (0.48)	21% (2.02)
F statistic (SE)	0.83 (0.29)	0.88 (0.63)	0.80 (0.41)	1.72 (1.25)	0.94 (0.41)	0.65 (0.61)	0.35 (0.33)	1.40 (0.38)	0.77 (0.58)	1.52 (1.08)	1.12 (0.48)	1.08 (0.95)
Single vs. multiple abuse												
Single	39% (0.69)	37% (0.49)	44% (1.49)	43% (1.60)	44% (0.68)	47% (1.71)	47% (1.05)	35% (0.78)	48% (1.52)	19% (1.25)	24% (0.55)	14% (1.13)
Multiple	41% (3.02)	42% (2.14)	47% (2.53)	50% (2.47)	46% (2.60)	42% (1.85)	49% (2.14)	43% (1.03)	48% (4.37)	18% (2.76)	20% (1.66)	14% (3.17)
OR (SE)	1.08 (0.12)	1.25 (0.12)	1.11 (0.15)	1.33 (0.14)	1.10 (0.11)	0.82 (0.07)	1.08 (0.12)	1.44 (0.05)	1.01 (0.20)	0.90 (0.22)	0.81 (0.09)	1.04 (0.27)
Total	40% (1.22)	38% (0.60)	46% (1.31)	45% (1.40)	44% (0.88)	46% (1.18)	48% (0.72)	37% (0.74)	49% (1.39)	19% (0.96)	22% (0.53)	14% (1.29)

Note: Achiev. = achievement; Comp. = competence.

* $p < .05$.

TABLE 3

Stability of Resilience to Maltreatment: Odds Ratios (95% Confidence Interval)

Resilient Wave 1	Resilient Wave 3	Resilient Wave 4
Mental health	3.75 (2.44–5.74) *	2.81 (1.87–4.22) *
School achievement	10.39 (6.36–16.96) *	9.45 (5.78–15.46) *
Social competence	2.18 (1.93–4.43) *	1.76 (1.18–2.62) *

* $p < .05$.

TABLE 4

Percentage (SD of Imputed Estimates) of Children Resilient in One, Two, or Three Domains of Functioning at Each Wave

	Wave 1	Wave 3	Wave 4
0 domains	28% (0.01)	22% (0.01)	20% (0.01)
1 domain	34% (0.01)	35% (0.01)	36% (0.01)
2 domains	26% (0.02)	29% (0.02)	33% (0.02)
3 domains	13% (0.01)	14% (0.01)	11% (0.01)

Note: Domains include mental health, school achievement, and social competence.