



# Needs and outcomes for low income youth in special education: Variations by emotional disturbance diagnosis and child welfare contact<sup>☆</sup>

Madeline Y. Lee<sup>\*</sup>, Melissa Jonson-Reid

Washington University in St. Louis, United States

## ARTICLE INFO

### Article history:

Received 17 June 2008

Received in revised form 26 January 2009

Accepted 26 January 2009

Available online 1 February 2009

### Keywords:

Special education

Emotional disturbance

Emotional disorder

Behavioral disturbance

Behavioral disorder

Child welfare

Maltreatment

Foster care

## ABSTRACT

Despite the high rates of service for emotional disturbance among child welfare involved youth, much remains to be understood about this population. This study is the first to use longitudinal data to examine the needs and outcomes of children in special education (comparing those with emotional disturbance (ED) and those without) according to child welfare involvement (none, child abuse and neglect report but no services, in-home child welfare services, and foster care). Administrative data linked with special education case file data on 471 youth found that those involved with child welfare were most likely to have an ED diagnosis. Special education assessments revealed that children with in-home services or reports of maltreatment without services generally had equal or greater levels of needs indicated than those placed in foster care. Youth with an ED diagnosis were more likely to experience a negative outcome, such as emergency room treatment for mental health, school problems, or juvenile delinquency. Almost all of the ED youth had child welfare contact by the end of the study period. These findings underline the unmet needs of this population and the need for system coordination to improve their outcomes.

© 2009 Elsevier Ltd. All rights reserved.

## 1. Introduction

Child welfare involved youth have high rates of special education services (Smithgall, Gladden, Howard, Goerge, & Courtney, 2004; U.S. Department of Health and Human Services Administration for Children and Families, 2007a). Compared to 13% of the general child population (National Center for Education Statistics, 2004), approximately 25% to 52% of children in foster care receive special education services (Zetlin, Weinberg, & Kimm, 2005). Two other studies also have found higher rates of ED eligibility among maltreated children (Sullivan & Knutson, 2000; Jonson-Reid, Drake, Kim, Porterfield, & Han, 2004).

Youth in special education for ED are particularly at high risk for poor outcomes (Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). A variety of negative outcomes have also been found to be associated with child abuse and neglect (Jonson-Reid & Barth, 2000; Leiter, Myers & Zingraff, 1994; Leiter & Johnsen, 1997; Jonson-Reid, Chance, & Drake, 2007; Widom, 1999). However, little is known about differences in

assessment and outcomes of children when these two populations overlap—in other words, students both diagnosed with ED and involved with child welfare (Smucket & Kauffman, 1996). Furthermore, almost no information is available for the over 40% of children who are reported for maltreatment but who do not receive child welfare services (Jonson-Reid et al., 2004; US DHHS ACF, 2007b).

## 2. Background and significance

One percent of all public school children are receiving special education services for ED, forming 8.1% of the special education population. Wagner et al. (2005) provided a national profile of students receiving special education services for ED using data from the Special Education Elementary Longitudinal Study (SEELS) and the National Longitudinal Transition Study—2 (NLTS2). More than three-fourths of the children diagnosed as ED were male. African-Americans, children from poor families and single parent households were overrepresented as ED compared to children in the general population and children with other disabilities. In addition, students with ED received special education services in school starting an average of more than one year later than children with other disabilities (Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005).

### 2.1. Meaning of emotional disturbance

One of the dilemmas when studying the ED population is understanding what this label actually means. In special education, the term

<sup>☆</sup> Data for the analyses are drawn from a study of cross-sector service paths and outcomes for maltreated children funded by Grant No. R01 MH6173302 from the National Institute of Mental Health. Points of view and opinions expressed in this article are those of the authors and do not necessarily represent the official position or policies of the funding agency.

<sup>\*</sup> Corresponding author. George Warren Brown School of Social Work, Washington University in St. Louis, Campus Box 1196, St. Louis, MO 63130, United States.

E-mail address: [mylee@wustl.edu](mailto:mylee@wustl.edu) (M.Y. Lee).

ED is defined by the following criteria from the Individuals with Disabilities Education Act (IDEA):

- (i) The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:
  - (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors;
  - (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers;
  - (C) Inappropriate types of behavior or feelings under normal circumstances;
  - (D) A general pervasive mood of unhappiness or depression;
  - (E) A tendency to develop physical symptoms or associated with personal or school problems.
- (ii) The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (IDEA, 2006).

This is not the same definition of ED used in mental health that is based upon the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) criteria: "A DSM-defined psychiatric disorder resulting in functional impairment that substantially interferes with or limits the child's role or functioning in family, school, or community activities" (Center for Mental Health Services, 1993). While children falling under the educational or mental health categories of ED do overlap, studies indicate that only about 50% of students labeled as ED in special education have a DSM diagnosis (Center for Effective Collaboration and Practice, 2002). Although emotional disturbance as defined by education is no doubt a heterogeneous construct, its categorization has significant meaning for educational policy and social services in schools.

## 2.2. Maltreatment

A report of child maltreatment to a child welfare or law enforcement agency is certainly not a sufficient measure of the existence of maltreatment as many maltreated children may never come to the attention of child welfare (Drake & Jonson-Reid, 2007; Sedlak & Broadhurst, 1996). However, the number of children who do have official reports is large. The latest national data indicate that six million children were subjects of 3.3 million referrals, of which about 60% resulted in accepted reports (US DHHS ACF, 2008).

Child welfare contact ranges from the least to the most intensive with children receiving no services following a report being the lowest level; children receiving case management in-home services the next level; children receiving family preservation services the next level; and children placed into out-of-home care receiving the most expensive and arguably most intensive intervention. National data indicate that about 59% of children who are substantiated and 30% of children with unsubstantiated cases receive some sort of post-investigation services, but this includes those who may have multiple reports prior to a first service (US DHHS ACF, 2008). For example, about 21% of children with substantiated reports enter care over time, but a relatively small proportion of children (4–6%) are removed from the home after a single report of maltreatment (Lipien & Forthofer, 2004).

## 2.3. Children reported for maltreatment and classified as ED

Youth in the child welfare system appear to overlap substantially with the ED population. Sullivan and Knutson (2000) found that 22% of children with recorded reports of maltreatment had educational disabilities with almost 40% being classified as "behavior disordered" (an older term used for ED classification). A study by Leiter and Johnsen (1997) revealed that maltreated children were more likely to enter special education after a report of maltreatment. Jonson-Reid et al. (2004) found that, compared to poor children never reported for maltreatment, those also reported for maltreatment had significantly higher rates of special education. In a study of incarcerated youth, 46%

of those receiving services for ED had prior child welfare contact (Jonson-Reid, Williams, & Webster, 2001).

Other investigations of overlap focus on children in foster care. A study by Goerge and Van Voorhis (1992) linked administrative data from the Illinois Department of Children and Family Services to the Illinois State Board of Education and found that nearly half of the children in both foster care and special education have ED as their primary disability, compared to slightly over 10% of children in special education only and not in foster care. Another study in Chicago by Smithgall et al. (2004) found that students in out-of-home care were significantly more likely to be classified as having an ED diagnosis than those with no substantiated history of maltreatment. No studies were found that examined the overlap comparing all levels of child welfare intervention.

## 2.4. Behavioral outcomes: ED youth and children reported for maltreatment

### 2.4.1. Outcomes for ED youth

Children identified as ED by the educational system experience many negative outcomes. Nationally, ED youth have a 55.9% drop-out rate (U.S. Department of Education, 2005). Students identified as ED are also at increased risk for serious mental health issues, substance abuse, and involvement in the juvenile justice system (Quinn & Poirer, 2004; Malmgren & Meisel, 2004). According to the NLTS2, 58% of students with ED have been arrested at least once (Wagner, Newman, Cametom, Levine, & Garza, 2006). It has been suggested that such poor outcomes may be in part due to the lack of appropriate services provided once students are so identified (Gresham, 2005). Others suggest that such outcomes are also due to the fact that many of these students come from households with multiple risk factors (such as maltreatment) such that the emotional or mental health problem is only one aspect of their need for service (Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005).

### 2.4.2. Abuse and neglect and outcomes

Maltreated children have also been found to experience a number of negative outcomes, including behavioral and mental health problems (Burns et al., 2004; Jonson-Reid, Drake, & Kohl, 2009; Lansford et al., 2002; Smith & Thornberry, 1995). These poor outcomes may be associated with a variety of insults to development. Children who are abused or neglected may develop problematic attachment behaviors with adult caretakers. Early attachment difficulties can later lead to troubled relationships with adults and peers, which may in turn create or enhance behavioral problems (Morrison, Frank, Holland, & Kates, 1999). Maltreated children may also experience developmental delays due to physical injury or from lack of appropriate stimulation and/or psychologically nurturing relationships with adults (American Academy of Pediatrics, 2001; Strathearn, Gray, O'Callaghan, & Wood, 2001). Crozier and Barth (2005) found that maltreated children scored significantly below national norms on standardized tests of cognitive functioning and academic achievement. Cognitive and or school problems may further exacerbate behavioral difficulties. Shonk and Cicchetti (2001) found that, compared to non-maltreated children, maltreated children showed more externalizing and internalizing behaviors that were mediated by less academic engagement.

### 2.4.3. Child welfare and outcomes

Most of the research related to child welfare involvement and outcomes has focused on youth in foster care. Youth in foster care have been found to experience a variety of negative educational, mental health and behavioral outcomes (e.g., Burns et al., 2004; Ryan & Testa, 2005; Jonson-Reid & Barth, 2000; Leiter & Johnsen, 1997).

These outcomes for youth in foster care may be associated with several issues. First, both chronicity and severity of maltreatment are associated with more negative outcomes (Cicchetti & Toth, 1995; Ryan

& Testa, 2005). Placement into foster care is designed to be the choice of last resort, meaning that such cases may have already been subjected to more severe maltreatment. In addition, children entering foster care are more frequently from poor and multi-problem families (McGuinness & Schneider, 2007; Zuravin & DePanfilis, 1997).

In comparison, less is known about how children receiving no services after a report of maltreatment or receiving in-home services compare to children in foster care. For example, children receiving in-home services may have been exposed to more serious types of maltreatment than those receiving no services, but it is possible that the provision of services moderate the effects of this risk on later outcomes like delinquency (Jonson-Reid, 2004; Lemmon, 2006).

#### 2.4.4. Emotional disturbance and child welfare and outcomes: Combined risk?

Students categorized as ED are known to have high rates of poor behavioral and mental health outcomes, at least some of which may be associated with other risk factors in their lives. Similarly, maltreated children are known to have higher risk of mental health disorder and untoward outcomes. It is unclear whether or not the combination of such factors for ED youth increases the likelihood of such outcomes.

Only two studies investigated outcomes for youth with ED in child welfare and both were limited to foster care. Smucket and Kauffman (1996) analyzed archival school data and interviewed school personnel to compare school-related problems of those students in both foster care and special education. Their sample consisted of four groups: both foster care and special education for ED, foster care only, special education for ED only, and those in neither. They revealed that children in foster care and also identified with ED experienced significantly more academic and behavioral problems compared to the other three groups (Smucket & Kauffman, 1996). Smithgall, Gladden, Yang, and Goerge (2005) compared placement and educational experiences of students in foster care identified as ED with students in foster care with other special education classifications and with students with ED who were not in care. They found that children in foster care received an ED diagnosis at higher rates than other children. Also, children in foster care with an ED diagnosis transitioned into permanent placements at lower rates than other students in care, even compared to those with other disabilities. In addition, a significant proportion of children with ED continued to display serious behavioral problems at school after being identified for special education (Smithgall, Gladden, Yang, & Goerge, 2005).

#### 2.5. The present study

Prior studies indicate that both maltreated and ED youth are separately at risk for a range of negative outcomes. Prior studies also indicate that these two populations overlap, and that within the foster care population, the overlapping population may experience higher levels of untoward outcomes. However, we know little about how children receiving no services after a report of maltreatment or those receiving in-home services may experience different outcomes according to ED status. Further, because children who come to the attention of child welfare are more frequently poor (Drake & Zuravin, 1998), it is not known whether maltreatment significantly adds to the risk of poor outcomes for ED youth above and beyond poverty. Understanding whether children with an ED diagnosis and child welfare contact have higher levels of risk for poor outcomes than low income children who are ED without child welfare contact has implications for interagency collaboration to meet the needs of these children. Understanding how assessment data for children receiving special education for ED vary by child welfare contact helps us understand whether or not the educational system is likely to see these as a higher need population when constructing Individual Education Plans (IEPs).

This study seeks to help fill our gap in knowledge about whether or not the needs of and outcomes for children in special education vary

according to ED diagnosis and child welfare involvement. This is crucial for informing whether or not such children may require specialized services. The research questions include:

1. Among children in special education, do those with child welfare contact have higher rates of ED diagnosis compared to low income only children? Given that prior research has found an association between child maltreatment and special education and the higher rate of ED among youth in foster care, we hypothesize that children with child welfare contact would have higher rates of ED than similarly low income but not reported children.
2. Do children with child welfare contact have greater assessed need as described within the initial special education assessment documents according to educational diagnosis? If ED children have poor outcomes in part due to higher risk factors, then it is important to understand whether or not typical assessment processes identify such risk. For example, most would argue that experiencing maltreatment is a significant risk factor, but with the exception of placement into foster care, the educational team assessing a child for special education may be unaware of such occurrence. Therefore, it is of interest to understand whether or not these children are displaying heightened risk on typical assessments used.
3. Do functional outcomes (delinquency, mental health treatment, school behavior) vary by ED versus other disability type and type of child welfare involvement? While both ED and child maltreatment have been associated with poor outcomes, it is not known whether or not types of child welfare contact would significantly increase risk of negative outcomes above and beyond the risk associated with being ED and being in poverty.
4. Among children identified as ED, what characteristics are associated with negative functional outcomes? This question is descriptive and exploratory.

### 3. Methods

#### 3.1. Sample and data collection

Data for the present analyses are from a larger longitudinal study of maltreated and low income children compared to low income only children born 1982 through 1994. In 2002, administrative records were used to identify children from the sample who had become eligible for special education services in a large urban city school district and 32 county school districts (omitted for blind review). Analyses (citation omitted for blind review) indicated that those who had experienced maltreatment had higher rates of special education participation. Subsequently, funding was obtained to do child welfare and special education case file reviews for a sub-sample. This provided additional assessment information not available through electronic data files. Child welfare case file had to be limited to substantiated cases, cases receiving child welfare services, or multiple report cases due to newer legislative limits on the length of time hard copy child welfare records are kept for unsubstantiated single reports. Special education case files for children in the maltreated group were similarly limited to be consistent. Due to the process of creating extraction forms, attaining human subjects approval through participating school districts, and identifying reviewers from district staff, the records reviews were not completed until the 2004–2005 school year.

Case file extraction forms were drafted after speaking with administrators and workers in the school districts. Prior to case file extraction, the PI and a graduate research assistant reviewed several randomly selected and redacted special education files to help refine the forms and ensure that we were collecting data that was likely to be present in all files. It was decided to limit extraction to the first and most recent Individualized Education Plans as well as the initial eligibility assessment document (normally completed by a school psychologist).

Reviewers were district staff familiar with the format of the files and were reimbursed for time outside of the regular work day to complete the reviews. They were asked to record initial assessment scales (e.g. IQ, academic achievement, behavioral tests, tests of adaptive behaviors, hearing and vision) names and results, as well as documented pre-existing conditions, problem areas requiring special education services, types and amount of special education services listed on the IEP, and case closure reasons. Reviewers received a two-hour training and then two files from each reviewer were cross-checked by researchers for consistency. Reviewers were asked to copy information as written rather than summarize in their own words.

Since there were not sufficient funds to review files for all children with special education records, the following sampling method was used. First, some low incidence disability types that were too rare for aggregate analyses were not sampled. These included autism, traumatic brain injury, deaf-blindness, orthopedic impairment, and multiply handicapped. This may exclude extreme physical abuse cases from our sample. Since the primary interest of the study was with those more common disability types most likely to be influenced by environment (intellectual delay, early childhood delay, speech/language and emotional disturbance), all such cases were requested. Only 50% of the LD cases (randomly selected by birth year within the non-CAN and CAN groups) were selected due to the large numbers of children in this category. In the parent study, one child was randomly selected per family to follow over time because it was not feasible to match across family level characteristics. Thus, much of the data in the parent study are linked solely to the index child. Since there was an interest in comparing the poverty only cases to those reported for maltreatment using data from other systems, this analysis is also limited to the index children. There was a 90.3% response rate for location of files requested ( $n = 593$ ). This study was approved by an Institutional Review Board (title omitted for blind review).

### 3.2. Data cleaning and preparation

There was no standard protocol for what test a school psychologist used. For example, there were 32 different cognitive measures found. A retired special education diagnostic specialist was hired as a project consultant to assist with understanding the use and interpretation of the various measures. All cases included cognitive scores but not all children received behavioral assessments. In addition to the consultant's assistance, each measure was researched using information from the publisher and/or validation studies. Fortunately, the cognitive scale scores reported could be converted into standard IQ scores with mean of 100 and standard deviation of 15. In some cases, this meant converting mental age, age equivalent scores, and percentiles to a standard score. If sub-test scores were reported, the average of those scores was used. A few tests had scores that were not convertible or comparable and this resulted in dropping six cases. A similar process was attempted for the 19 behavioral and five adaptive scale scores, but it was not possible to convert these to continuous standard scores. Instead, these were recoded according to whether the score fell within the "clinical" or "borderline concern" range for that assessment. For this article, only the cognitive scores, behavioral assessments, and adaptive behavior measures administered by the school psychologist were of interest (some students also had hearing or visual tests, etc.).

After recoding variables, the case file data were linked back to the larger administrative data set to retrieve level of child welfare contact (reports of abuse and neglect, in-home family services, or placement into foster care), data on mental health (emergency room and department of mental health), truancy, and delinquency (juvenile court), as well as census tract income and parent education at the start of the study. Sixty-six cases born in 1993 or 1994 were dropped for the present analyses because they were still too young to be likely to experience the outcomes of interest. An additional 50 cases were lost due to death, severe health problems that would have made it difficult

to experience outcomes of interest like delinquency (e.g., spina bifida, etc.) or missing data for outcomes. The final sample for this paper included 471 children; 220 from the poverty only group and 251 with at least one report of child abuse or neglect.

Data drawn from state level files (e.g., child maltreatment reporting and child welfare, income maintenance) in the study area all have a common identification number. Other data sources required the use of probabilistic matching based on other identifiers. All matches are cross-checked for consistency in demographics across data sets and service rates are cross-checked with prior research or agency reports to better insure that matches are correct across data sets. When case files were selected, information was checked again against known characteristics from the administrative data records. Dates available from services data allowed for time ordering and the creation of time variables for survival analyses.

### 3.3. Variables

#### 3.3.1. Independent variables

The independent variables for questions one, two, and three included type of disability and child welfare contact. Question four was limited to students designated as ED. The following levels of child welfare contact were examined: no maltreatment history (family received AFDC but no child in the home had any record of reported abuse or neglect (poverty only or non-CAN)), at least one child abuse or neglect report but no child welfare services (CAN), received in-home child welfare services (CWS) at least once but never placed into foster care, and at least one placement into foster care. Educational disability included: Early Childhood Special Education, Emotional Disturbance (ED), Learning Disability, Mental Retardation, Other Health Impaired, and Speech and Language. In our analyses, these are collapsed into ED versus other educational diagnoses.

#### 3.3.2. Control variables

Control variables available from school records included cognitive ability (standardized IQ scales), clinical or borderline range (yes/no) on a behavioral/emotional scale, and clinical or borderline (yes/no) on an adaptive behavior scale. Because of the nature of the scales used to assess cognitive ability, it was possible to recode them into a standardized scale score. However, the emotional and behavioral and adaptive (self-help, daily living, etc.) scores could not be similarly recoded into a single continuous scale score but each had a clinical or borderline range, and therefore these were recoded as dichotomous variables. Control variables also included comments in the assessment regarding known social problems with peers or teachers, mental health and/or major health diagnoses at the time of initial eligibility for special education (diagnosis reported by caregiver or other agency provider). Mental health diagnoses included specific DSM III codes; health problems ranged from asthma to lead poisoning to spina bifida. Demographics controls included age at first assessment for special education, race, gender, parent age at birth, parent level of education at study start, number of children in family, and income of census tract. Child race was recoded into a dichotomous variable, Black and non-Black, since the sample only included three children of Asian, Native American, or Latino/a origin. From listing of mental health diagnosis on initial special education assessment or presence in mental health services systems data, mental health treatment record from non-school sources was controlled. Due to the low income focus of the larger longitudinal study, the vast majority of the children resided in single parent homes at the start of the study and it is not possible to accurately track the presence of unwed partners in the homes. Thus family composition was not included as a control variable.

#### 3.3.3. Dependent variables

The outcomes of interest were emergency room treatment for mental health (ER MH), school problems (including school behaviors,

truancy, drop-out, withdraw due to behavior), and juvenile delinquency. While services for mental health might be thought of as a potential protective or ameliorative factor, mental health treatment in the emergency room for children and youth is more likely to signal a crisis rather than an avenue for care. Juvenile delinquency was measured by having a court petition for any delinquent offense (in other words, excluding status offenses). It may be argued that this undercounts the occurrence of delinquency in comparison to arrest or self-report data. On the other hand, the requirement that a police officer file a court petition beyond just an arrest or contact signals greater concern from a systemic point of view and may have more serious consequences for the youth.

Insufficient numbers did not allow for analysis of other school related issues as separate outcomes in multivariate models, so they are recoded as school problems. Because the sample was only 14 years old on average at the time of case file review, there were too few students who dropped out of school to analyze separately in multivariate models. Ongoing school problems were also captured by continued concerns on the last available IEP. Truancy, as measured by a juvenile court petition for truancy, is indicative of more chronic absenteeism, and was also included in this category along with a closure code that indicated forced withdrawal to alternative setting due to behavior. Outcomes were examined for the entire sample of youth in special education for question three and then separately for youth with an ED diagnosis for question four.

### 3.4. Data analyses

Data were entered in Microsoft Access and then imported into SAS version 9.1 for analyses. Descriptive analyses included chi-square, *t*-tests, and ANOVA.

For question one, Cochran Mantel Haenszel chi-square was used, followed by Pearson chi-square to assess the rate of ED compared to other special education diagnoses by type of child welfare contact.

For question two, multinomial logistic regression was planned to assess whether or not children could be categorized at initial assessment for special education by child welfare contact. There were, however, too few differences by type of child welfare contact and ED diagnosis to warrant this approach and only descriptive statistics are provided (including Factorial ANOVA and chi-square techniques).

For question three, descriptive statistics were used to examine outcomes by level of child welfare involvement and ED compared to other educational diagnosis. To take advantage of the longitudinal nature of the data, we then examined outcomes controlling for time elapsed since entry into special education. Examining outcomes simultaneously requires independence of the outcome categories. Outcomes were recategorized as follows for a competing risk model: no known negative outcome, any ER mental health, any delinquency without ER mental health, and school problems only. Bivariate survival analyses were first used to assess possible violations of proportionality for all main effects and interaction terms, as well as to test whether or not the outcomes of interest had different survival rates. An interaction term

between a non-proportional variable and time was created if needed to adjust for this in the final model (Allison, 1995). If these interaction terms were not significant, they were dropped from the final model. The Cox regression model using PROC PHREG controlled for clustering by geographic unit (Allison, 1995) to understand the association of selected variables with the risk (or hazard rate) of a negative outcome. Significant risk ratios larger than one indicate increased risk and those less than one indicate decreased risk.

Once the sample was restricted to ED youth for question four, the vast majority had at least one negative outcome and at least one contact with child welfare. Due to these constraints, we collapsed the outcome variable into “any negative” and limited analyses to logistic regression. PROC SURVEYLOGISTIC was used in order to control for potential clustering by census tract.

## 4. Results

Descriptive statistics revealed baseline characteristics of the overall special education sample ( $N = 471$ ). Over 64% of the youth in our sample were male ( $n = 304$ ); most were Black (84.3%,  $n = 397$ ); and the average age at first assessment for special education was 7.4 years. At the start of study period in 1994, 53% had had a report of abuse or neglect (CAN). Throughout the study period, only 27% of the full sample remained in the poverty only group. In other words, over time 43% of children who began the study without a report of CAN later were reported for abuse or neglect. Over the course of the study, 78% of the children reported for maltreatment received either in-home (CWS) or foster care services. The sample according to child welfare contact by the end of the study period was: poverty only  $n = 126$ ; CAN only (meaning no in-home or foster care services)  $n = 77$ ; CWS  $n = 166$ ; foster care  $n = 102$ . Ninety-nine (21%) of the youth in our overall special education sample had an ED diagnosis.

**Question 1.** Among children in special education, do those with child welfare contact have higher rates of ED diagnosis compared to low income only children?

Children who remained in the poverty only group were less likely (10.3%) to be in special education for ED than those with reports but no services (17%), those who received in-home services but not foster care (23.5%), and those who were in foster care at least once (33.3%) (Cochran Mantel Haenszel  $\chi^2 = 19.1$ ,  $df = 1$ ,  $p < .0001$ ). Separate comparisons revealed that rates of ED for the poverty only group differed from children receiving in-home or foster care services, but not from the group reported but not served (CAN).

**Question 2.** Do children with child welfare contact have greater assessed need as described within the initial special education assessment documents according to educational diagnosis?

Among the non-CAN/poverty-only children, females were less likely to be diagnosed as ED (2% vs. 15%, Fisher's Exact  $p < .03$ ), but there were no gender differences in ED diagnoses for other groups. There were

**Table 1**

Assessment information at time of initial entry into special education by educational disability and child welfare contact ( $N = 471$ ).

	Emotional disturbance				Other special education diagnoses			
	Poverty Only	CAN	CWS	FC	Poverty Only	CAN	CWS	FC
Mean age at first assessment	8.3	7.1	8.0	7.0	7.7	7.1	7.4	6.7
Mean IQ	90	80	85.1	85.4	81.6	76.7	78.6	76.4
Percentage of assessed need or concern by group								
Adaptive behavior problems <sup>a</sup>	15.4%	30.8%	20.5%	11.8%	11.5%	28.1%	25.4%	27.9%
Behavior problems <sup>a</sup>	61.5%	61.5%	56.4%	44.1%	7.1%	20.3%	8.3%	20.6%
Social problems	15.4%	23.1%	15.5%	23.5%	2.6%	0%	5.6%	1.5%
Speech/language needs	0%	30.8%	23.1%	11.8%	7.9%	6.2%	0%	1.5%
Mental health diagnosis known	15.4%	46.1%	43.6%	55.9%	8.8%	23.4%	17.5%	20.6%
Chronic or serious health condition	0%	15.4%	5.1%	23.5%	12.4%	14.1%	18.2%	11.8%

<sup>a</sup> Adaptive behavior and behavior problems scale scores in borderline or clinical range.

**Table 2**  
Any type of negative outcome by disability type and child welfare contact (N = 471).

	ER mental health	Delinquency	School behavior	Truancy	Drop-out
<i>Youth with other special education diagnosis (n = 372)</i>					
Poverty only (n = 113)	5.3%	30.1%	0.0%	2.6%	2.6%
CAN (n = 64)	14.1%	23.4%	3.1%	9.4%	9.4%
CWS (n = 127)	10.3%	26.2%	8.7%	12.7%	3.9%
Foster care (n = 68)	19.1%	36.8%	17.6%	4.4%	2.9%
<i>Youth diagnosed with ED (n = 99)</i>					
Poverty only (n = 13)	0.0%	53.8%	7.7%	30.8%	7.7%
CAN (n = 13)	23.1%	46.1%	38.5%	7.7%	15.4%
CWS (n = 39)	17.9%	41.0%	25.6%	15.4%	5.1%
Foster care (n = 34)	35.3%	55.9%	47.1%	8.8%	0%

no differences in groups by diagnosis in parent age at birth or parent's completion of high school. Table 1 displays various assessment characteristics from the special education files by ED or other diagnosis and child welfare contact type. The mean age at first assessment was similar across child welfare groups and by diagnosis. While not statistically different, in general, those children with child welfare contact had the lowest IQs among ED and non-ED diagnosed students. The results of a factorial ANOVA ( $F = 4.0, df = 7, p < .0003$ ) suggested that children diagnosed as ED had higher IQ scores at intake (85.2 vs. 78.9), and there were no significant differences in IQ by child welfare contact and no significant interaction. Otherwise, overall ED students had higher rates of needs and services compared to students with other disabilities across domains with the exception of health concerns and adaptive behavior issues. For example, the presence of a behavioral test within the clinical or concern range was associated with increased likelihood of ED (between two and nine times).

In most cases, children within the poverty only group had lower rates of recorded needs and problems with minor exceptions. Among children in special education for reasons other than ED, the poverty only group had higher proportions of children noted as having social problems or needing speech and language services. Within the ED group, students in foster care were less likely to have a behavioral measure in the concern or clinical range than all other groups, but this was not statistically significant. There were some differences in assessment characteristics and child welfare contact by ED diagnosis, but the small numbers precluded further analysis. For example, over half of the ED students who were also in foster care had a known mental health diagnosis at first assessment compared to only 15% of poverty only students, but only 13 of the 99 students diagnosed as ED lacked contact with child welfare.

**Table 3**  
Competing risk models: Any delinquency no ER MH, time to any ER mental health, or school problems only (N = 439).

Variable	Model 1: Juvenile delinquency (Wald $\chi^2 = 116.46, df = 13, p < .0001$ )			Model 2: Emergency room mental health treatment (Wald $\chi^2 = 69.02, df = 9, p < .0001$ )			Model 3: School problems (Wald $\chi^2 = 53.66, df = 10, p < .0001$ )		
	Parameter estimate	Pr > $\chi^2$	Hazard ratio	Parameter estimate	Pr > $\chi^2$	Hazard ratio	Parameter estimate	Pr > $\chi^2$	Hazard ratio
Race (Black)	-1.88978	0.0005	0.151*	-0.653	0.057	0.52	-0.159	0.798	0.85
Gender (female)	-0.75438	0.0011	0.470*	0.456	0.171	1.31	-0.096	0.797	0.91
Parent not high school graduate	0.79884	0.0003	2.223*	-	-	-	-	-	-
High poverty census tract	-	-	-	-	-	-	0.611	0.076	1.84
ED diagnosis	0.72601	0.0028	2.067*	1.066	0.045	6.07*	1.191	.0009	3.29*
Outside MH diagnosis	0.63503	0.0108	1.887*	2.478	<.0001	7.04*	-0.642	0.236	0.53
IQ <= 70	-0.57567	0.0443	0.562*	-1.243	0.011	0.24*	0.461	0.187	1.58
Age at first assessment	0.34193	<.0001	1.408*	-	-	-	0.588	<.0001	1.80*
CAN	-0.32684	0.2789	0.721	1.221	0.073	2.56	1.730	0.036	5.64*
CWS	0.03580	0.8839	1.036	1.289	0.038	3.20*	2.454	0.0006	11.64*
Foster care	0.33813	0.2297	1.402	1.819	0.003	4.96*	1.990	0.009	7.32*
ED*MH interaction	-1.21099	0.0130	0.298*	-2.038	0.005	0.13*	-	-	-
Time interactions Black*Time	.03194	0.0013	1.032*	-	-	-	-	-	-

Students who experienced the negative outcome prior to or simultaneous to entry into special education were excluded (n = 32).

\*p < .05.

**Question 3.** Do functional outcomes (delinquency, mental health ER treatment, school behavior) vary by ED versus other disability type and type of child welfare involvement?

First, descriptive statistics are provided for each individual outcome (see Table 2). For each outcome, ED students fared worse than those with other diagnoses with the exception of students in foster care that had a higher drop-out rate in the non-ED group. Children with some contact with child welfare had higher rates of ER mental health use, school behavior problems, and school drop-out, but this was not true for having a delinquency petition. Overall, about 18% of the children experienced more than one of these outcomes.

Next, a competing risk Cox regression was used to assess the risk of any ER mental health care, any delinquency, or school problems only following special education entry. Students who experienced the negative outcome prior to or simultaneous to entry into special education were excluded (n = 32). Table 3 displays the model fit, parameter estimates, and significance along with the hazard ratios for each variable.

4.1. Delinquency (see Table 3, columns 2–4)

The strongest predictors of a delinquency petition (without ER mental health) were having a parent that did not complete high school (HR = 2.22), ED diagnosis (HR = 2.07), and age at first assessment for special education (about 40% increased risk per year of age up to 17 years). In addition, children with an IQ of less than 70 and females were about half as likely to have this outcome. There was no difference in risk for children with child welfare contact compared to the poverty only group. An interaction term with ED and known mental health diagnosis indicated that those youth receiving ED services in school and also some type of mental health service in a community setting had lower risk of a delinquent outcome than children who were ED only or had a mental health diagnosis but were not ED. Black children had lower initial risk of delinquency, but an interaction with time indicated a 3% increased risk per month from time of entry into special education. Within seven years of entry into special education, the risk of a delinquency petition was greater for Black children than those of other racial categories.

4.2. Emergency room mental health treatment (see Table 3, columns 5–7)

ED designated students were over six times more likely and those with a mental health diagnosis at initial assessment were about seven times more likely to have an ER mental health episode. Again, an interaction term suggests this risk was moderated for youth who were both served in special education for ED and also had indication of

**Table 4**  
Logistic regression: likelihood of any negative outcome among ED youth ( $N = 99$ ).

	<i>N</i>	Parameter estimate	$\text{Pr} > \chi^2$	Odds ratio	95% CI
Female	23	-0.6815	0.2689	0.506	0.15–1.69
$\text{IQ} \leq 70$	15	-0.8832	0.2164	0.413	0.10–1.67
Parent not high school graduate	63	1.9330	0.0008	6.911*	2.22–21.47
CAN or CWS	52	1.6441	0.0378	5.176*	1.10–24.43
Foster care	34	1.7058	0.0254	5.506*	1.23–24.56
Age at first assessment		0.1701	0.0802	1.185	0.98–1.43

Note: CAN and CWS groups had to be combined due to small sample sizes.

Wald  $\chi^2 = 14.6278$ ,  $df = 6$ ,  $p = .02$ , Max rescaled  $R^2 = .28$ , c statistic = .78.

\* $p < .05$ .

mental health diagnosis from a community setting. Children with records of at least one in-home child welfare services period ( $\text{HR} = 3.20$ ) or one entry into foster care ( $\text{HR} = 4.96$ ) were at higher risk of an ER episode for mental health compared to the poverty only group. Youth with a cognitive score of 70 or below were less likely to have the outcome.

#### 4.3. School problems only (see Table 3, columns 8–10)

Once again, youth with an ED diagnosis had a higher risk ( $\text{HR} = 3.29$ ), but there was no interaction between a mental health diagnosis and school problems. Children with any type of child welfare contact were at higher risk than the poverty only group, with children with histories of in-home child welfare services having the highest hazard ratio. Similar to the model of delinquency, children older at entry into special education were at higher risk.

#### Question 4. Among children identified as ED, what characteristics are associated with negative functional outcomes?

Of the 99 children in this sample who had an ED diagnosis, 76.8% were male and 82.8% were Black. Most ED youth (80%) were receiving less than 60% of instructional time in special education. Eighty-three percent of the ED youth had non-missing values for a behavioral assessment score (remainder had noted occurrence of behavioral observations only). Only 13 children with an ED diagnosis remained without child welfare contact throughout the study period. Referring back to Table 1, among youth with an ED diagnosis, those with at least one spell in foster care (23.5%) were more likely to have a known health problems at initial assessment than all other groups (Fisher's Exact,  $p = .02$ ). Over 48% of the CAN, CWS, and foster care groups had known mental health diagnoses at assessment compared to 15% of poverty only children (Fisher's Exact,  $p = .03$ ). There were no significant baseline differences according to level of child welfare contact by age at first assessment, IQ, or clinical range on a behavioral assessment. There was a near-significant difference for adaptive behavior with CAN children having the highest proportion of ratings within a clinical range (30.8% vs. 15% or lower for other groups) (Fisher Exact,  $p = .052$ ).

Almost 74% of youth diagnosed with ED experienced at least one ER mental health episode, delinquency, or school problem. Thirty-eight percent experienced at least two—this is about three times higher than the rate of multiple negative outcomes among non-ED students (12.9%). A logistic regression model controlling for clustering at census tract (Table 4) was run to attempt to discriminate between those with at least one negative outcome and those without (Wald  $\chi^2 = 14.6278$ ,  $df = 6$ ,  $p = .02$ ). For this analysis, CAN and CWS groups had to be combined due to small sample sizes. The max rescaled r-square was .28 and a c statistic of .78 indicated reasonable though not ideal predictive utility of the model. ED students whose parents did not complete high school and those with child welfare contact had higher levels of likelihood of having a negative outcome. The magnitude of the associations, however, should be interpreted with caution given the wide confidence intervals.

## 5. Discussion

To our knowledge, this is the first study to use longitudinal data to examine the needs and outcomes of low income children in special education for ED compared to other disabilities by level of child welfare involvement. The higher rate of ED categorization for youth with at least one placement in foster care was consistent with prior research (Smithgall et al., 2004), but our data suggest that children with a history of in-home child welfare services are also be more likely to be designated as ED. The higher risk of poor outcomes for children receiving services for ED compared to other disability types is also consistent with previous research (Wagner, Kutash, Duchnowski, & Epstein, 2005; Wagner et al., 2006), as is the tendency for worse outcomes among those in the child welfare system compared to poverty only cases (e.g. Herrenkohl & Herrenkohl, 2007; Jonson-Reid & Barth, 2000; Jonson-Reid, Drake & Kohl, 2009).

### 5.1. Child demographics

National data (Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005) has shown that Black youth are overrepresented among ED youth. Most of the children with an ED diagnosis in our sample were Black, and this may reflect our low income, urban population sample. Our all poverty sample was drawn from school districts in which 81.8% of the students are Black and 80.7% of students receive free or reduced school lunch (Missouri Department of Elementary and Secondary Education, 2007). In contrast, Losen and Orfield (2002) found that Black children were 1.92 times as likely to be identified as ED compared to White children and that this could not be explained by poverty alone. Consistent with other studies (e.g. Bright & Jonson-Reid, 2008), our analyses revealed that Black youth were at increased risk for later delinquency.

Children who were older at the time of first assessment for special education were at higher risk of delinquency petitions and school behavior problems. It is not possible to tease out the age at onset or underlying causes of behavioral problems from the assessment documentation. It is reasonable to believe that intervention after difficulties become severe enough to warrant assessment for special education is less likely to be effective than earlier prevention/intervention efforts. Participation in high quality early childhood programs has been found to have long term benefits for high risk populations (e.g., Bilukha et al., 2005; Ramey & Ramey, 2002). Yet, children in families like those reported for child abuse or neglect are less likely to access early prevention and intervention programs (Jonson-Reid et al., 2004; Wiggins, Fenichel, & Mann, 2007). Increasing provision of in-home visiting and quality child care (Obama & Biden, 2008) may help identify and ameliorate early risks or manifestations of behavioral and emotional thus improving later outcomes.

### 5.2. Assessment

Overall, ED youth had greater needs and problems present in the initial special education assessment than youth with other disabilities, but differences in assessed needs and problems by child welfare contact were inconsistent. With the possible exception of foster care placement because it impacts who is present at the IEP, school personnel may not be aware of a child's prior history with child welfare. Thus it was of interest to understand whether or not these children had higher rates of needs for services indicated in the initial assessment for special education compared to those without history of child maltreatment. Among children diagnosed as ED within special education, those also with child welfare contact were more likely to have problems noted in areas of adaptive and social behaviors, mental health diagnoses, speech and language problems and health issues. Children with in-home services or reports of maltreatment without services generally had equal or greater levels of need indicated

than those placed in foster care. This is consistent with research that showed that maltreated children have greater emotional and behavioral problems than non-maltreated children (e.g., Burns et al., 2004; Crozier & Barth, 2005; Landsford et al., 2002; Shonk & Cicchetti, 2001). They did not, however, have differing values on behavioral assessments. Among children who were in special education for other diagnoses, the same pattern was not always evident. For example, among non-ED special education students did have differing values on behavioral assessments. Poverty only cases were less likely to have behavioral scale scores in the borderline or clinical range.

Although not a focus of the present study, we were amazed at the range of assessment instruments given to students. It is not known what led to the selection of particular instruments and the variation makes it difficult to draw conclusions about the utility of the initial assessment in helping to identify particularly at risk students. Some standardization in the types of scales and tests used in the assessment of children for special education would likely improve the ability of school personnel to develop educational plans that accurately identified mental health and socio-behavioral needs.

### 5.3. ED and mental health

Known mental health diagnosis was the most consistent means of differentiating youth with child welfare contact for both ED and non-ED students. It is unclear whether such diagnosis was the result of earlier contact with child welfare or what type of service these children might be receiving outside the educational system. The fact that this designation was a risk factor unless combined with receipt of services for ED, suggests that the outside services for mental health may not be adequate. Though the combination of ED and outside mental health seemed to moderate this risk, only one-third of youth with an ED diagnosis received mental health services outside of school. In addition, regional data indicated that only about half of ED students in a large county area had school social work services written into their IEP (Jonson-Reid, 2006). Thus many children designated as emotionally disturbed within the school setting may not be receiving appropriate levels of intervention. According to the Office for Special Education Program's annual report to Congress, only approximately half of the schools surveyed provided psychological (51%) or social work services (49%) (U.S. Department of Education, 2005).

### 5.4. Child welfare

Such relationships between child welfare service history and outcomes should not be interpreted as causal, but rather as a proxy for past abuse or neglect as well as a signal that at least one system deemed the family to have significant service needs. Child welfare services, particularly as typically provided, focus on the parent and are neither designed for nor funded to provide services that meet the health and mental health needs of the child. Such contact, however, if combined with effective longer term parenting intervention (e.g., Chaffin, 2007) and/or effective means of assessment and referral to other services (Jonson-Reid, 2004) might hold promise for improving later outcomes. At the stage of assessment for special education, such prior contact might be helpful as a signal for greater need of mental and behavioral intervention.

### 5.5. Outcomes

When examining outcomes, there was heightened risk of ER mental health treatment for children with histories of in-home services or foster care controlling for ED diagnosis. The increase in emergency room treatment over the past decade is an indicator of unmet need in children's mental healthcare (Cooper & Masi, 2007). Previous research found that youth in foster care with mental health issues are more likely to use the emergency room compared to those without a mental

health diagnosis (Almgren & Marcenko, 2001), but there was no comparison with other forms of child welfare involvement. Although youth with child welfare contact did have higher rates of ED diagnosis, most children in our sample with histories of child welfare services were neither diagnosed as ED nor known to be served in other mental health settings. As this is the first known study to explore outcomes for various types of contact with child welfare controlling for ED diagnosis, further work will need to be done to see if such findings hold. If they do, it suggests that information sharing between schools and child welfare might better aid the assessment of mental health needs for this population.

Consistent with prior work (Leiter & Johnsen, 1997), child welfare contact was associated with higher levels of school problems. Since school attendance and completion requires a certain level of supervision and support from home, it is not surprising that the children (particularly those who remain in the home) may have difficulties in these areas. Within the school problems categories, students with a history of foster care placement had the highest rate of school behavior problems noted in IEPs but generally lower levels of truancy.

Within our low income and special education sample, contact with child welfare did not predict delinquency as a lone outcome. This would appear inconsistent with prior literature (e.g., Jonson-Reid & Barth, 2000; Ryan & Testa, 2005), but such work was not limited to children who were both poor and had educational disabilities. A designation of ED, which likely includes difficulties in school performance, was important. As Zingraff, Leiter, Johnsen, and Myers (1994) found, good school performance mediated the relationship between maltreatment and delinquency, which may help explain this finding. Furthermore, while most children with child welfare contact were not labeled ED, most youth with an ED diagnosis did have contact with child welfare. It may be that once the emotional and behavioral problems associated with ED status manifest themselves, underlying risks like maltreatment become less salient as a predictor of delinquency. In addition, studies of maltreated children and delinquency have found repeated maltreatment and/or repeated placement moves to be factors in explaining later delinquency (Bright & Jonson-Reid, 2008; Lemmon, 2006; Ryan & Testa, 2005; Widom, 1991). The sample size for this study did not allow for such analyses. Future studies should be conducted with larger ED and child welfare samples to look more closely at these factors.

Among students diagnosed as ED, children with child welfare contact had higher rates of poor outcomes along with those whose parent had not graduated from high school. Prior work focused on children in foster care (Smucket & Kauffman, 1996; Smithgall et al., 2005), but our work suggests that equal attention should be paid to the needs of children with histories of maltreatment reports that remain in the home. In-home services through child welfare are brief and focused on cessation or prevention of maltreating behaviors on the part of the parent. Special education services for school-aged children are focused on the student, not the family. Little work is done with parents of ED children (Pollio, McClendon, North, Reid, & Jonson-Reid, 2005) despite the fact that the behavior problems of these children are likely to manifest at home as well. Research has demonstrated positive results with decreasing behavioral problems and increasing attachment among foster parents and children (Dozier, Albus, Fisher, & Sepulveda, 2002; Fisher, Gunnar, Chamberlain, & Reid, 2000). Evidence-based programs for parenting of children with behavior problems such as Parent Child Interaction Therapy (PCIT) (Eyberg et al., 2001) and the Incredible Years (Webster-Stratton & Hammond, 1997) are becoming increasingly widespread. Unfortunately, research suggests that most child welfare involved parents (biological or foster) still do not receive specialized parent training beyond the short-term services provided by child welfare or initial foster parent training (Chaffin, 2007; Leslie et al., 2005). Parent training may be as necessary as student level services in improving outcomes for ED youth, particularly for families with child welfare system contact with additional deficits in parenting skills.

## 5.6. Limitations and future directions

Some limitations of this study should be noted. First, maltreatment is measured only by report child welfare. Second, it was not possible to explore other disabilities like autism and traumatic brain injury given our sample size. Furthermore, given the relatively small sub-samples when broken down by child welfare contact and ED, it was not possible to explore variations in outcomes according to having multiple reports of maltreatment or multiple placements during foster care. Future studies with access to a much larger sample should attempt to explore these factors. Since case file data from IEPs used do not detail the contents of services (i.e. we do not know what type of behavioral services were provided), we are not able to assess the quality or intensity of services. Also, the demographics of the study region did not allow for the study of other racial and ethnic groups and the sampling frame and data precluded examination of family structure. Future research will need to be replicated in other areas to see if findings hold for other subpopulations. We were also not able to perform multivariate analyses by type of outcome for the ED-only sample due to small sample sizes.

Further, most youth in this study entered special education prior to the implementation of the No Child Left Behind Act and prior to the most recent changes in IDEA. The 2004 IDEA amendments specifically highlight the need for special education to perform outreach and assessments for youth experiencing family violence, substantiated maltreatment, or those in foster care (Jonson-Reid et al., 2007). Future work should examine similar outcomes to see if findings have changed following the more recent policy foci.

## 6. Conclusion

Our research adds to the body of literature highlighting the needs of ED youth and also the need to expand the examination of educational services and outcomes for child welfare involved youth beyond that of foster care. Those children with both histories of maltreatment and ED designation in special education have particularly high levels of mental health and behavioral problems noted at initial assessment. The *President's Commission on Excellence in Special Education (2002)* stated that “children with disabilities remain the most at risk of being left behind.” The *President's New Freedom Commission on Mental Health (2003)* indicated that

Schools are where children spend most of each day. While schools are primarily concerned with education, mental health is essential to learning as well as to social and emotional development. Because of this important interplay between emotional health and school success, schools must be partners in the mental health care of our children (p. 58).

Yet, disparate definitions of ED between schools and mental health providers make interagency coordination to improve mental health care challenging (Anderson, 2000). Thus, children who qualify for special education services under the ED category may not be involved in the “mental health system” or those with a mental health diagnosis may not qualify as ED in special education (Kernan, Griswold, & Wagner, 2003).

The call for increased collaboration between child welfare and schools due to poor school performance among maltreated children is not new. Staff in these systems find it difficult to collaborate due to barriers of time and cross-system understanding (Jonson-Reid et al., 2007; Kernan et al., 2003; Staudt, 2001). Further, it is not clear how effective collaboration will be until it is clear what agency will be the provider of the type of mental and behavioral health care these children need. “Currently, no agency or system is clearly responsible or accountable for young people with serious emotional disturbance” (President's New Freedom Commission on Mental Health, p. 57, 2003).

It is clear that continuing not to meet the needs of youth in special education with mental health needs either separate from or overlapping with child welfare contact is costly. Even though many children in our sample had not yet reached the age of 18, the majority of children in special education for ED had school behavior problems (including leaving school), at least one delinquency petition, or at least one emergency room episode for mental health. Until prevention of emotional disturbance and abuse or neglect is more effective, it is both morally and economically imperative that we improve services for this population.

## References

- Allison, P. (1995). *Survival analysis using the SAS system: A practical guide*. Cary, NC: SAS Institute.
- Almgren, G., & Marcenko, M. (2001). Emergency room treatment among foster care sample: The influence of placement history, chronic illness, psychiatric diagnosis, and care factors. *Brief Treatment and Crisis Intervention, 1*(1), 55–64.
- American Academy of Pediatrics (2001). Developmental surveillance and screening of infants and young children. *Pediatrics, 108*, 92–95.
- Anderson, J. A. (2000). The need for interagency collaboration for children with emotional behavioral disabilities and their families. *Families in Society, 81*(5), 484–493.
- Bilukha, O., Hahn, R., Crosby, A., Fullilove, M., Liberman, A., Moscicki, E., Snyder, S., Tuma, F., Corso, P., Schofield, A., & Briss, P. Task Force on Community Preventive Services. (2005). The effectiveness of early childhood home visitation in preventing violence. A systematic review. *American Journal of Preventive Medicine, 28*(2), 11–39.
- Bright, C., & Jonson-Reid, M. (2008). Onset of juvenile court involvement: Exploring gender-specific associations with maltreatment and poverty. *Children and Youth Services Review, 30*(8), 914–927.
- Burns, B., Phillips, S., Wagner, H., Barth, R., Kolko, D., Campbell, Y., et al. (2004). Mental health need and access to mental health services by youth involved with child welfare: A national survey. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(8), 960–970.
- Center for Effective Collaboration and Practice (2002). CECP 20th Annual Report: Students with emotional disturbance: Improving results. *Center for Effective Collaboration and Practice* Retrieved on-line Nov. 2008: <http://cecp.air.org/resources/20th/improve.htm> [2002].
- Center for Mental Health Services. (1993). *National Mental Health Information Center Mental Health Dictionary*. Retrieved from <http://mentalhealth.samhsa.gov/resources/dictionary.aspx#S>
- Cicchetti, D., & Toth, S. (1995). A developmental psychopathology perspective on child abuse and neglect. *Journal of the American Academy of Child & Adolescent Psychiatry, 34*(5), 541–565.
- Chaffin, M. (2007, August). *A motivational intervention can improve parenting program retention among deep-end child welfare cases, but it depends on the type of parenting program*. Paper presented to the APA 115th Annual Convention, San Francisco, CA.
- Cooper, J., & Masi, R. (2007, July). *Child and youth emergency mental health care: A national problem*. Retrieved April 8, 2008 from [http://www.nccp.org/publications/pub\\_750.html](http://www.nccp.org/publications/pub_750.html)
- Crozier, J., & Barth, R. (2005). Cognitive and academic functioning in maltreated children. *Children and Schools, 27*(4), 197–206.
- Dozier, M., Albus, K., Fisher, P., & Sepulveda, S. (2002). Interventions for foster parents: Implications for developmental theory. *Development and Psychopathology, 14*, 843–860.
- Drake, B., & Jonson-Reid, M. (2007). A response to melton based on the best available data. *Child Abuse & Neglect, 31*, 343–360.
- Drake, B., & Zuravin, S. (1998). Bias in child maltreatment reporting: Revisiting the myth of classlessness. *American Journal of Orthopsychiatry, 68*(2), 295–304.
- Eyberg, S. M., Funderburk, B. W., Hembree-Kigin, T. L., McNeil, C. B., Querido, J. G., & Hood, K. (2001). Parent-child interaction therapy with behavior problem children: One and two year maintenance of treatment effects in the family. *Child & Family Behavior Therapy, 23*, 1–20.
- Fisher, P., Gunnar, M., Chamberlain, P., & Reid, J. (2000). Preventive intervention for maltreated preschool children: Impact on children's behavior, neuroendocrine activity and foster parent functioning. *Journal of the Academy of Child and Adolescent Psychiatry, 39*, 1356–1364.
- Goerge, R., & Van Voorhis, J. (1992). Special education experiences of foster children: An empirical study. *Child Welfare, 71*(5), 419–437.
- Gresham, F. (2005). Response to intervention: An alternative means of identifying students as emotionally disturbed. *Education and Treatment of Children, 28*(4), 328–344.
- Herrenkohl, T., & Herrenkohl, R. (2007). Examining the overlap and prediction of multiple forms of child maltreatment, stressors, and socioeconomic status: A longitudinal analysis of youth outcomes. *Journal of Family Violence, 22*(7), 553–562.
- Individuals with Disabilities Education Act (2006). *Federal Register 34 CFR Part 300 and 301*. Retrieved December 15, 2008 from <http://idea.ed.gov/download/finalregulations.pdf>
- Jonson-Reid, M. (2004). Child welfare services and delinquency: The need to know more. *Child Welfare, 83*(2), 157–174.
- Jonson-Reid, M. (2006). Special School District School Social Work Caseload: Year 5 Annual Report. *Washington University: George Warren Brown School of Social Work*.
- Jonson-Reid, M., & Barth, R. (2000). From maltreatment to juvenile incarceration: Uncovering the role of child welfare services. *Child Abuse and Neglect, 24*(4), 505–520.
- Jonson-Reid, M., Chance, T., & Drake, B. (2007). Risk of death among children reported for nonfatal maltreatment. *Child Maltreatment, 12*(1), 86–95.

- Jonson-Reid, M., Drake, B., Kim, J., Porterfield, S., & Han, L. (2004). A prospective analysis of the relationship between reported child maltreatment and special education eligibility among poor children. *Child Maltreatment*, 9(4), 382–394.
- Jonson-Reid, M., Drake, B., & Kohl, P. (2009). Is the overrepresentation of the poor in child welfare caseloads due to bias or need? *Children & Youth Services Review*, 31(3), 422–427.
- Jonson-Reid, M., Kim, J., Barolak, M., Citerman, B., Laudel, C., Essma, A., et al. (2007). Maltreated children in schools: The interface of school social work and child welfare. *Children and Schools*, 29(3), 182–191.
- Jonson-Reid, M., Williams, J. H., & Webster, D. (2001). Severe emotional disturbance and violent offending among incarcerated adolescents. *Social Work Research*, 25(4), 213–222.
- Kernan, J., Griswold, K., & Wagner, C. (2003). Seriously emotionally disturbed youth: A needs assessment. *Community Mental Health Journal*, 39(6), 475–486.
- Lansford, J., Dodge, K., Pettit, G., Bates, J., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical maltreatment on psychological, behavioral, and academic problems in adolescence. *Archives of Pediatric and Adolescent Medicine*, 156, 824–830.
- Leiter, J., & Johnsen, M. (1997). Child maltreatment and school performance declines: An event-history analysis. *American Educational Research Journal*, 34, 563–589.
- Leiter, J., Myers, K., & Zingraff, M. (1994). Substantiated and unsubstantiated reports of child maltreatment: Do their consequences differ? *Social Work Research and Abstracts*, 18, 67–82.
- Lemmon, J. H. (2006). The effects of maltreatment recurrence and child welfare services on dimensions of delinquency. *Criminal Justice Review*, 31(1), 5–32.
- Leslie, L. K., Gordon, J. N., Lambros, K., Premji, K., Peoples, J., & Gist, K. (2005). Addressing the developmental and mental health needs of young children in foster care. *Journal of Developmental & Behavioral Pediatrics*, 26(2), 140–151.
- Lipien, L., & Forthofer, M. (2004). An event history analysis of recurrent child maltreatment reports in Florida. *Child Abuse & Neglect*, 28(9), 947–966.
- Losen, D., & Orfield, G. (2002). *Racial inequity in special education*. Cambridge, Massachusetts: Harvard Education Press.
- Malmgren, K., & Meisel, S. (2004). Examining the link between child maltreatment and delinquency for youth with emotional and behavioral disorders. *Child Welfare*, 83(2), 175–188.
- McGuinness, T., & Schneider, K. (2007). Poverty, child maltreatment, and foster care. *Journal of the American Psychiatric Nurses Association*, 13(5), 296–303.
- Missouri Department Of Elementary And Secondary Education (MODESE) (2007). *Demographic data 2003–2007*. Retrieved March 31, 2008 from <http://dese.mo.gov/schooldata/four/115115/demonone.html>
- Morrison, J. A., Frank, S. J., Holland, C. C., & Kates, W. R. (1999). Emotional development and disorders in young children in the child welfare system. In J. A. Silver, B. J. Amster, & T. Haecker (Eds.), *Young children and foster care: A guide for professionals* (pp. 33–64). Baltimore, MD: Paul H. Brookes.
- National Center for Education Statistics (2004). *Digest of educational statistics*. Retrieved October 10, 2007 from [http://nces.ed.gov/programs/digest/d04/tables/dt04\\_054.asp](http://nces.ed.gov/programs/digest/d04/tables/dt04_054.asp)
- Obama, B., & Biden, J. (2008). *Barack Obama and Joe Biden's plan for lifetime success through education*. Retrieved November 4, 2008, from <http://www.barackobama.com/pdf/issues/PreK-12EducationFactSheet.pdf>
- Pollio, D., McClendon, J., North, C., Reid, D., & Jonson-Reid, M. (2005). The promise of school-based psychoeducation for parents of children with emotional disorders. *Children & Schools*, 27, 111–116.
- President's Commission on Excellence in Special Education (2002). *A new era: Revitalizing special education for children and their families*. Retrieved from [http://www.ed.gov/inits/commissionsboards/whspecialeducation/reports/images/Pres\\_Rep.pdf](http://www.ed.gov/inits/commissionsboards/whspecialeducation/reports/images/Pres_Rep.pdf)
- President's New Freedom Commission on Mental Health (2003, July 22). *Achieving the promise: Transforming mental health care in America—Final report*. Retrieved from <http://www.mentalhealthcommission.gov/reports/FinalReport/downloads/downloads.html>
- Quinn, M., & Poirer, J. (2004). Linking prevention research with policy: Examining the costs and outcomes of the failure to prevent emotional and behavioral disorders. In R. Rutherford, M. Quinn, & S. Mathur (Eds.), *Handbook of Research in Emotional and Behavioral Disorders* New York: The Guilford Press.
- Ramey, C. & Ramey, S. (2002, April). *Early childhood education: From efficacy research to improved practice*. Paper presented at Summit on Early Childhood Cognitive Development. Little Rock, Arkansas. Retrieved May 2005 from: [www.ed.gov/print/teachers/how/early/cognitivedevsummit02](http://www.ed.gov/print/teachers/how/early/cognitivedevsummit02)
- Ryan, J., & Testa, M. (2005). Child maltreatment and juvenile delinquency: Investigating the role of placement and placement instability. *Children and Youth Services Review*, 27(3), 227–249.
- Sedlak, A. J., & Broadhurst, D. D. (1996). *Third national incidence study on child abuse and neglect*. Washington, DC: U.S. Department of Health and Human Services.
- Shonk, S., & Cicchetti, D. (2001). Maltreatment, competency deficits, and risk for academic and behavioral maladjustment. *Developmental Psychology*, 37(1), 3–17.
- Smith, C., & Thornberry, T. (1995). The relationship between childhood maltreatment and adolescent involvement in delinquency. *Criminology*, 33(4), 451–481.
- Smithgall, C., Gladden, R., Howard, E., Goerge, R., & Courtney, M. (2004). Educational experiences of children in out-of-home care. *Chicago, IL: Chapin Hall Center for Children at the University of Chicago* Retrieved April 13, 2008 from [http://www.chapinhall.org/article\\_abstract.aspx?ar=1372](http://www.chapinhall.org/article_abstract.aspx?ar=1372)
- Smithgall, C., Gladden, R., Yang, D., & Goerge, R. (2005). Behavioral problems and educational disruptions among children in out-of-home care in Chicago. *Chicago, IL: Chapin Hall Center for Children at the University of Chicago* Retrieved April 8, 2008 from [http://www.chapinhall.org/article\\_abstract.aspx?ar=1415](http://www.chapinhall.org/article_abstract.aspx?ar=1415)
- Smucket, K., & Kauffman, J. (1996). School-related problems of special education foster care students with emotional or behavioral disorders: A comparison to other groups. *Journal of Emotional and Behavioral Disorders*, 4(1), 30–40.
- Staudt, M. (2001). Psychopathology, peer relations, and school functioning of maltreated children: A literature review. *Children & Schools*, 23, 85–100.
- Strathearn, L., Gray, P. H., O'Callaghan, F., & Wood, D. O. (2001). Childhood neglect and cognitive development in extremely low birth weight infants: A prospective study. *Pediatrics*, 108(1), 142–151.
- Sullivan, P. M., & Knutson, J. F. (2000). Maltreatment and disabilities: A population-based epidemiological study. *Child Abuse and Neglect*, 24(10), 1257–1273.
- U.S. Department of Education (2005). *Twenty-Seventh Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act*. Washington, D.C. Author. Retrieved from <http://www.ed.gov/about/reports/annual/osep/2005/parts-b-c/27th-vol-1.pdf>
- U.S. Department of Health and Human Services, Administration for Children and Families (2007). *Special health care needs among children in child welfare*. Retrieved October 26, 2007 from [http://www.acf.hhs.gov/programs/opre/abuse\\_neglect/nscaw/reports/special\\_health/special\\_health.html](http://www.acf.hhs.gov/programs/opre/abuse_neglect/nscaw/reports/special_health/special_health.html)
- U.S. Department of Health and Human Services Administration for Children and Families (2007). *Child maltreatment 2005: Summary of key findings*. Retrieved March 23, 2008 <http://www.childwelfare.gov/pubs/factsheets/canstats.cfm>
- U.S. Department of Health and Human Services, Administration for Children and Families (2008). *Child maltreatment 2006*. Washington, D.C.: U.S. Government Printing Office.
- Wagner, M., Kutash, K., Duchnowski, A., & Epstein, M. (2005). The Special Education Elementary Longitudinal Study and the National Longitudinal Transition Study: Study designs and implications for children and youth with emotional disturbance. *Journal of Emotional and Behavioral Disorders*, 13(1), 25–41.
- Wagner, M., Kutash, K., Duchnowski, A., Epstein, M., & Sumi, C. (2005). The children and youth we serve: A national picture of the characteristics of students with emotional disturbances receiving special education. *Journal of Emotional and Behavioral Disorders*, 13(2), 79–96.
- Wagner, M., Newman, L., Cametom, R., Levine, P., & Garza, N. (2006). *An overview from Wave 2 of the National Longitudinal Transition Study—2 (NLTS2)*. Menlo Park, CA: SRI International (NCSE 2006–3004).
- Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology*, 65(1), 93–109.
- Widom, C. (1991). The role of placement experiences in mediating the criminal consequences of early childhood victimization. *American Journal of Orthopsychiatry*, 61(2), 195–209.
- Widom, C. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry*, 156, 1223–1229.
- Wiggins, C., Fenichel, E., & Mann, T. (2007). Literature review: Developmental problems of maltreated children and early intervention options for maltreated children. *University of North Carolina, School of Social Work University of North Carolina, Frank Porter Graham Child Development Institute, Zero to Three*.
- Zetlin, A., Weinberg, L., & Kimm, C. (2005). Helping social workers address the educational needs of foster children. *Child Abuse and Neglect*, 29, 811–823.
- Zingraff, M., Leiter, J., Johnsen, M., & Myers, K. (1994). The mediating effect of good school performance on the maltreatment–delinquency relationship. *Journal of Research in Crime and Delinquency*, 31(1), 62–91.
- Zuravin, S., & DePanfilis, D. (1997). Factors affecting foster care placement of children receiving child protective services. *Social Work Research*, 21(1), 34–44.