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## Do Children's Advocacy Centers improve families' experiences of child sexual abuse investigations?☆

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### Abstract

**Objective:** The Children's Advocacy Center (CAC) model of child abuse investigation is designed to be more child and family-friendly than traditional methods, but there have been no rigorous studies of their effect on children's and caregivers' experience. Data collected as part of the Multi-Site Evaluation of Children's Advocacy Centers were used to examine whether CACs improve caregivers' and children's satisfaction with investigations.

**Methods:** Nonoffending caregiver and child satisfaction were assessed during research interviews, including the administration of a 14-item Investigation Satisfaction Scale (ISS) for caregivers. Two hundred and twenty-nine sexual abuse cases investigated through a CAC were compared to 55 cases investigated in communities with no CAC.

**Results:** Hierarchical linear regression results indicated that caregivers in CAC cases were more satisfied with the investigation than those from comparison sites, even after controlling for a number of relevant variables. There were few differences between CAC and comparison samples on children's satisfaction. Children described moderate to high satisfaction with the investigation, while a minority expressed concerns about their experience.

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**Conclusions:** The CAC model shows promise for improving families' experiences, but to build upon this promise, agencies will need to systematize procedures for refining and adapting the model as new research becomes available. © 2007 Elsevier Ltd. All rights reserved.

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## Introduction

Children's Advocacy Centers (CACs) seek to increase multidisciplinary coordination in sexual abuse investigations and provide an independent, child-friendly environment for forensic interviews, increase training for interviewers, and increase children's access to medical and therapeutic services. The agencies have developed rapidly: in 2007, over 650 CACs had been established in all 50 states in the U.S., a dramatic increase from the 22 centers registered in 1992 (National Children's Alliance, 2007). Although CACs vary and emphasize different objectives, all aim to improve the experience of children and families with sexual abuse investigations (Walsh, Jones, & Cross, 2003), and this outcome could be considered a primary goal of the model. This study presents results from new instruments measuring caregivers' and children's experiences with child abuse investigations. Responses by families served by CACs are compared to those from families served in communities without a CAC.

### *CAC efforts to improve families' experiences*

Numerous child advocates have expressed concern that the professional response to sexual abuse allegations could unduly exacerbate children's and caregivers' stress, particularly when multiple investigating agencies are involved (Berliner & Conte, 1995; Goodman et al., 1992; Henry, 1997; Newberger, 1987; Runyan, Everson, Edelsohn, Hunter, & Coulter, 1988; Sas, Hurley, Hatch, Malla, & Dick, 1993; Weiss & Berg, 1982). One concern has been that children may be distressed by multiple and redundant child protective service (CPS) and criminal justice interviews (Jaudes & Martone, 1992; Tedesco & Schnell, 1987; also see Cross, Jones, Walsh, Simone, & Kolko, 2007). Lack of sensitivity by investigators could also cause children distress. Untrained investigators may rely on suggestive questioning and make other interviewing errors (Wood & Garven, 2000) confusing children and making it harder for them to answer questions (Ceci & Bruck, 1993; Poole & Lamb, 1998). Children may also be stressed by the environments in which forensic interviews are conducted. Traditionally, child forensic interviews have taken place in police departments, schools, and CPS offices. Such settings may be intimidating for children and could increase children's beliefs that they are in trouble or have done something wrong. Guidelines for improving child forensic interview procedures include recommendations to create a comfortable and developmentally appropriate interview environment for children (American Academy of Child and Adolescent Psychiatry, 1997; American Professional Society on the Abuse of Children, 1997; U.S. Department of Justice, Office for Victims of Crime, 1999).

Despite the concerns, research suggests that children's impression of investigations is generally positive (Berliner & Conte, 1995; Davies, Seymour, & Read, 2000; Sas et al., 1993). Support and sensitivity conveyed by investigators appear to be key factors in children's evaluation of the process. Identification of a trusted professional is related to lower trauma scores for children (Henry, 1997) and more positive

ratings of the investigation (Berliner & Conte, 1995). Children describe wanting more information about what is happening with their case and what to expect during different procedures (Davies et al., 2000; Steward, Schmitz, Steward, Joye, & Reinhart, 1995). Some research suggests that specific case outcomes (placement into foster care, prosecution, conviction) may be less important to children's appraisal of the investigation than an overall impression that the investigation increased their safety (Henry, 1997).

Less attention has been paid to nonoffending caregivers' experience of investigations. Parents' attitudes about the investigation are likely to influence how children themselves experience the process. Children may look to their caregivers to help them understand and evaluate their experiences. Additionally, children's needs for support and basic caretaking could be compromised if caregivers are upset and confused by the investigation process. As with children, parental satisfaction with investigations appears to increase with the perceived supportiveness of the involved professionals (Davies et al., 2000; Everson, Hunter, Runyon, Edelsohn, & Coulter, 1989) and when they have good access to information about what is happening with the investigation (Davies et al., 2000).

There are several components of the CAC model that separately or collectively could improve children's and caregivers' experience (see National Children's Alliance, n.d.; Simone, Cross, Jones, & Walsh, 2005, chap. 22). CACs provide child-friendly environments in their waiting areas and interview rooms. CAC professionals coordinate the work of multidisciplinary investigation teams with the hope that fewer interviews and greater teamwork will improve children's and families' experiences. Training in child forensic interviews is provided for CPS and law enforcement investigators and many CACs hire specially trained staff to conduct child forensic interviews. CACs also offer a number of services for victims such as medical evaluations, therapeutic intervention, and victim support and advocacy.

Preliminary evaluations of CACs have found that caregivers and children report high levels of satisfaction with their CAC experience (Jenson, Jacobson, Unrau, & Robinson, 1996; Lippert, Favre, & Alexander, *in press*; Steele, Norris, & Komula, 1994). One study found that 88% of children interviewed through a CAC reported their experiences as "very good" or "good," and 64% felt "very good" about the interview environment (Jenson et al., 1996), but without comparison data, it is difficult to assess the relative impact of the CAC intervention.

### *Current study*

This study draws from data collected as part of the Multi-Site Evaluation of Children's Advocacy Centers. In a quasi-experimental design, data were collected on four CACs and within-state comparison communities that lacked a CAC. The four CACs that were chosen to participate were among the most experienced and long-standing CACs in the country. This paper examines whether cases seen at the participating CACs were more likely to result in higher ratings of caregivers' and children's satisfaction than cases seen in comparison communities, controlling for other variables.

## **Method**

Data were collected by research teams located at four sites across the country: the Dallas Children's Advocacy Center (DCAC) in Dallas, TX; the Dee Norton Lowcountry Children's Center, Inc. (LCC) in Charleston, SC; the National Children's Advocacy Center (NCAC) in Huntsville, AL; and the Pittsburgh Child Advocacy Center (PCAC) in Pittsburgh, PA. At each site, information was collected on a sample of

CAC cases and on a sample of child abuse cases from comparison communities in the same state without CACs. For additional details on the research sites, see Cross et al. (2007, in press) and Walsh, Cross, Jones, Simone, and Kolko (2007).

### *Participants*

In the larger evaluation study, case file data were collected on a total of 1452 cases (784 CAC and 668 comparison cases). Cases were enrolled in the study between December 2001 and December 2003 by research teams at each of the four sites. Site research teams generally included every available sexual and serious physical abuse case initiated in the CAC and in the comparison community CPS agencies during the enrollment period. Police cases were included as well in the South Carolina and Dallas County comparison communities. When the number of CAC or comparison cases exceeded resources, a process simulating random selection was used (e.g., taking every third case).

This article analyzes data from a subset of cases that included in-person research interviews with caregivers. Law enforcement and child protective service investigators in CAC and comparison communities had been instructed to approach caregivers about participating in research interviews in every case meeting inclusion criteria (sexual abuse or serious physical abuse) during the enrollment period. However, only some investigators cooperated in recruiting subjects in this way, and this was more typically a CPS investigator than a police official. At the Dallas comparison site, no research interviews were conducted due to difficulty getting investigators to recruit participants. Approximately 825 caregivers across the remaining sites were invited to participate. Three hundred and fifty-eight interviews were conducted (243 CAC and 115 comparison cases), a 44% participation rate. Nonparticipation was due to a combination of direct refusals, disconnected telephone numbers, nonresponse, or difficulty scheduling the interviews.

The interviewed sample did not differ from the larger sample of noninterviewed cases on the child's sex or race, the severity of the alleged abuse (penetration, force, or additional allegation of physical abuse), the relationship between the child and the alleged perpetrator, or child protection or criminal justice case outcomes. The interview sample did involve cases with significantly younger children (mean child age 8.6 years compared to 10.1 years for noninterviewed cases). Interview cases were also more likely to involve adolescent offenders and include a medical exam, factors that may be related to the younger age of the children in these cases. Finally, interview cases were more likely than noninterviewed cases to involve CPS agencies, a factor that may be related to CPS investigators more actively recruiting cases for the research interviews.

Analyses were limited to sexual abuse cases only ( $n = 284$ ; 229 CAC cases and 55 comparison cases). In cases where the alleged victim was over age 8, an interview was also conducted with the youth ( $n = 120$ ; 90 CAC cases and 30 comparison cases). The different sample sizes for the CAC and comparison groups resulted because there were fewer investigators recruiting caregivers for interviews in the comparison sites and because a greater percentage of comparison cases involved physical abuse allegations only. Ninety-two percent of the research interviews were conducted from within 3–6 months of the first forensic interview. In 79% of cases, the child's mother was the caregiver respondent; other respondents included fathers (6%), other female relatives (7%), and foster mothers (3%). Families who participated in the interview were given \$50 to compensate them for their time. The University of New Hampshire (UNH) Institutional Review Board (IRB) for the Protection of Human Subjects in Research approved the informed consent procedures and protocols for protecting subjects' rights for the research conducted at each site.

*Characteristics.* Reported victims were primarily female (79%) and on average, 8.6 years old (range 0–17 years). There were no significant differences between CAC and comparison cases on victims' sex or age (Table 1). Victims in the CAC sample were more ethnically diverse than those in the comparison sample due to differences in the demography of the catchment areas. There were no differences between CAC and comparison cases in the percentage of male offenders, intrafamilial offenders, or youth offenders. CAC cases included higher rates of more severe abuse allegations (i.e., allegations involving vaginal or anal penetration); however, rates of physical injury and concurrent physical abuse allegations did not differ between the samples.

CAC cases were less likely to involve CPS and more likely to involve law enforcement, a factor that did not differentiate CAC and non-CAC cases in the noninterviewed sample. These differences likely reflect the fact that law enforcement was less active in recruiting research interview subjects in comparison communities. In order to control for these differences, CPS and law enforcement involvement were included as covariates in all multivariate analyses. CAC cases were also significantly more likely to receive a medical exam as a part of the investigation, a finding evident in the larger sample as well (see Walsh et al., 2007 for more discussion). There were few differences in case outcomes between the CAC and comparison samples, although there was a higher rate of substantiated findings by CPS in the comparison sample.

### *Measures*

*Caregivers' satisfaction.* Nonoffending caregivers' satisfaction with the child abuse investigation was measured using a 14-item Investigation Satisfaction Scale (ISS). This scale was designed to assess overall levels of satisfaction with how the investigation was conducted and how well caregivers felt that children were treated by investigators (for a list of ISS items see Appendix A). ISS questions were developed after reviewing a number of existing questionnaires and studies that asked about children and caregivers' satisfaction with child abuse investigation and court experiences (Berliner & Conte, 1995; Cross, 1999; Goodman et al., 1992; Newman, 1998; Steele et al., 1994). Caregivers responded to each of the 14 questions using a 4-point Likert-style scale, with 1 indicating lowest satisfaction (e.g., "not at all supportive" or "very poorly") and 4 indicating greatest satisfaction (e.g., "very supportive" or "very well"). Exploratory principal component analysis of the 14 ISS items supported a two-factor solution as the best fit for the data based on eigenvalues and examination of the scree plot (eigenvalue for Factor 1 = 6.63, eigenvalue for Factor 2 = 1.67). Items in each factor represented two facets of satisfaction with child abuse investigations: (1) satisfaction with the skill and responsiveness of investigators and (2) satisfaction with the forensic interview process and environment (Appendix A). The factors explained 47% and 12% of the variance, respectively. The ISS was divided into two subscales, a nine-item Investigator Response subscale and a five-item Interview Experience subscale. Internal reliability was good for both subscales (Cronbach's  $\alpha = .89$  and  $.81$  for the Investigator Response and Interview Experience subscales, respectively). Subscale satisfaction scores were derived by calculating the mean score from the items in each subscale (range 1–4).

Caregivers were also asked two additional questions about whether the investigation increased or decreased how troubled their child was and how they felt about the number of interviews their child experienced.

Table 1  
Sample characteristics

	CAC ( <i>n</i> = 229)	Comparison ( <i>n</i> = 55)
Child characteristics		
% Female	78	84
Mean age ( <i>SD</i> )	8.5 (4.0)	9.1 (4.1)
Race <sup>a</sup> (%)		
White	54***	87
African American	30	9
Latino	9	2
Other <sup>b</sup>	7	2
Alleged offender characteristics (%)		
Male <sup>a</sup>	92	94
Family member of reported victim	61	76
Adolescent or child	32	23
Reported abuse (%)		
Penetration reported	41**	20
Child sustained physical injury	20	21
Report included allegation of physical abuse <sup>a</sup>	6	4
Agency/professional involvement (%)		
Cases involving CPS	74***	100
Cases involving LE	83*	67
Cases receiving medical exam	60**	35
Case outcomes		
Verbal disclosure of abuse (%) <sup>a</sup>	89	93
Substantiated or indicated by CPS (%) <sup>c</sup>	61*	80
Child removed from home (%) <sup>c</sup>	13	13
Alleged offender was charged (%) <sup>d</sup>	39	41
Investigators believed sexual abuse occurred (%)	76	69
Mean child depression/anxiety ( <i>SD</i> ) <sup>e</sup>	58.8 (14.0)	59.5 (14.2)
Mean child anger/behavior problem ( <i>SD</i> ) <sup>f</sup>	58.6 (14.2)	57.7 (12.6)
Child receiving mental health services (%)	63	67
Parent receiving mental health services (%)	44	55

Notes: CPS, child protective services; LE, law enforcement; *SD*, standard deviation. Missing data on the following variables ranged from 7% to 11%: child race, offender sex, offender relationship to child, offender age, injury, disclosure, and child depression/anxiety and anger/behavior problem scores. Twenty-six percent data were missing on whether CPS cases were substantiated and 12% data missing on whether LE cases were charged. For all other variables, missing data <5%.

<sup>a</sup> Fisher exact test for two by two analysis and Fisher–Freeman–Halton exact tests for larger tables. All other tests on percentages use Pearson  $\chi^2$ .

<sup>b</sup> Other categories include “American Indian or Alaskan Native,” “Asian,” “Native Hawaiian or Other Pacific Islander,” or “other” as noted by researcher.

<sup>c</sup> Calculated only for cases involving CPS (CAC sample *n* = 167; comparison sample *n* = 55).

<sup>d</sup> Calculated only for cases involving LE (CAC sample *n* = 188; comparison sample *n* = 36).

<sup>e</sup> Variable uses Child Behavior Checklist (CBCL) internalizing subscale *T*-score; missing data replaced with *T*-score from the anxiety subscale of the Trauma Symptom Checklist for Young Children (TSCYC) when possible.

<sup>f</sup> Variable uses Child Behavior Checklist (CBCL) externalizing subscale *T*-score; missing data replaced with *T*-score from the anger subscale of the Trauma Symptom Checklist for Young Children (TSCYC) when possible.

\* *p* < .05.

\*\* *p* < .01.

\*\*\* *p* < .001.

*Children's satisfaction.* Six questions were developed to assess children's satisfaction with the investigation. Questions asked: how well they liked the places they were interviewed; how scared they felt during interviews; how well investigators explained what was happening to them; how well investigators seemed to understand kids; how they felt about the number of times they had to talk with investigators; and how they felt after talking with investigators. Children responded to each question using a 4-point Likert-style scale, with 1 indicating lowest satisfaction (e.g., "they didn't understand kids at all" or "they didn't explain things at all") and 4 indicating greatest satisfaction (e.g., "they understood kids very well" or "they explained things very well"). Psychometric analyses including reliability and factor analytic procedures indicated little shared variance between the items; therefore, each item was analyzed separately.

*Other variables.* Data on child demographics (sex, age, race); alleged offender characteristics (sex, relationship to victim, age); characteristics of the reported abuse (penetration, injury, and allegation of physical abuse); agency involvement in the investigation (CPS, LE, medical); and case outcomes (presence of disclosure, finding by CPS, removal of child from the home, criminal justice outcomes, investigators belief that sexual abuse occurred) were abstracted from case file records by researchers.

Information on children's emotional and behavioral symptoms and on mental health services received by the family was collected from caregivers during research interviews. Children's depression and anxiety symptoms were measured using *T*-scores from the parent-report Child Behavior Checklist (CBCL) (Achenbach & Rescorla, 2001) internalizing subscale. The CBCL was completed by parents of children older than 5 years old and therefore missing data in 41 cases were replaced with *T*-scores from the anxiety subscale of the Trauma Symptom Checklist for Young Children (TSCYC) (Briere, 2005), which is appropriate for children as young as 3. Similarly, children's anger and behavior problems were estimated using the CBCL externalizing subscale and supplementing from the anger subscale of the Trauma Symptom Checklist for Young Children (TSCYC) as necessary.

Mental health service receipt was measured using a checklist created for the study that assessed whether the caregiver or child had received a range of different services in the past 2 months. A composite was created to summarize whether the caregiver or the child had received any mental health services (individual counseling, psychiatric services, family therapy, etc.) during the 2 months prior to the interview.

### *Data analysis*

Differences between CAC and comparison cases on case characteristics and outcomes were assessed using independent sample *t* tests and Pearson  $\chi^2$  tests. In some cases, expected cell frequencies were too small for Pearson  $\chi^2$  and we used the Fisher exact test for two by two tables and the Fisher–Freeman–Halton exact test for larger tables (Mehta & Patel, 1986). Cohen's *d* was used as an effect size measure to estimate the magnitude of the differences between group means independently of sample size (see, e.g., Cohen, 1992). Pearson correlations were used to assess the bivariate relationship between the predictor variables (characteristics of the victim, offender, and reported abuse; agency involvement; and case outcomes) and caregivers' Investigator Response and Interview Experience satisfaction scores. Variables related to satisfaction at the bivariate level at  $p < .05$  were then included in multivariate models. Hierarchical linear regression analyses were conducted for each of the two ISS subscales to evaluate whether caregivers from CAC communities reported greater satisfaction with the investigation process after controlling for potential confounding variables. Due to the possibility of systematic differences between cases collected by research teams in the four states, the first step in the regression was to enter

a “site” variable to account for its potential relationship to satisfaction. In the second step of the model, relevant child and agency characteristics were entered. The final step compared satisfaction rates of CAC and comparison cases. To increase the number of cases in these analysis and account for differences in cases with and without missing data, contrast coded variables representing whether cases had valid or missing data were included in the regression analyses for some variables (Cohen, Cohen, West, & Aiken, 2003).

## Results

### *Caregivers’ satisfaction*

Caregivers from CACs reported higher rates of satisfaction than caregivers from comparison samples on both the Investigator Response and Interview Experience ISS subscales. The mean Investigator Response subscale score for the CAC sample was 3.32 (.69) compared to 2.90 (.88) for the comparison sample ( $p = .002$ ,  $d = .57$ ). The mean Interview Experience subscale score for the CAC sample was 3.48 (.67) compared to 3.04 (.92) for the comparison sample ( $p = .002$ ,  $d = .61$ ). Satisfaction as measured by both subscales was moderate to high across the samples, but a greater percentage of caregivers from CACs reported very high satisfaction. Specifically, 70% and 84% of CAC sample respondents had a mean score between a 3 and 4 on the Investigator Response and Interview Experience subscales, respectively (analogous to moderate to high satisfaction on the 4-point scale). Comparatively, only 53% of comparison respondent means fell between a 3 and 4 on these subscales.

No statistically significant differences were found between CAC and comparison cases on caregiver responses to two additional questions asking whether the investigation changed how troubled their child was or how they felt about the number of interviews their child had during the investigation. Overall, the largest percentage of caregivers thought that the investigation did not change how troubled their child was (43%) with the remainder of the sample split on whether they thought the investigation decreased or increased how troubled their child was. Fifty-seven percent of caregivers thought that their child had been interviewed “just the right number of times.” Of the remainder, 30% of caregivers thought that their child needed to be interviewed more, while 10% thought that there should have been fewer interviews.

Table 2 provides information on the bivariate relationship of a number of child, offender, abuse, agency and case process variables with satisfaction. Pearson correlations identified agency involvement and outcomes as stronger predictors of investigation satisfaction than the characteristics of the case. Race was the only demographic variable associated with satisfaction: caregivers of White children expressed significantly lower satisfaction with investigations than others. Satisfaction was unrelated to the offender’s relationship to the child, the age of the offender, or the severity of the alleged abuse. Law enforcement involvement in the case predicted greater satisfaction on both subscales, while a medical exam predicted greater Interview Environment satisfaction scores, only. Several case outcomes predicted Investigator Response satisfaction scores, including a substantiated finding by CPS, criminal charges being filed, and investigators’ belief that abuse occurred. Children’s depression/anxiety levels were negatively related to both dimensions of satisfaction. Finally, having the case served by a CAC was positively correlated with both subscale scores. Variables whose correlation with the Investigator Response or the Interview Experience satisfaction scores were statistically significant at  $p < .05$  were included in multivariate analyses.



Table 2

Pearson correlations among predictor variables and caregiver satisfaction with “Investigator Response” and “Interview Experiences” ( $n = 284$ )

	Satisfaction with Investigator Response	Satisfaction with Interview Experiences
Child characteristics		
Child age	.07	-.09
Child race (White)	-.23***	-.13*
Alleged offender characteristics		
Family member of reported victim	-.10	-.06
Adolescent or child	-.04	-.10
Reported abuse		
Penetration reported	.07	.07
Physical injury	.02	.08
Additional allegation of physical abuse	-.10	-.08
Agency/professional involvement		
Case involved CPS	-.07	-.11
Case involved LE	.14*	.12*
Medical exam received	.08	.18**
Case process/outcomes		
Verbal disclosure of abuse	-.09	-.10
Substantiated/indicated by CPS <sup>a</sup>	.20*	.06
Child removed from home <sup>a</sup>	.06	.05
Charges filed in case <sup>b</sup>	.16*	.04
Investigators believed abuse occurred	.18**	.11
Child depression/anxiety	-.16**	-.19**
Child anger/behavior problem	-.07	-.08
Child receiving mental health services	-.02	-.09
Parent receiving mental health services	.01	-.07
CAC case (vs. comparison)	.22***	.23***

Notes: CPS, child protective services; LE, law enforcement.

<sup>a</sup> CPS cases only.

<sup>b</sup> LE cases only.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

Hierarchical linear regression analyses were conducted to examine whether greater caregiver satisfaction in CAC cases remained after controlling for the influence of other relevant variables. Table 3 displays the regression results for the first ISS subscale: caregiver satisfaction with the Investigator Response. Due to the likelihood of shared variance within research sites, the first step in the regression controlled for variation in satisfaction by site. Data from three of the research sites were compared to a fourth (Huntsville), which was chosen as a reference because satisfaction scores from this site were close to the overall sample mean. Results indicated that satisfaction scores from the Charleston research sites (CAC and comparison samples combined) were significantly lower than those from the reference group.

Relevant child characteristics and agency characteristics were then entered into the model. Controlling for other variables, caregiver satisfaction ratings on the Investigator Response subscale were significantly

Table 3  
Hierarchical regression of predictor variables on ISS subscale “Satisfaction with Investigator Response” ( $n = 283$ )

Variables	<i>B</i>	<i>SE</i>	95% confidence interval		Beta	<i>p</i>
			Lower bound	Upper bound		
<b>Sites<sup>a</sup></b>						
Pittsburgh research site (CAC and comparison cases combined)	.096	.239	-.157	.349	.060	.456
Dallas research site (CAC and comparison cases combined)	-.042	.156	-.349	.264	-.023	.786
Charleston research site (CAC and comparison cases combined)	-.364	.135	-.630	-.098	-.216	<b>.008</b>
<b>Child characteristics</b>						
Child race: missing vs. valid	.075	.052	-.028	.177	.094	.152
Child race: White vs. other	.092	.056	-.019	.203	.114	.103
Child depression/anxiety: missing vs. valid	-.319	.162	-.637	-.001	-.114	<b>.049</b>
Child depression/anxiety	-.008	.003	-.014	-.001	-.135	<b>.017</b>
<b>CPS involvement</b>						
CPS case vs. non-CPS case	.035	.028	-.020	.090	.074	.214
Valid vs. missing case data (CPS cases)	-.064	.039	-.141	.013	-.101	.103
Substantiated vs. not (valid data)	.161	.067	.030	.292	.161	<b>.016</b>
<b>Law enforcement involvement</b>						
LE case vs. non-LE case	-.031	.031	-.092	.029	-.067	.309
Valid vs. missing case data (LE cases)	.005	.048	-.091	.100	.005	.926
Charges filed against alleged offender vs. not (valid data)	.037	.062	-.085	.158	.040	.555
Investigators believed abuse occurred	.009	.003	.003	.014	.173	<b>.003</b>
CAC vs. comparison samples	.306	.123	.063	.549	.161	<b>.014</b>

Notes:  $R^2 = .201$ ,  $p < .001$ ; CPS, child protective services; LE, law enforcement. Bolded data highlight statistically significant  $p$ -values ( $p < .05$ ).

<sup>a</sup> The Huntsville research site (CAC and comparison combined) serves as the reference group.

lower when children exhibited higher rates of anxiety and depression. The dummy variable comparing missing and valid scores on this variable also contributed significant unique variance, indicating that caregivers with missing information on the child well-being measures had significantly lower satisfaction scores than those who completed these measures. Caregiver satisfaction with the Investigation Response was also significantly lower when there was no substantiated finding by CPS and when investigators did not believe sexual abuse had occurred. After controlling for case and outcome characteristics, satisfaction ratings from CAC caregivers on the Investigator Response subscale remained significantly higher than ratings from comparison caregivers.

Table 4 displays the results of the hierarchical regression model with the Interview Experience subscale. After controlling for the shared variance by research site, child characteristics and agency involvement (medical, CPS, and law enforcement), results indicated that caregivers from CAC samples were significantly more satisfied with the interview experience than caregivers from comparison samples. Caregivers from the Charleston CAC and comparison research sites, those who reported their children as having greater anxiety and depression, and those whose case did not include a medical exam also reported significantly lower satisfaction.

Table 4  
 Hierarchical regression of predictor variables on ISS subscale “Satisfaction with Interview Experience” ( $n = 283$ )

Variables	<i>B</i>	<i>SE</i>	95% confidence interval		Beta	<i>p</i>
			Lower bound	Upper bound		
<b>Sites<sup>a</sup></b>						
Pittsburgh research site (CAC and comparison cases combined)	−.079	.132	−.339	.181	−.050	.551
Dallas research site (CAC and comparison cases combined)	−.185	.140	−.480	.181	−.101	.218
Charleston research site (CAC and comparison cases combined)	−.443	.134	−.707	−.178	−.266	<b>.001</b>
<b>Child characteristics</b>						
Child race: missing vs. valid	.081	.052	−.020	.183	.103	.116
Child race: White vs. other	.030	.056	−.081	.141	.038	.593
Child depression/anxiety: missing vs. valid	−.018	.163	−.338	.302	−.007	.911
Child depression/anxiety	−.009	.003	−.015	−.003	−.161	<b>.006</b>
Medical exam received	.216	.095	.029	.404	.146	<b>.024</b>
CPS case vs. non-CPS case	−.202	.111	−.420	.016	−.112	.070
LE case vs. non-LE case	.078	.113	−.146	.301	.042	.493
CAC vs. comparison samples	.308	.117	.077	.539	.164	<b>.009</b>

Notes:  $R^2 = .161$ ,  $p < .001$ ; CPS, child protective services; LE, law enforcement. Bolded data highlight statistically significant *p*-values ( $p < .05$ ).

<sup>a</sup> The Huntsville research site (CAC and comparison combined) serves as the reference group.

### Children's satisfaction

Analyses of children's responses to questions about their interview experiences resulted in mostly nonsignificant differences across CAC and comparison cases. Bivariate results for one question found that significantly more children from CAC samples (35%,  $n = 90$ ) described themselves as being not at all or not very scared compared to children from comparison samples (13%,  $n = 30$ ) ( $p = .021$ ). Responses by children from CAC and comparison communities on the five additional questions were not significantly different.

While most children expressed moderate to high satisfaction with the investigation, a notable percentage described dissatisfaction with some aspect of the investigation. Twenty percent felt “very scared” during forensic interviews and felt worse after talking with investigators; 11% did not think that investigators understood children very well or at all; and 19% did not think that investigators explained what was happening well. Thirty-three percent of children thought they had to explain things too many times to investigators. Analyses were conducted to see whether demographic or case-related variables explained some of the variance in children's satisfaction, however, no notable patterns of association were found.

### Discussion

The findings provide encouraging evidence that CACs may successfully improve the experience of nonoffending caregivers during investigations of sexual abuse. Caregivers reported higher rates of satis-

faction when their case was investigated through a CAC compared to cases investigated in communities without a CAC. This difference was not due to the number of interviews or a specific case outcome per se, but was based on more intangible aspects of investigations, such as support from investigators and a greater sense of comfort and safety during interviews. However, in a smaller sample of child respondents, the study did not identify a significant difference for CACs on children's satisfaction with the investigation. While most children in CAC and comparison communities described the investigation experience positively and felt supported by investigators, a small minority in both samples reported substantial dissatisfaction.

The investigation satisfaction scale developed for the study deserves further use. Psychometric analyses of the Investigation Satisfaction Scale (ISS) identified two relatively independent components of caregivers' satisfaction with investigations: satisfaction with investigators' response to the abuse allegations (Investigator Response subscale) and satisfaction with the forensic interview experience (Interview Experience subscale). The measure is comprehensive, yet fairly concise and easy to score. More analysis will be needed, but the psychometric results in this study suggest that both subscales are reliable, and find evidence for construct validity. The ISS would be useful to CACs and other agencies wishing to evaluate client satisfaction levels for self-evaluation purposes.

Caregiver satisfaction measured by the ISS was moderately high across both CAC and comparison samples suggesting that bungled, insensitive investigations do not appear to be a widespread problem. However, skew in the "more satisfied" direction is a common occurrence with satisfaction surveys, possibly because responders have an investment in perceiving service providers as skilled and trustworthy (Avis, Bond, & Arthur, 1995; Brannan, Sonnichsen, & Heflinger, 1996; Ross, Steward, & Sinacore, 1995; Sitzia, 1999). Nonetheless, the finding in favor of CACs for caregiver satisfaction as measured by both subscales was robust and implies to us a meaningful benefit for families. Nonoffending caregivers are critical supports for children and will influence how children experience the investigation process. To the extent that investigators are able to improve caregivers' trust and confidence, children will likely benefit as well. More research will be needed to understand which component of the CAC intervention is most related to greater caregiver satisfaction. CACs may be providing a better experience through more family-friendly settings for interviewing, through improved training for child forensic interviewers, through coordination among investigators, or some combination of these features.

Additional case characteristics and outcomes independently predicted caregivers' satisfaction with investigations as well. Caregivers' satisfaction scores on the Investigator Response subscale were greater when investigators believed the allegations were valid and when cases involving CPS were substantiated by that agency. Caregivers' greater satisfaction ratings on the Interview Experience subscale when a medical exam was provided suggests the possibility that medical professionals involved early in the investigation may offer a more patient-based and sensitive approach to interviews. Caregivers were less satisfied with the investigation when they rated their child as having greater problems with anxiety and depressive symptoms. There are several possible explanations for this finding. Low satisfaction ratings may reflect poor investigations that distress children. Alternately, parents may hold professionals accountable for their children's mental health problems, or a third variable, such as caregiver distress, may explain the association.

The lower rates of satisfaction found at one research site are somewhat difficult to interpret. These lower ratings occurred for both the CAC and comparison samples, and it is important to note that even within this site, CAC caregivers were more satisfied with the investigation and interview process than those in the comparison sample. Research teams and procedures were different at each site, and, therefore,

some variation was likely to occur based on that alone. Additionally, the research sites were located in communities and states that varied in demography, referral processes, state laws, and investigation procedures.

That no substantial evidence was found showing that CACs improve children's experience with investigations may be disappointing to CAC professionals who have made this goal a cornerstone of the model. The CAC model promotes a reduction in the number of interviews as a way to ease the investigation burden on children. This goal is worthwhile: a substantial proportion of youth respondents in both CAC and comparison communities felt like they had to repeat the details of their abuse too often. However, Cross et al. (2007) found no evidence that CAC cases involve fewer numbers of forensic interviews. In both CAC and non-CAC communities, multiple interviews were rare.

It is encouraging that bivariate results suggest CACs may reduce the fears of children during interviews, and future research should examine this further with a larger sample. Efforts by CACs to improve the friendliness of interview settings for children and increase interviewers' sensitivity and skill are admirable and likely to benefit children in numerous ways. However, many non-CAC communities have worked to improve the child-friendliness of the investigation process for children as well. Some of the participating comparison communities, for example, had previously worked with the CACs on efforts to improve services for children, and many of them had developed or were developing programs to enhance investigations that resembled CAC programs in some ways.

Finally, it is important to note that measurement of children's satisfaction with investigations has been examined in only limited ways by researchers and our understanding of the construct is still in development. The lack of shared variance in the questions we asked children means that we did not successfully capture a general "investigation satisfaction" construct with our measure. We were also unable to find meaningful correlates with children's satisfaction ratings at the item-level. More information is needed about how to best capture children's satisfaction with investigations quantitatively.

### *Limitations*

The findings should be interpreted keeping in mind the limitations of the sampling procedures. The interview sample was not randomly selected but invited to participate at the discretion of some frontline investigators. The biases involved in recruiting certain families (e.g., less distressed, more favorable relationships with investigators) would likely have been similar for both CAC and non-CAC investigators. Very dissatisfied parents and children may have refused to be interviewed, adding to the skew in the satisfaction measures. Nevertheless, there was sufficient variability in satisfaction to demonstrate the difference between the CAC and comparison groups and other useful relationships to satisfaction. There were case differences between CAC and comparison samples that may have introduced some bias, and we statistically controlled for these differences when possible. Finally, there is also the possibility of an interviewer expectancy effect. Research teams were hired by the CAC. However, the interviewers were independent of the investigation teams, and a number of the interviewers were not regular employees of the CAC but instead paid on a fee-for-service basis. An expectancy effect seems unlikely to entirely explain an effect of this magnitude that was consistent across the CACs.

Furthermore, the findings may not necessarily generalize to all CACs. We chose to measure a wide range of outcomes, including client satisfaction, using quasi-experimental methodologies in four well-established, large CACs. Collecting detailed process and outcome data from a larger more representative sample of agencies was not feasible. Given the very wide range of CAC model types

and stages of development (Jackson, 2004; Walsh et al., 2003), we chose to focus the evaluation on mature models that were most likely to illustrate the models' effectiveness. As a result, this study is more akin to an efficacy study, which examines the impact of an intervention under optimal conditions, as opposed to an effectiveness study, which studies the impact of an intervention under typical conditions.

### Conclusions

Child abuse investigation reforms are being implemented in communities across the country in an effort to improve the response to victims and their families. By incorporating multiple state-of-the-art reforms into one model, the CAC model has been very well-received and implementation has occurred at a rapid pace. This prominence brings with it the need for accountability, however. This and related papers (Cross et al., 2007, in press; Walsh et al., 2007), as well as other CAC evaluation research (Smith, Witte, & Fricker-Elhai, 2006), suggest the model demonstrates some promising results. The findings presented here provide empirical evidence that the CAC model can have a positive impact on nonoffending caregivers' level of satisfaction. That no benefits for CACs on children's satisfaction were found at any of the four sites suggests that there is a need for more information about how investigation reforms can best improve children's experiences. The CAC model is still evolving, and we recommend that CAC professionals use the findings from this study and others to adapt their model in research-based ways. CACs have an opportunity to further establish their leadership in the field by encouraging and participating in research that advances knowledge about investigation experiences for the benefit of all children and their families.

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## Appendix A

### Principal components analysis results for Investigation Satisfaction Scale (ISS) ( $n = 284$ )

Item	Loading
Factor 1 (Investigator Response) <sup>a</sup>	
How able were you to get the information you needed about what was happening with the investigation?	.789
How supportive were the investigators during the investigation?	.786
How well did the investigators provide you with the information you needed about what was happening throughout the investigation?	.780
How well did the investigators seem to be working together to collect the information?	.770
In your opinion, how thorough and complete was the information that investigators collected during the investigation?	.740
How well did the investigators support your child during the investigation?	.724
How satisfied are you with the length of time the investigation took [is taking]?	.723
Was it clear to you who you were supposed to go to if you had questions about the investigation?	.599
In your opinion, how accurate was the information that the investigators collected about what happened?	.529



## Appendix A (Continued)

Factor 2 (Interview Experiences)<sup>b</sup>


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How comfortable was your child in the places where s(he) was interviewed?	.829
How safe and secure do you think that your child felt during the interview(s)?	.779
How comfortable did you feel in the places where your child and you were interviewed?	.759
How safe and secure did you feel during the interview(s)?	.729
How fair and nonjudgmental did the investigators seem when they talked with you and your family?	.531

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Notes: Varimax rotation used. Factors were moderately correlated (.507). Oblique rotation (Direct Oblimin) was explored and yielded similar results.

<sup>a</sup> Eigenvalue for Factor 1 = 6.630.

<sup>b</sup> Eigenvalue for Factor 2 = 1.665.