
Substantiation as a Multitier Process: The Results of a NIS-3 Analysis

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Background: Previous studies on child maltreatment reporting have focused mainly on one level of substantiation. This article analyzes factors influencing the multitiered substantiation process. *Method:* The 1993 Third National Incidence Study (NIS-3) data of substantiated and non-substantiated reported incidents (N=7,263) of maltreatment were analyzed. Substantiation was classified into three categories: unfounded, indicated, and founded. Independent variables included demographic characteristics, case-processing variables, and maltreatment characteristics. *Data analysis:* Bivariate and multiple logistic regression (MLR) analyses were calculated to determine whether demographic and case processing variables predicted unfounded or founded/indicated dispositions. *Second-level analysis* examined demographic, case processing, and maltreatment characteristics as predictors of founded or indicated status.

Results: These results showed that 60.2% of CPS investigations conducted were evaluated as unfounded, about 22% were categorized as founded, and 17% were classified as indicated. In the MLR analysis for the first level of substantiation, case processing variables were highly significant predictors of founded/indicated status. In the second-level substantiation MLR model, cases in the mid-range income level (\$15,000-29,999) had a lower probability (adjusted OR = .58, $p = .02$) of being founded than those of less than \$15,000, and reports involving Hispanic children (OR = 3.04, $p = .05$) were more likely than the "all other" race-ethnic social classification to have been substantiated as founded.

Conclusions: This analysis of NIS-3 data suggests that a three-tiered rather than a two-tiered system is a more accurate representation of the CPS substantiation process. Further analysis of substantiation patterns is required to provide a basis for developing more effective investigation systems.

Keywords: substantiation; child protection services; national incidence surveys; child abuse

Mandatory reporting of suspected child abuse and neglect has been a cornerstone of the development of child protection services (CPS) in North America (McDonald & Reece, 1979; Trocmé, MacLaurin, et al., 2001). The effects of mandatory reporting laws, public awareness campaigns, and media attention to child maltreatment has led to a dramatic (Ards & Harrell, 1993; Hampton & Newberger, 1985; King, Reece, Bendel, & Patel, 1998; Zellman, 1990, 1992) increase in reported cases in the United States. At its peak in 1993, more than 3.1 million children were estimated as being victims of abuse (Sedlak & Broadhurst, 1996). Since 1993, however, rates of reported maltreatment have been declining (U.S. Department of Health and Human Services, 2000).

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Despite contrasting trends in the past 15 years showing first an increase and then a succeeding decrease in reported cases, the effectiveness of the current child maltreatment case substantiation systems remains a serious concern. From 1986 to 1993, in which there was a rise in reported cases, the substantiation rate documented by the National Incidence Survey (NIS) decreased from 51% to 28% (Sedlak & Broadhurst, 1996). For the most recent period, 1993 to 1999, in which a decline in reported incidence it has been recorded, the national rate of case substantiation documented by the National Child Abuse and Neglect Data System (U.S. Department of Health and Human Services—Administration on Children, Youth and Families, 1993, 1999) decreased from 34% in 1993 to 26% in 1999.

Low substantiation rates present a serious institutional burden (Winefield & Bradley, 1992) for CPS as well as a public policy dilemma (Besharov, 1987; Lindsey, 1994). Valuable resources are allocated to investigate nonprioritized reports (Eckenrode, Powers, Doris, Munsch, & Bolger, 1988; Giovannoni, 1989), thereby reducing the availability of services for those most in need. Furthermore, the lack of a founded disposition has often been a reason for not providing social services even when they are clearly warranted (Drake, 1996).

Research on Substantiation

The fairly low substantiation rate by CPS is complex and multifaceted. A considerable body of research has examined factors predicting substantiation of reported cases and has generally focused on child and family characteristics, clinical, evidentiary, and institutional factors (Eckenrode, Powers, et al., 1988; Groeneveld & Giovannoni, 1977; Hutchinson, 1989; Wells, Fluke, & Brown, 1995; Zuravin, Orme, & Hegar, 1995).

Drake (1996) argued that the decision to substantiate reflects both the strength of the available evidence and the level of harm to the child, including both actual harm and potential harm. Substantiation rates are also affected by institutional factors such as non-uniform state standards of proof and different risk-assessment tools (Flango, 1991).

Previous studies have revealed that the type of maltreatment is associated with substantiation decisions (Drake, 1995; Eckenrode, Powers, et al., 1988; Giovannoni, 1989; Hutchinson, 1989; Inkelas & Halfon, 1997; Trocmé, Tam, & McPhee, 1995). For example, some investigators have reported that physical abuse was more likely than neglect to be substantiated (Drake, 1995; Eckenrode, Powers, et al., 1988; Hutchinson, 1989), whereas others have found that

neglect (Trocmé, Tam, et al., 1995) or severe neglect (Inkelas & Halfon, 1997) was most often substantiated. Severity of harm has been found to be a predictor of substantiation in some studies (Drake, 1995; Giovannoni, 1989; Trocmé, Tam, et al., 1995; Winefield & Bradley, 1992), although others have concluded that measures of severity were not associated with substantiation (Groeneveld & Giovannoni, 1977; Hutchinson, 1989; Zuravin, Orme, et al., 1995).

Research has demonstrated fairly consistently that investigations involving older children are more likely to be substantiated (Eckenrode, Munsch, Powers, & Doris, 1988; Eckenrode, Powers, et al., 1988; Freeman, Levine, & Doueck, 1996; Hasket, Wayland, Hutcheson, & Tavana, 1995; Trocmé, Tam, et al., 1995; Winefield & Bradley, 1992; Zuravin, Orme, et al., 1995), presumably because older children can provide clearer evidence of suspected abuse. Reports by law enforcement are more likely to be founded than those of other health professionals (Drake, 1995; Eckenrode, Munsch, et al., 1988; Eckenrode, Powers, et al., 1988; Groeneveld & Giovannoni, 1977; Hutchinson, 1989; Trocmé, Tam, et al., 1995; Winefield & Bradley, 1992; Zuravin, Orme, et al., 1995; Zuravin, Watson, & Ehrenschaft, 1987), and anonymous reports are least likely to be substantiated.

Present Study

Notwithstanding the valuable findings of these studies, research on substantiation has been criticized because the decision-making process is often not recognized as a multitiered system. Giovannoni (1989) has stated that this dichotomy is "very simplistic and inappropriate for capturing the complexity of the CPS decision making process" (p. 316). In attempting to statistically model case-substantiation decisions, Zuravin and colleagues (1987) argue that a multitiered substantiation classification would better reflect the multidimensional decision-making process.

Additional research is needed to examine case substantiation as a three-tier process that includes a middle category for nonsubstantiated but indicated cases. Frequently, the indicated classification is a temporary designation based on the need to collect additional information, or it may denote that further scrutiny by CPS investigators of the available evidence is warranted and pending. In other circumstances, designating cases as indicated or uncertain may reflect an inability to reach a conclusion as uncertainty is inherent in any system of human judgment. The use of an uncertain/indicated category reflects not only the professional decision-making process but also sociolegal issues protecting the rights of children, families, and alleged perpetrators (Giovannoni,

1989). The use of the indicated category is also evident in efforts of mandated reporters and CPS professionals to avoid rejecting a reported case (as unfounded) when in fact it does exist (Type I error). One consequence of this inclination is overreporting and perhaps increased categorizations and reviews of indicated or uncertain cases.

It is reasonable to assume that the decision-making process for determining founded or indicated status would be expected to be strongly affected by some factors more than others. For example, case-related characteristics (i.e., prior reports, cooperativeness of parents, the type and severity of maltreatment) and reporting source are some variables that could influence the decision to dispose of a case as founded or indicated. Furthermore, are the same factors that are predictive of first-level substantiation (i.e., age of the child, gender, racial or ethnic status, and income) also predictive of second-level substantiation? Moreover, the assessment of the simultaneous effects of these variables on the decision to substantiate as founded or indicated has not been previously investigated using a nationally representative sample.

The Third National Incidence Study (NIS-3) permits a multivariate analysis of factors associated with CPS decisions to substantiate reported maltreatment at both the initial and secondary levels. The design of the NIS-3 was modified from NIS-1 and NIS-2 to include both substantiated and unsubstantiated cases thereby permitting an analysis of variables associated with CPS case classification at multiple levels. NIS-3 also has the advantage of being a nationally representative sample of cases without reference to jurisdiction-specific practices. This article examines an array of investigatory factors influencing the multitiered substantiation process, and to our knowledge, it is the first study to use NIS-3 data to examine factors affecting the substantiation process. The results of this study can be useful in further understanding and helping to reform the CPS decision-making process and policies related to reporting of child maltreatment.

METHOD

The NIS-3 collected data directly from child protection workers and community professionals (sentinels) who may have been aware of unreported cases of abuse to CPS. The sample design consisted of a multi-stage, nationally representative probability sample comprising 42 counties in the United States. During a 3-month period in 1993, 3,154 reports from CPS agencies, 4,711 detailed reports from non-CPS sentinels, and 56,153 partially identifying CPS reports were sys-

tematically collected. Data were weighted to represent the total number of children in the United States and annualized to provide estimates for a full year (for more details about the sample design and weighting structure, see Sedlak & Broadhurst, 1996).

As illustrated in Figure 1, this analysis began with all 7,565 cases documented by the detailed CPS reports. Duplicated reports ($n = 302$) provided by non-CPS sentinels (Sedlak & Broadhurst, 1996) were excluded resulting in a data set of 7,263 cases. However, not all cases had complete information as missing data ranged from less than 1% for gender to 35% for income.

CPS case substantiation data was classified into the following three categories: unfounded (i.e., unsubstantiated allegations of maltreatment), founded, and indicated cases. A case was classified as founded when the evidence available to CPS supported the allegation of maltreatment. Indicated cases referred to the situation in which CPS corroborating evidence at the time of the NIS data collection was not conclusive but deemed "sufficient to warrant further investigation" (Sedlak, 1991). The use of an indicated category varies from state to state. The 1999 NCANDS report identifies 9 out of 47 reporting states as using a three-tier substantiation classification that includes an indicated category, whereas the remaining states simply use a two-tier distinction of substantiated and unsubstantiated cases (U.S. Department of Health & Human Services—Administration on Children, Youth and Families, 1999). Given such state-by-state variations, the NIS imposed a single standardized classification system for all NIS participating CPS staff. Both founded and indicated cases were counted under the "endangerment standard" (Sedlak & Broadhurst, 1996) in NIS-3 estimates of child abuse.

The dependent variables were constructed to reflect the conceptual distinctions in a case being unfounded, founded, or indicated. The first-tier or first-level substantiation response indicator consisted of those cases that were unfounded compared to a combination of founded and indicated cases. This categorization facilitated an analysis of all CPS cases presented during the NIS-3 data-collection period. Child and family demographic information was collected for all unfounded cases. However, specific details about the forms and characteristics of the alleged maltreatment were only documented for a very few unfounded cases ($<1\%$, $n = 24$) and therefore no analysis could be conducted that included maltreatment variables at the first level of substantiation.

The second-tier or second-level substantiation-dependent variable excluded all unfounded cases and was categorized into founded versus indicated

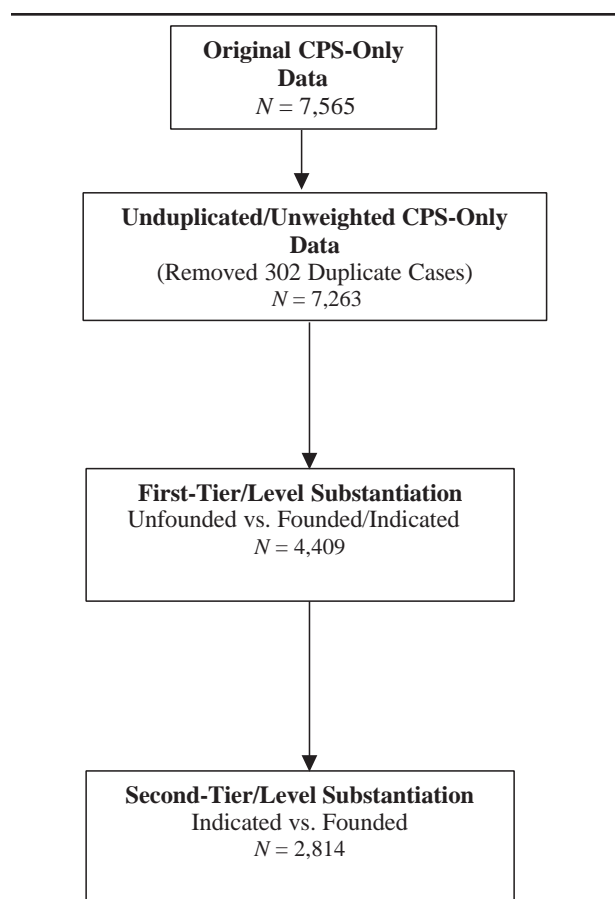


FIGURE 1: Derivation of NIS-3 (Third National Incidence Study) CPS-Only Data

NOTE: $N = 7,565$.

cases. Maltreatment case characteristics were available for analyses at this level because these data were collected by NIS-3 for all founded or indicated cases.

The independent variables selected were organized into the following three main groups: demographic variables (i.e., child age, gender, race-ethnicity, and annual family income), case-processing variables (i.e., source of report, prior reports, cooperativeness of parents, and parent acknowledgement of allegation), and characteristics of maltreatment (i.e., type of maltreatment and severity of harm). Child age was categorized as < 1 year, 1 to 4 years, 5 to 12 years, and 13 to 17 years old. Males and females represented gender categories and the race-ethnic social classification was defined as Black, Hispanic, and all others, which consisted mostly of Whites (94.7%) but also included a small group of Asians, non-Blacks, and non-Hispanics. The annual family income variable was divided into the following three categories: < \$15,000, \$15,000 to \$29,999, and \$30,000 or more. Source of report included nonprofessionals, law enforcement and Department of Social Services (DSS) profession-

als, and other professionals (i.e., those employed in schools or day care, hospitals, medical clinics, mental health, and social service agencies). Prior allegation of abuse included two responses: prior abuse not noted and prior abuse noted. Similarly, cooperativeness of parents was dichotomized as cooperative and uncooperative. Type of maltreatment included neglect, physical abuse, sexual abuse, and other forms of abuse. Severity of harm was categorized as fatal-serious, moderate, probable impairment, endangered, and an other group.

Analysis of the NIS-3 data was conducted in three primary phases. First, each of the independent variables was recoded for use in frequency and cross-classification analysis. In addition, data were weighted according to the NIS-3 guidelines for the CPS data set (Sedlak & Broadhurst, 1996). Second, cross-classification analyses were conducted using the chi-square statistic for determining the probability of statistical independence ($p \leq .05$). Third, to assess the individual and joint effects of the predictors on each response variable, multiple logistic regression (MLR) analysis was performed. Variables that were statistically significant in bivariate associations were entered into an MLR model predicting the first-tier or first-level substantiation variable of unfounded versus founded or indicated cases. This model included only demographic and case processing variables as independent predictors.

A second MLR model consisting of demographic, case processing, and child maltreatment variables was constructed to predict the second-tier or second-level substantiation variable, founded versus indicated cases. The strong correlation ($r = .48$) between the variables cooperativeness of parents and acknowledgement of allegation resulted in the latter predictor being excluded from the MLR models. Due to a large number of cases with missing income data, the MLR analyses were conducted with and without this particular variable. Income was kept in the final MLR models because deleting it did not affect the statistical significance of the important multivariate findings.

Data were analyzed using the Statistical Packages for the Social Sciences (SPSS version 10.1) and WesVar (version 2.1), a computer software program that analyzes complex survey designs. SPSS was used primarily for descriptive statistical analysis and for multivariate model building. Weighted data in the SPSS analysis were rescaled so that the sum of the weights was equal to the sample size. WesVar was employed to obtain the correct standard errors for estimating the 95% confidence intervals in both descriptive and multivariate analyses.

TABLE 1: Third National Incidence Study (NIS-3), 1993 Sociodemographic Characteristics of Unfounded, Indicated, and Founded Child Maltreatment Cases

<i>Variable</i>	<i>Total Count^a</i> <i>(7,263)</i>	<i>% of Weighted</i> <i>Sample</i>	<i>% Unfounded^b</i> <i>(60.2)</i>	<i>% Indicated^b</i> <i>(17.1)</i>	<i>% Founded^b</i> <i>(22.7)</i>
Demographic characteristics					
Age of child					
< 1 year	469	6.50	54.7	21.2	24.1
1 to 4 years	1,900	27.2	61.1	17.0	21.9
5 to 12 years	3,245	45.5	59.8	17.5	22.7
13 to 17 years	1,477	20.8	59.1	16.5	24.4
Gender					
Male	3,481	48.4	60.8	16.7	22.5
Female	3,720	51.6	59.2	17.5	23.3
Race-ethnicity					
All others	3,974	62.3	58.2	19.3	22.5
Black	1,304	22.2	60.2	18.6	21.2
Hispanic	1,156	15.6	52.8	13.5	33.7
Income					
< \$15,000	3,071	66.3	54.1	19.2	26.7
\$15,000 to \$29,999	1,213	26.0	58.8	19.4	21.8
\$30,000 or more	381	7.70	47.1	28.2	24.7
Case-processing variables					
Source of report					
Nonprofessional	2,712	37.5	70.1	14.3	15.6
Law enforcement or					
Department of Social Services	1,049	14.9	48.6	20.2	31.2
Other professional	3,390	47.5	55.8	18.3	25.9
Prior abuse					
Prior abuse not noted	4,389	67.7	63.5	16.5	20.0
Prior abuse noted	2,033	32.3	45.4	21.0	33.6
Cooperativeness of parents					
Cooperative	5,523	88.5	60.5	16.7	22.8
Uncooperative	749	11.5	29.7	32.3	38.0
Maltreatment characteristics ^c					
Type of maltreatment					
Neglect	865	50.5		45.8	54.2
Physical abuse	402	23.2		40.6	59.4
Sexual abuse	266	14.6		41.7	58.3
Other	190	11.6		56.1	43.9
Severity of harm					
Fatal or serious	152	7.50		47.0	53.0
Moderate	335	21.9		33.0	67.0
Probable impairment	303	18.6		43.2	56.8
Endangered	598	34.9		48.7	51.3
Other	316	17.1		55.5	44.5

NOTE: Total *N* = 7,263. Some variables included missing data.

a. Unweighted sample size.

b. Row percentage of weighted sample.

c. The NIS-3 CPS-only data forms did not recode maltreatment characteristics for unfounded cases.

RESULTS

This analysis shows that an estimated 60.2% of CPS investigations conducted in 1993 were evaluated as unfounded, about 22% were categorized as founded, and 17% were classified as indicated. Most of the cases involved children who were between 5 and 12 years old (45.5%), female (51.6%), included as part of the

all other racial or ethnic social category (62.3%), and those with an annual family income of less than \$15,000 (66.3%). More suspected cases of abuse (47.5%) were reported by the category other professionals than any other reporting source. Slightly more than two thirds of CPS investigations were previously unreported or unknown to the child maltreatment reporting system (see Table 1).

TABLE 2: Case Characteristics Predicting the Decision to Classify a Case as Unfounded Versus Founded

<i>Variable</i>	<i>Unadjusted Odds Ratio</i>	<i>P Value</i>	<i>Adjusted Odds Ratio</i>	<i>P Value</i>
Demographic characteristics				
Age of child				
< 1 year	1.00		1.00	
1 to 4 years	0.77	.05	0.81	.2321
5 to 12 years	0.81	.15	0.83	.2919
13 to 17 years	0.84	.23	0.87	.4024
Gender				
Male	1.00		1.00	
Female	1.07	.23	1.15	.0752
Race-ethnicity				
All others	1.00		1.00	
Black	0.95	.60	0.75	.1819
Hispanic	1.29	.25	1.42	.2827
Income				
< \$15,000	1.00		1.00	
\$15,000 to \$29,999	0.82	.40	0.83	.3622
\$30,000 or more	1.33	.30	1.15	.5992
Case-processing variables				
Source of report				
Nonprofessional	1.00		1.00	
Law enforcement or Department of Social Services	2.49	< .001	2.39	< .001
Other professional	1.86	< .001	1.75	< .001
Prior abuse				
Prior abuse not noted	1.00		1.00	
Prior abuse noted	2.09	< .001	1.79	< .001
Parents' acknowledgement of allegation		< .001		
Acknowledge	1.00		—	—
Deny	0.15	< .001	—	—
Cooperativeness of parents		< .001		
Cooperative	1.00		1.00	
Uncooperative	3.62	< .001	3.29	< .001

NOTE: $N = 3,920$. The first-level variable was unfounded versus founded/indicated cases. The referent category is founded/indicated cases.

The bivariate analysis revealed that children younger than 1 year old had the greatest within-group proportion (45.3%) of cases that were designated as founded or indicated (see Table 1). Hispanics, compared to either African Americans (39.8%) or the all other racial or ethnic social category (41.8%), had a higher proportion (47.2%, $p < .05$) of within-group investigations that were classified as founded or indicated. Case-reporting variables showed considerable variation in founded/indicated status. For example, reports from law enforcement and DSS representatives, evidence of prior abuse, acknowledgement of allegation, and uncooperative parents were more likely to result in either founded or indicated cases.

With regard to child maltreatment characteristics (see Table 1), about half (50.5%) of the cases warranting further scrutiny involved some form of neglect. Physical abuse accounted for 23.2% of the total cases, and 14.6% were related to sexual abuse. Hispanics had a significantly higher within-group proportion (33.7%, $p < .05$) of cases classified as founded compared to both Blacks (21.2%) and the all other group

(22.5%). Families with annual incomes of \$30,000 or more were less likely ($p < .05$) than lower income groups to have formal investigations result in founded dispositions.

In the MLR analysis comparing unfounded cases to founded/indicated or the first-tier or first-level substantiation variable, case-processing variables were highly significant predictors of founded/indicated status; however, this was not the case for demographic variables (see Table 2). Cases reported by law enforcement officers and DSS professionals ($OR = 2.5$, $p < .001$) and the category other professionals ($OR = 1.9$, $p < .001$) were significantly more likely to result in founded/indicated status than those of nonprofessionals (i.e., self-reports, relatives, unrelated individuals, anonymous reports). Similarly, previously reported cases were ($p < .001$) more likely to be evaluated as founded/indicated than those with no previous record of maltreatment or an unknown history of abuse. The analysis also revealed that cases of uncooperative parents were more likely ($OR = 3.6$,

$p < .001$) to result in founded/indicated status than incidents involving cooperative parents.

In the second-tier or second-level MLR model comparing indicated to founded cases, maltreatment investigations involving Hispanic children were far ($p = .05$) more likely than the all other racial and ethnic social classification to have been substantiated as founded by non-CPS sentinels. The results also indicated that the middle income respondents (\$15,000 to \$29,999) were less likely ($OR = .58, p = .02$) to be substantiated than those with family incomes of less than \$15,000.

DISCUSSION

A number of interesting findings emerge from this analysis of the NIS-3 CPS data. Maltreatment was founded in less than a quarter (22.7%) of CPS-investigated cases. Even with the inclusion of a category for classifying indicated cases, only 40% of all CPS investigations were founded or indicated, whereas 60% remained unfounded. The proportion of founded or indicated cases documented by NIS-3 is similar to the 37.1% substantiated/indicated rate reported by the NCANDS for 1994 (U.S. Department of Health & Human Services—Administration on Children, Youth and Families, 1994). It should be noted, however, that the substantiation-only rate for the NIS-3 (22.7%) is lower than the substantiation-only rate recorded by NCANDS (30.8%). This difference reflects the practice of most states to use a two-tiered classification system, which means that some of the cases that would fall in the indicated category in the NIS would be coded as substantiated in the two-tier systems.

Case-processing variables were generally the most consistent in predicting the decision to classify a case as unfounded. As with other studies, maltreatment incidents referred to CPS by the police and by other professionals were less likely to be disposed of as unsubstantiated (Drake, 1995; Eckenrode, Munsch, et al., 1988; Eckenrode, Powers, et al., 1988; Groeneveld & Giovannoni, 1977; Trocmé, Tam, et al., 1995; Winefield & Bradley, 1992; Zuravin, Orme, et al., 1995; Zuravin, Watson, et al., 1987) than incidents involving prior reports (Eckenrode, Powers, et al., 1988; Winefield & Bradley, 1992).

Although parental response to CPS investigations has not been previously included as a variable in studies examining case substantiation, the importance of perceived parental cooperation has been noted in several studies of worker responses to case vignettes (Craft, Epley, & Clarkson, 1980; DiLeonardi, 1980; Rosen, 1981). Without NIS-3 data on the type of mal-

treatment and severity, it is not possible to determine, for example, whether the significance of the source of reporting variable may be confounded by the fact that the police and other professionals were more proficient than the general public in defining credible cases prior to initiating a report.

At the second-tier or second-level of substantiation, the two most significant variables were specific income and ethnic categories. Cases involving children with annual family incomes between \$15,000 and \$30,000 were significantly less likely to be substantiated compared to the poorest income family group (under \$15,000). It is possible that the conditions of extreme poverty faced by these families are such that investigators are more likely to substantiate maltreatment, especially in cases of neglect where it may be difficult to make a clear distinction between extreme poverty and neglectful behavior that can be attributed to parents. However, the greater likelihood of substantiation of cases involving Hispanic children is more difficult to explain as the finding was significant at the second level but not the first. We are not aware of any previous study that has found a substantiation effect specific to Hispanic families. One possible explanation is that at the secondary level of substantiation, cases involving Hispanic children may undergo more intense scrutiny and/or that the threshold for determining abuse may be lower. Some studies have also reported that reports involving African Americans have a greater probability of being substantiated (Eckenrode, Powers, et al., 1988; Zuravin, Orme, et al., 1995), although the results have not been uniformly confirmed (Freeman et al., 1996; Hasket et al., 1995; Trocmé, Tam, et al., 1995; Wells et al., 1995). As a note of caution, it is recognized that the Hispanics ethnic classification represents a large group reflecting diverse cultural orientations, social classes, and geographic regions and thus these results may not apply to all Hispanic populations. Additional research on this topic would be valuable.

Only two maltreatment-specific variables appeared to have any effect on the decision to classify a case as founded rather than indicated: prior abuse and injury. Both indicators make clinical sense. Maltreatment is rarely an isolated incident; a history of maltreatment is to be anticipated in many cases. Given the importance of having access to forensic evidence, it is not surprising that physical injury is associated with substantiation. Severity of harm has been found to be a predictor of substantiation in some studies (Drake, 1995; Giovannoni, 1989; Trocmé, Tam, et al., 1995; Winefield & Bradley, 1992), others have not found that the measures of severity used (e.g., injury) were associated with substantiation (Groeneveld &

TABLE 3: Case Characteristics Predicting the Decision to Substantiate as Unfounded Versus Founded/Indicated

<i>Variable</i>	<i>Unadjusted Odds Ratio</i>	<i>P Value</i>	<i>Adjusted Odds Ratio</i>	<i>P Value</i>
Demographic characteristics				
Age of child				
< 1 year	1.00		1.00	
1 to 4 years	1.14	.46	.65	.18
5 to 12 years	1.14	.47	.69	.23
13 to 17 years	1.30	.21	.74	.37
Gender				
Male	1.00		1.00	
Female	.98	.86	.82	.17
Race-ethnicity				
All others	1.00		1.00	
Black	.98	.96	1.31	.47
Hispanic	2.15	.07	3.04	.05
Income				
< \$15,000	1.00		1.00	
\$15,000 to \$29,999	.81	.26	.58	.02
\$30,000 or more	.63	.19	.94	.92
Case-processing variables				
Source of report				
Nonprofessional	1.00		1.00	
Law enforcement or Department of Social Services	1.41	.30	2.00	.12
Other professional	1.28	.26	.79	.51
Prior abuse				
Prior abuse not noted	1.00		1.00	
Prior abuse noted	1.35	.09	1.50	.08
Cooperativeness of parents				
Cooperative	1.00		1.00	
Uncooperative	.86	.58	1.05	.80
Maltreatment characteristics				
Neglect	1.00		1.00	
Physical abuse	1.23	.27	1.26	.55
Sexual abuse	1.17	.50	1.61	.30
Other	.66	.21	.77	.55
Severity of harm				
Fatal or serious	1.00		1.00	
Moderate	1.80	.06	2.48	.07
Probable impairment	1.18	.60	.97	.99
Endangered	.94	.86	.78	.60
Other	.71	.24	.64	.40

NOTE: $N = 1,058$. The dependent variable is categorized as indicated and founded cases. The referent category is founded cases.

Giovannoni, 1977; Hutchinson, 1989; Zuravin, Orme, et al., 1995).

The finding that moderate injury rather than serious injury is more strongly associated with second-tier or second-level substantiation may indicate that severe and fatal injuries that are not clearly caused by maltreatment are more likely to be classified as indicated rather than unfounded. It appears that to avoid Type I error, cases of severe injury may require a high level of disproof before they can be classified as unsubstantiated. The NIS-3 did not document unsubstantiated injuries, and thus a conservative interpretation of these results is advisable, given the marginally significant association between these variables.

Surprisingly, in this analysis, neither type of maltreatment nor age of the child was associated with the decision to substantiate. Some studies have concluded that abuse was more likely than neglect to be substantiated (Drake, 1995; Eckenrode, Powers, et al., 1988; Hutchinson, 1989), whereas others have found this to be the case for neglect (Trocmé, Tam, et al., 1995) or severe neglect (Inkelas & Halfon, 1997). There is consistent evidence that as children get older, they are better able to describe the circumstances surrounding abuse leading to greater substantiation of reported cases (Eckenrode, Munsch, et al., 1988; Eckenrode, Powers, et al., 1988; Freeman et al., 1996; Hasket et al., 1995; Trocmé, Tam, et al., 1995;

Winefield & Bradley, 1992; Zuravin, Orme, et al., 1995). Our analysis found that there was a trend toward higher substantiation rates of cases involving older children; however, this relationship was not statistically significant.

The analysis of the NIS-3 data set has certain limitations. The study was not originally designed to analyze CPS-level decision making. The NIS-3 does not, for example, track injuries and alleged forms of maltreatment in unsubstantiated cases because these incidents are generally not countable by NIS-3 standards. Other variables, however, such as severity of injury, may not be measured with sufficient precision to explain their role in assessing cases of suspected maltreatment. The currency of these data, collected in 1993, needs to be examined in light of other national studies and any changes that may have occurred in CPS administrative practices since they were collected.

CONCLUSIONS

Although there are no universally accepted standards of an optimal case substantiation rate, the relatively low proportion of case substantiation documented in the NIS-3 raises questions about the effectiveness of reporting and investigation procedures. The fact that nearly two thirds or more of CPS investigations documented by the NIS-3 resulted in unfounded dispositions may indicate a disproportionate amount of resources are being diverted to investigating unfounded allegations, and fewer resources are available to provide services for substantiated cases (Delaronde, King, Bendel, & Reece, 2000).

In addition to raising questions about reporting and investigation procedures that may be diverting scarce resources from treatment and prevention services, the NIS-3 CPS data confirm the importance of maintaining a distinction between unfounded, indicated, and founded maltreatment. A dichotomous categorization fails to recognize that in a significant number of cases, maltreatment can neither be confirmed nor ruled out. Our analysis indicates that a different set of factors are associated with the decision to classify a case as unsubstantiated, compared to the factors that lead to a decision to classify a case as substantiated. This distinction underscores the importance of considering the decision-making process in child welfare as a dynamic continuum ranging from decisions to screen out reports prior to launching an investigation, providing ongoing services once the initial investigation is completed, to the lawful removal of children from parents and placement in custodial

care. Given the effect of these decisions on the safety and well-being of children, a more comprehensive understanding of the decision-making process in child welfare would assist policy makers and service providers in setting intervention and service priorities. A fourth wave of the NIS with additional CPS documentation of the nature of unfounded investigations would provide an ideal opportunity to examine these questions more systematically.

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