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Substantiation and Recidivism

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This article reports rates of recidivism among initially substantiated and initially unsubstantiated child maltreatment events to determine if substantiation status is associated with higher risk of recidivism. This is an important question given recent concerns that unsubstantiated cases may have as high or almost as high a risk of recidivism as do substantiated cases. The data are analyzed at both the victim level and the case level, divided by type of maltreatment, and followed for 4.5 years. The data used are administrative and combine a series of state databases with census data. Analyses are performed at the bivariate and multivariate (Cox proportional hazards model) levels. The main finding is that unsubstantiated cases are at high risk for recidivism, in many cases as high a risk as substantiated cases. Implications for practice, policy, and research are presented with a focus on the importance of providing preventative services to unsubstantiated cases.

Keywords: *substantiation; victim recidivism; harm/evidence model; child welfare*

The purpose of this article is to determine if substantiated and unsubstantiated cases of child maltreatment have similar or different recidivism rates. We will use the term *recidivism* to mean return to the child welfare system. When we use the term *victim recidivism*, we do not mean to imply that victims of child maltreatment are offending in any manner but

merely that a recidivism event has occurred that has brought them to the attention of the state. We discuss the main findings of a longitudinal study funded by the Office of Child Abuse and Neglect. In 1988 in the United States, 532,063 out of 1,820,608 (34.2%) of investigations were substantiated or indicated (U.S. Department of Health and Human Services, 2000). Substantiation is "a statement by the worker that 'I have enough evidence to believe that child maltreatment has occurred'" (Drake & Jonson-Reid, 1999, p. 313). Concern over the volume of unsubstantiated reports has centered on two issues. First is the assumption that unsubstantiated reports result in undesirable and unnecessary intrusion into the lives of families with no need of attention or service (Besharov, 1990; Zellman & Antler, 1990). Second, child protective resources are not plentiful, and if large numbers of person hours are spent on unsubstantiated cases, it could be seen as a misdirection of agency effort (Finkelhor, 1990; Hutchison, 1993; Kalichman, 1992).

Recent work on substantiation (DePanfilis & Zuravin, 1998; Drake & Pandey, 1996; Eckenrode, Powers, Doris, Munsch, & Bolger, 1988; Fluke, Yuan, & Edwards, 1999; Giovannoni, 1989; Kotch & Thomas, 1986; Marshall & English, 1999) has allowed a more comprehensive understanding of the nature of substantiated and unsubstantiated cases. There is emerging concern about the insufficiency of the concept of substantiation to capture the complexity of the child protective services decision-making process

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(Giovannoni, 1989; Giovannoni & Meezan, 1995; Zuravin, Watson, & Ehrensaft, 1987), as new evidence suggests that children in substantiated and unsubstantiated cases may be more similar than previously thought (Drake, 1996a, 1996b; Leiter, Myers, & Zingraff, 1994). The substantiated-unsubstantiated differentiation may be largely an artifact of issues unrelated to the actual presence of harm to children, such as the level of proof available to the investigating worker (Drake, 1996a; Drake & Jonson-Reid, 2000a, 2000b).

The importance of determining the efficacy of the substantiation-unsubstantiation label is highlighted by the common practice of using such data to address an array of policy issues, including overreporting (Besharov, 1990; Finkelhor, 1990), the appropriateness of hotline screening procedures (Besharov, 1991), and the advisability of maintaining current mandated reporting laws (Gardner, 1992; Petretic-Jackson & Koziol, 1992). The fact that substantiation data are commonly used as a yardstick in policy debates increases the need for a sound understanding of the nature of substantiation and degree of difference or similarity between substantiated and unsubstantiated cases. Until the current time, the implicit assumption has been that substantiated cases can safely be regarded as genuine or true child maltreatment events, whereas unsubstantiated cases should be seen as erroneous reports, unnecessary intrusions, or at least, very low-risk cases. These issues are particularly important given the consequences of using substantiation as a gate-keeping mechanism relative to service. If unsubstantiated services are at serious risk, then these policies clearly need revision.

The Harm/Evidence Model

This project allows us to empirically test predictions derived from the harm/evidence model (Drake, 1996a). This model describes substantiation as occurring only when two different criteria are satisfied. First, there must be harm (or sometimes risk of harm) that meets agency definitions of maltreatment. Second, there must be evidence available that the harm comprises a case of maltreatment. Inability to meet either criteria will result in the case not being substantiated. Extremely serious cases can therefore go unsubstantiated; this includes child fatalities, which lack sufficient evidence of malfeasance. In short, the primary implication of the harm/evidence model is the decoupling of the concepts of "unsubstantiated" and "no harm or risk."

This theoretical assertion is testable. If unsubstantiated cases are mainly spawned of erroneous, false, or similarly unimportant situations, then we

would expect them to differ radically in terms of future risk when compared with substantiated cases. If the harm/evidence model is correct, we would expect to see a relatively smaller difference between substantiated-unsubstantiated status and later risk of recidivism. This study represents an effort to determine the degree to which substantiated cases are at markedly higher subsequent risk for recidivism (traditional view) or are at more similar levels of risk of recidivism, as suggested by the harm/evidence model.

Research Questions

The general question addressed by this study is simple: "Do substantiated victims and families return to child protective services at similar or different rates than do unsubstantiated victims and families"? The question is examined both in a data set representing victims and in a separate data set constructed at the family or case level. The question is examined separately for sexual abuse, physical abuse, and neglect. The data set described previously also includes emotional abuse, other abuse, and mixed abuse, but lack of space precludes their presentation here. Readers wanting more information on these areas should consult Drake, Jonson-Reid, Way, & Chung, 2001). We analyze the data at bivariate and multivariate levels, with controls relating to victim, perpetrator, case, and community factors.

METHOD

Data

The Missouri Division of Family Services generously provided us with access to their child abuse and neglect files, their alternative care files, their family-centered services (FCS) files, and their family preservation files. These databases share common identifiers, so probability matching was not required. In addition, a range of neighborhood context variables (percentage of single-parent homes, median income in census tract, dropout rate, and so forth) were extracted from the U.S. Census CDs. Geocoding of all cases allowed us to attach these neighborhood descriptors to each case at the census tract level.

Our sample frame was confined to cases with a first report in 1993 or 1994. It included the index (initial) report and subsequent reports occurring within the following 54 months. Some records were excluded from the sample frame due to various reasons (death at index event, residence in a census tract including less than 100 people, residence in a Senate Bill 595 pilot program area, prior record of Division of Fam-

ily Services [DFS] placement, or prior substantiated report). Other records were excluded due to missing data (rare) or our inability to geocode them. A total of 88% of victims who fit the sample frame had no missing data and were included in the final data set. Other decisions made with regard to the data included the exclusion of recidivism events within 15 days of the index report out of fear they may represent re-reports or "echoes" of the prior event. We also excluded those few recidivism events that occurred while children were in out-of-home care. We categorized maltreatment type by those referral reasons present in the initial report; several may be included in Missouri. Some events included multiple types (e.g., neglect and sexual), and these were placed in a separate "mixed" category. We understand that this is a very conservative means of classifying events as mixed because other studies have shown that given sufficient attention, a larger range of cases can be so classified (Cicchetti, Lynch, Shonk, & Manly, 1992).

Attachment of community factors to the individual-level data represents an attempt to understand the contexts in which people live rather than a proxy for income data at the individual level and therefore does not represent an example of the ecological fallacy. The ecological fallacy is an error in reasoning that occurs when averaged values for individuals in a larger group are taken to be precise representations of the value for all members in the group. Use of tract-level data to represent community context is a common and accepted method for controlling for the social environment where individuals live (Furstenburg, 1994; Krieger, 1992). In our models, although many ecological indicators were considered, we found that median family income in the tract carried the bulk of the variance explained by these factors. In the interest of parsimony, median tract income is therefore the only ecological control variable used. Both victim- and case-level data sets contain descriptions of the index event, of services rendered, and of recidivism events.

We understand that inclusion of all victims in the analyses is a technical violation of the principle of independence of observations. To determine if inclusion of multiple individuals from a single case altered the models in any way, we ran our analyses both with the full sample and with a sample constituted by randomly selecting one victim from each case. In no event did the reduction of the sample in this manner meaningfully alter the results. In the interest of greater statistical power, we therefore included all victims in the victim analyses.

The construction of the case- or family-level data was derived from a prior study (Siegel & Loman,

1998) based on the recording of victims on maltreatment report incidents over time. The household information was, unfortunately, not well recorded. There was therefore no way to accurately capture the number of children not identified as victims in a household. Besides victims, only the primary caretaker and any perpetrators were included. The case-level data should not be interpreted as providing information on all family members. On the other hand, the data used in this study do provide an accurate picture of the consequential actors in a given family from the perspective of child welfare decision-making and service delivery staff members.

Analytic Techniques

Bivariate analyses are presented along with survival tables and Cox proportional hazards models. These techniques are useful because they allow prediction of outcomes while controlling for the time children or families are at risk of that outcome. In the case of the Cox models, multivariate control is also possible. The modeling of placement as an outcome was performed on a reduced sample that excluded cases placed as a function of the index event because we were interested in first placement rather than in reentries into care.

Multivariate models were estimated with the Cox proportional hazards model using the PROC PHREG procedure in SAS (Allison, 1996). Cox proportional hazards models were constructed for the risk of any re-report, substantiated re-report, or foster care. This technique allows the investigation of the likelihood or risk of a given event while taking into account the time period a person is at risk for that event. This technique also allows analyses of a categorical outcome variable, in this case, a dichotomous indicator of a subsequent report. In this study, children or families were at risk of a second report from 15 days after the index event until 4.5 years later. The analysis determines the risk of recidivism based on the time between the entry into the risk set and either the occurrence of the event or the censoring due to age or end of the study period. In this study, cases were censored at age 18. Furthermore, because the event of interest was maltreatment while in the care of the family of origin, time in foster care was omitted or censored from the risk period.

This model includes the assumption that hazards for different strata of independent variables are proportional over time. We therefore evaluated all variables for proportionality over time using the Kaplan and Meier product-limit method. Plots of the $-\log$ (estimated survival function) against \log (failure time) were inspected to see if they reasonably satisfied the

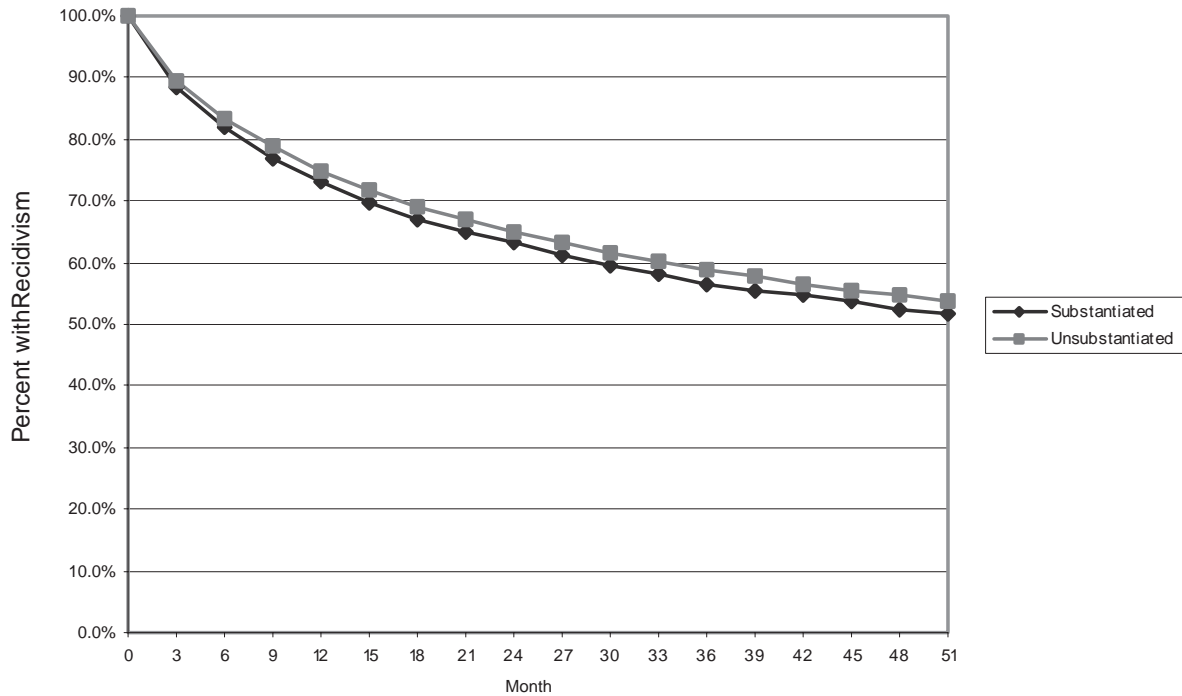


FIGURE 1: Victim Recidivism Over Time at the Any Re-Report Level

necessary assumption of proportional hazard rates over time (Allison, 1996). If evidence of nonproportionality existed, a time-varying variable (an interaction term created between time and the variable of interest) was created and entered into the multivariate model to adjust for proportionality. Time-varying variables remained in the final model if they were statistically significant or if they had a substantive impact on the main effect for the variable or the overall model fit. Otherwise, time varying variables were not included in the final multivariate model (Courtney, 1995).

RESULTS

Bivariate Analyses

Figure 1 is a survival curve showing victim survival rates over time, stratified by substantiation status of the index event. This curve combines all types of maltreatment and classifies recidivism as any re-report of maltreatment. In this graph, we can clearly see two things. First, the shape of the curve is proportional (the same general shape) for victims initially substantiated and victims initially unsubstantiated. Second, we see that the difference in survival rates (the space

below the curve) is very similar for substantiated and for unsubstantiated victims.

Table 1 shows rates of victim recidivism over time. Findings are reported for sexual, physical, and neglect index events at three different recidivism levels. Recidivism is separately analyzed as any re-report, as any substantiated re-report, and as any placement. We caution the reader to be careful in interpretation of *p* values. Very large samples, such as those associated with child neglect, will commonly show significance even when the statistically significant difference is relatively small. We therefore encourage the reader to pay careful attention to the magnitude of the effects (e.g., size of risk ratios [RR]).

A series of general trends occurs across maltreatment types and levels of recidivism. Victims of neglect had generally higher rates of recidivism, and victims of sexual abuse had generally lower rates of recidivism. This is partly due to neglect cases having high rates of within-type recidivism. For a full discussion of the dynamics of within- and cross-type recidivism in this sample, please see Jonson-Reid, Drake, Chung, & Way (in press).

Victimization by a parent and lower neighborhood tract income were normally associated with higher levels of recidivism. However, the relationship of substantiation status to recidivism was more complex. For

TABLE 1: Victim-Level Bivariate Recidivism Rates at 53 Months

	<i>Recidivism as Any Re-Report</i>			<i>Recidivism as Any Substantiated Re-Report</i>			<i>Recidivism as Any Placement</i>		
	<i>Sexual</i> n = 4,681	<i>Physical</i> n = 14,707	<i>Neglect</i> n = 33,555	<i>Sexual</i> n = 4,681	<i>Physical</i> n = 14,707	<i>Neglect</i> n = 33,555	<i>Sexual</i> n = 4,466	<i>Physical</i> n = 14,172	<i>Neglect</i> n = 28,617
Substantiation status	NS	NS	$p < .0001$	NS	$p = .0007$	$p < .0001$	NS	$p = .0171$	$p < .0001$
Unsubstantiated (%)	34.49	42.23	50.10	10.67	13.03	17.55	4.68	5.67	6.95
Substantiated (%)	34.83	40.99	55.99	11.62	15.44	27.06	5.30	6.94	13.08
Ethnicity of victim	NS	NS	$p < .0001$	NS	$p = .0332$	$p < .0001$	NS	$p < .0001$	$p < .0001$
White (%)	35.40	42.18	50.01	10.87	13.04	17.95	4.80	5.34	6.52
Non-White (%)	37.73	41.65	53.28	12.01	14.46	21.41	5.60	7.42	10.89
Gender of victim	NS	NS	$p = .0021$	NS	$p = .0009$	$p < .0001$	$p = .0201$	NS	$p = .0021$
Female (%)	35.64	42.84	51.92	11.53	14.44	20.00	5.36	6.03	8.29
Male (%)	36.39	41.40	50.11	9.45	12.49	18.03	3.49	5.65	7.35
Age of victim	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$
0 to 1 (%)	48.03	47.54	61.35	14.22	15.56	25.19	9.22	7.78	12.91
2 to 5 (%)	42.25	46.73	54.86	12.69	14.76	20.33	4.40	5.25	7.88
6 to 10 (%)	36.08	44.03	49.33	11.72	14.79	17.62	4.19	5.59	6.20
11 to 13 (%)	34.40	42.23	45.73	11.64	13.80	17.15	7.84	3.38	6.58
14 to 17 (%)	17.56	23.68	24.61	4.32	5.92	6.99	2.53	3.47	3.03
Number of victims	NS	$p < .0001$	$p < .0001$	NS	$p < .0001$	$p < .0001$	NS	NS	NS
1 (%)	35.23	40.26	48.40	10.72	12.60	17.67	4.64	5.92	8.03
> 1 (%)	37.91	46.07	52.43	12.38	15.09	19.71	6.03	5.62	7.67
Perpetrator type	NS	$p < .0001$	$p < .0001$	NS	$p < .0001$	$p < .0001$	$p = .0043$	$p = .0039$	$p < .0026$
Parent (%)	36.45	42.99	51.68	11.54	23.64	19.38	5.97	6.16	7.93
Nonparent (%)	35.26	39.41	41.40	10.71	19.915	13.48	4.19	4.88	6.14
Tract median family income	$p < .0001$	$p = .0002$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p = .0002$	$p = .0001$	$p < .0001$
< 20,000 (%)	44.84	47.87	56.49	15.44	16.49	22.37	7.45	7.60	10.24
20,000 to 29,000 (%)	37.04	44.10	52.15	11.27	14.47	19.23	4.99	6.28	7.73
30,000 or more (%)	29.72	36.98	44.70	8.58	10.67	15.76	3.60	4.47	5.89
Services provided	NS	NS	NS	$p = .0038$	$p = .0002$	$p < .0001$	$p = .0367$	$p = .0001$	$p < .0001$
None (%)	36.36	42.34	51.26	11.73	13.31	18.50	4.95	5.65	7.57
FCS (%)	34.60	41.46	50.47	9.52	13.10	20.51	4.50	5.78	7.79
FPS (%)	37.55	61.62	54.85	26.11	30.32	27.65	15.34	21.84	18.08
Alternative care only (%)	47.68	31.95	46.27	18.80	13.86	19.58	NA	NA	NA
FCS and FPS (%)	32.53	40.09	48.48	7.04	12.42	23.39	8.62	8.83	15.60
FCS and/or FPS then alternative care (%)	47.43	33.30	35.38	2.63	8.47	13.82	NA	NA	NA
FCS and/or FPS after alternative care (%)	35.88	39.35	49.33	7.91	15.18	17.74	NA	NA	NA

NOTE: FPS = family preservation service; FCS = family-centered services; NS = not significant.

all types of maltreatment, substantiation of the index event failed to meaningfully predict re-reports. The largest and only statistically significant difference was for neglect (55.99% versus 50.10%, $p < .0001$). When recidivism is classified as any substantiated report, we see that sexual abuse shows no significant difference, physical abuse shows a minor difference (15.44% versus 13.03%, $p < .0007$), and neglect shows a more meaningful difference (27.06% versus 17.55%, $p < .0001$). If we look at recidivism as placement, we see no significant difference for sexual abuse, minor differences for physical abuse (6.94% versus 5.67%, $p < .0171$), and a difference of almost two to one for neglect (13.08% versus 6.95%). In summary, bivariate analyses show few differences in recidivism between cases initially substantiated and cases initially unsubstantiated, the exceptions being neglect cases at the level of both any substantiated recidivism and any placement into foster care.

Service use was associated with fairly substantial differences in recidivism rates at the substantiated recidivism and the placement levels. In general, family preservation service cases had higher rates of recidivism, whereas cases served by traditional child welfare FCS had recidivism rates roughly comparable to the not-served group. Table 2 shows the same analyses replicated at the case level. These values are derived from the SAS Lifetest procedure. Significance values are derived from the log rank statistic. The findings are similar to Table 1.

Another way to look at the data, in this case, the victim data, is to reverse the question: "Of those victims who did have recidivism events, how many were substantiated at index and how many were unsubstantiated at index?" Figure 2 shows us that at every level of recidivism, the bulk of victims were unsubstantiated at their initial event. Even for victims eventually placed, more than three quarters of all cases (3,243 of 4,252) were unsubstantiated when they first came to the attention of child protection. This figure combines all types of maltreatment for ease of presentation.

Multivariate Analyses

Multivariate analyses (Tables 3 and 4) were performed to determine the degree to which substantiation of the index event was a unique predictor of recidivism. Multivariate analyses were performed in different ways on differently sized subsamples due to power constraints. Main effects were always assessed. When sample size permitted (e.g., neglect at the any re-report level), all interactions between substantiation and services were also included. Otherwise, only those interactions between substantiation and time that were statistically significant were retained in

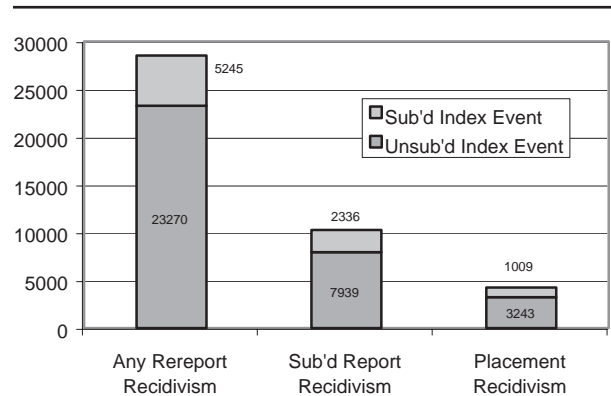


FIGURE 2: Victim Recidivism Events: Numbers Originally Substantiated and Unsubstantiated at Index

the models. As stated previously, nine models are included at both the victim and case levels, broken down by recidivism type and type of index event. The top of each column shows the nature of the model and the number of victims or cases, number of victims or cases with recidivism, model chi-square, degrees of freedom, and p value. RR and p values are presented for each variable in the model. Care should be taken not to underestimate the importance of continuous independent variables as reflected in the RR. For example, a risk ratio of 0.94 for age in years implies a 6% reduction in risk per year of age. As before, the practical importance of p values should not be over-interpreted.

In general, we see higher recidivism rates in younger children, among children maltreated by parents, and among children from poor census tracts. Ethnicity was not a strong predictor of recidivism. Looking at main effects at the "any re-report" level (see Table 3), substantiated sexual abuse victims were about 14% more likely to have experienced recidivism than were unsubstantiated victims. Substantiated physical abuse victims were about 17% more likely to have recidivism, and substantiated neglect victims were two and a half times more likely to have recidivism than were unsubstantiated victims. However, most substantiated victims were served by FCS or family preservation service, and served victims came back at lower rates than did other victims (e.g., for neglect, Substantiation \times [FCS] RR = 0.407, $p = .0001$). In other words, substantiated neglect victims who received FCS services were at similar risk (0.407×2.476) as were unsubstantiated victims who were not served. The issue is not even this simple as there exists a Time \times Substantiation interaction of 0.976 for neglect victims, showing a decrease in risk among substantiated victims over time.

TABLE 2: Case-Level Bivariate Recidivism Rates at 53 Months

	<i>Recidivism as Any Re-Report</i>			<i>Recidivism as Any Substantiated Re-Report</i>			<i>Recidivism as Any Placement</i>		
	<i>Sexual</i> n = 3,466	<i>Physical</i> n = 9,812	<i>Neglect</i> n = 13,907	<i>Sexual</i> n = 3,466	<i>Physical</i> n = 9,812	<i>Neglect</i> n = 13,907	<i>Sexual</i> n = 3,466	<i>Physical</i> n = 9,812	<i>Neglect</i> n = 13,907
Substantiation status	NS	NS	$p < .0001$	NS	$p = .0026$	$p < .0001$	NS	NS	$p = .0002$
Unsubstantiated (%)	36.35	42.11	48.80	11.02	13.53	17.32	4.52	5.78	7.01
Substantiated (%)	35.17	41.36	54.41	13.01	16.12	25.40	5.17	5.84	9.25
Ethnicity of victim	NS	NS	NS	NS	NS	NS	NS	$p = .0380$	$p < .0001$
White (%)	35.52	42.30	49.52	11.58	13.70	17.98	4.55	5.51	6.68
Non-White (%)	37.44	41.01	50.12	13.16	14.64	20.67	5.92	6.72	9.20
Perpetrator type	$p < .0001$	$p < .0001$	$p < .0001$	$p = .0017$	$p = .0002$	$p < .0001$	$p = .0010$	$p < .0001$	NS
Parent (%)	39.46	37.84	50.82	13.82	11.75	19.04	6.38	6.37	7.42
Nonparent (%)	33.14	43.56	35.87	10.43	14.72	13.04	3.67	4.28	5.94
Age of youngest victim	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$
0 to 1 (%)	63.60	51.97	62.45	22.99	19.57	26.40	13.01	8.11	11.89
2 to 5 (%)	40.24	45.33	50.64	12.14	14.28	17.46	3.90	5.08	5.77
6 to 10 (%)	35.26	41.88	45.84	12.75	14.75	16.64	5.41	5.69	5.84
11 to 13 (%)	28.66	38.16	38.90	9.26	11.59	13.14	4.01	6.23	5.45
14 to 17 (%)	8.74	15.27	12.39	2.12	2.75	2.78	0.83	1.60	1.32
Tract median family income	$p < .0001$	$p < .0001$	$p < .0001$	$p = .0040$	$p < .0001$	$p < .0001$	$p < .0246$	$p < .0001$	$p < .0001$
< 20,000 (%)	43.46	47.46	54.01	14.98	17.30	21.88	6.49	7.52	8.73
20,000 to 29,000 (%)	37.33	43.92	50.81	12.22	15.15	19.06	4.94	6.57	7.89
30,000 (%)	30.24	37.63	45.08	9.82	11.18	15.59	3.55	4.22	5.53
Services provided	NS	NS	NS	NS	$p = .0334$	$p < .0028$	$p = .0154$	$p < .0001$	$p < .0001$
None (%)	35.86	41.95	49.51	11.93	13.51	17.90	4.73	5.81	7.53
FCS (%)	35.11	43.33	50.60	11.10	15.28	20.86	4.57	6.52	6.86
FPS (%)	41.76	43.53	51.15	23.98	31.14	23.40	18.55	18.55	10.19
Alternative care only (%)	46.06	31.29	49.58	13.08	14.45	22.22	0.00	0.00	0.00
FCS and FPS (%)	43.14	41.37	56.02	16.83	16.50	26.82	12.04	7.27	15.94
FCS and/or FPS then alternative care (%)	48.77	34.93	46.05	5.56	7.27	14.11	0.00	0.00	0.00
FCS and/or FPS after alternative care (%)	36.11	40.87	47.27	15.06	13.63	20.44	0.00	0.00	0.00

NOTE: FPS = family preservation service; FCS = family-centered services; NS = not significant.

TABLE 3: Victim-Level Multivariate Models

Variable	Recidivism as Any Re-Report						Recidivism as Any Substantiated Re-Report						Recidivism as Any Placement					
	Sexual		Physical		Neglect		Sexual		Physical		Neglect		Sexual		Physical		Neglect	
	n = 4,681; 1,625		n = 14,707; 6,007		n = 33,555; 16,855		n = 4,681; 503		n = 14,707; 1,914		n = 33,555; 6,286		n = 4,466; 214		n = 14,172; 806		n = 32,687; 2,518	
	$\chi^2 = 214.378$, df = 12, p < .0001		$\chi^2 = 45.944$, df = 15, p < .0001		$\chi^2 = 1,953.771$, df = 19, p < .0001		$\chi^2 = 95.331$, df = 11, p < .0001		$\chi^2 = 241.113$, df = 16, p < .0001		$\chi^2 = 1,164.332$, df = 22, p < .0001		$\chi^2 = 47.997$, df = 11, p < .0001		$\chi^2 = 141.037$, df = 13, p < .0001		$\chi^2 = 84.775$, df = 13, p < .0001	
	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p
Substantiated index report																		
No	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—
Yes	1.139	.0253	1.172	.0230	2.476	.0001	1.425	.0005	1.916	.0001	2.830	.0001	1.350	NS	2.366	.0001	3.575	.0001
Age in years	0.940	.0001	0.962	.0001	0.949	.0001	0.944	.0001	0.985	.0499	0.960	.0001	0.984	NS	0.981	.0116	0.931	.0001
Ethnicity																		
White	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—
Non-White	0.962	NS	0.882	.0001	0.949	.0032	0.998	NS	0.986	NS	1.031	NS	1.035	NS	1.288	.0014	1.484	.0001
Gender																		
Male	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—
Female	1.038	NS	1.073	.0063	1.039	.0129	1.318	.0161	1.189	.0002	1.103	.0001	1.463	.0422	1.073	NS	1.119	.0050
Perpetrator																		
Nonparent or nonguardian	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—
Parent or guardian	1.172	.0023	1.238	.0001	1.429	.0001	1.220	.0335	1.242	.0001	1.611	.0001	1.568	.0016	1.431	.0001	1.461	.0001
Number of victims on report	1.000	NS	1.064	.0001	1.060	.0001	1.041	NS	1.081	.0015	1.028	NS	1.014	NS	0.878	.0035	0.969	.0431
Family income in tract / \$1,000	0.978	.0001	0.986	.0001	0.986	.0001	0.970	.0001	0.982	.0001	0.982	.0001	0.966	.0001	0.982	.0001	0.986	.0001
Child welfare services																		
None	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—	1.000	—	1.00	—	1.00	—
Family-centered services (FCS)	0.816	.0013	0.929	NS	0.850	.0001	0.642	.0001	1.001	NS	0.770	.0007	0.449	.0083	1.169	NS	1.021	NS
Family preservation services (FPS)	1.032	NS	1.484	.0184	0.690	.0163	2.387	.0236	2.045	.0035	0.971	NS	2.56	NS	3.618	.0001	2.592	.0001
FCS × FPS (COMBO)	0.745	NS	0.936	NS	0.720	.0010	0.465	NS	1.085	NS	0.813	NS	1.372	NS	2.541	NS	1.982	.0001
Foster placement	0.478	.0008	0.701	.0053	0.742	.0010	0.618	NS	0.982	NS	0.718	.0452	—	—	—	—	—	—
Substantiated × FCS (SUBFCS)			0.797	.0139	0.407	.0001			0.515	.0001	0.608	.0001			0.311	.0001	0.328	.0001
Substantiated × FPS (SUBFPS)			1.387	NS	0.642	.0492			0.868	NS	0.543	.0308			0.627	NS	0.214	.0002
Substantiated × Combo (SUBCOMBO)			0.731	NS	0.413	.0001			0.336	.0046	0.495	.0004			0.075	.0001	0.333	.0001
Substantiated × Foster (SUBFOST)			1.164	NS	0.579	.0001			0.683	NS	0.512	.0008			—		—	
Time × Substantiation					0.976	.0001												
Time × Age in Years									0.999	.0002	0.999	.0001						
Time × Number of Victims											1.002	.0005						
Time × Tract Income											1.000	.0127						
Time × FCS											1.014	.0001	1.019	.0487				
Time × FPS					1.021	.0005					1.018	.0346						
Time × Foster Care	1.03	.0008																
Time × SUBFPS					1.035	.0001					0.987	.0006						
Time × SUBCOMBO					1.040	.0001												
Time × SUBFCS											0.000	.0001						

NOTE: NS = not significant; RR = risk ratios.

TABLE 4: Case-Level Multivariate Models

Variable	Recidivism as Any Re-Report						Recidivism as Any Substantiated Re-Report						Recidivism as Any Placement					
	Sexual		Physical		Neglect		Sexual		Physical		Neglect		Sexual		Physical		Neglect	
	n = 3,458, 1,242 ($\chi^2 = 271.75$ df = 9, p < .0001)		n = 10,231, 4,241 ($\chi^2 = 474.69$, df = 11, p < .0001)		n = 16,674, 8,629 ($\chi^2 = 1,259.99$, df = 15, p < .0001)		n = 3,548, 416 ($\chi^2 = 97.47$, df = 8, p < .0001)		n = 10,231, 1,424 ($\chi^2 = 220.90$, df = 9, p < .0001)		n = 16,674, 3,396 ($\chi^2 = 664.69$, df = 12, p < .0001)		n = 3,382, 152 ($\chi^2 = 55.19$, df = 7, p < .0001)		n = 9,817, 573 ($\chi^2 = 104.55$, df = 11, p < .0001)		n = 16,134, 1,302 ($\chi^2 = 329.45$, df = 9, p < .0001)	
	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p	RR	p
Substantiated index report																		
No	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—
Yes	1.251	.0021	1.137	.0314	1.952	.0001	1.579	.0001	1.562	.0001	2.234	.0001	1.529	.0285	3.109	.0001	2.675	.0001
Age in years of youngest child	0.917	.0001	0.947	.0001	0.935	.0001	0.925	.0001	0.982	.0001	0.928	.0001	0.952	.0092	0.975	.0001	0.928	.0001
Ethnicity																		
White	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—
Non-White	0.948	NS	0.878	.0005	0.944	.0220	1.065	NS	0.952	NS	1.052	NS	1.278	NS	1.136	NS	1.351	.001
Perpetrator																		
Nonparent or nonguardian	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—
Parent or guardian	1.522	.0001	1.454	.0001	1.699	.0001	1.642	.0001	1.553	.0001	1.616	.0001	2.177	.0001	1.677	.0001	1.355	.0134
Family income in tract / \$1,000	0.978	.0001	0.980	.0001	0.988	.0001	0.974	.0001	0.982	.0001	0.986	.0001	0.968	.0012	0.979	.0001	0.987	.0001
Services received																		
Child welfare services (none)	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—	1.00	—
Family-centered services (FCS)	0.584	.0001	0.787	.0007	0.639	.0001	0.740	.0179	1.180	NS	1.101	NS	0.707	NS	0.731	NS	1.019	NS
Family preservation services (FPS) ^a	1.116	NS	0.939	NS	0.526	.0018	1.584	NS	1.234	NS	0.856	NS	2.916	.0039	2.231	.0046	2.121	.0007
Foster placement	0.846	NS	0.601	.0003	0.553	.0001	0.747	NS	0.767	NS	0.926	NS			NA		NA	
Substantiated × FCS (SUBFCS)			0.784	.0140	0.743	.0001			0.584	.0007	0.567	.0001			0.365	.0001	0.422	.0001
Substantiated × FPS (SUBFPS)					0.724	NS					0.537	.0135			0.200	.0067	0.375	.0030
Substantiated × Foster (SUBFOST)					0.662	.0043					0.625	.0295						
Time × Substantiation					0.987	.0001									0.980	.0100		
Time × FCS	1.020	.0001	1.015	.0001	1.022	.0001									1.024	.0007		
Time × FPS					1.036	.0001					1.023	.0129						
Time × Foster Care			1.015	.0217	1.023	.0001												

NOTE: NS = not significant; RR = risk ratios.

a. Includes FPS only and FPS and FCS combinations.

At the substantiated re-report level, we see an increase in the main effect of substantiation on recidivism across the board, with RR ranging from 1.425 for sexual abuse to 2.830 for neglect. It is important to note that there are still substantial reductions of risk for physical abuse and neglect victims who are substantiated and served, with as much as a two thirds reduction in risk for substantiated physical abuse victims receiving combination services (see Table 3).

When we examine recidivism as placement, substantiation has no significant effect for sexual abuse and has a moderate to large effect for physical abuse ($RR = 2.366$, $p < .0001$) and neglect ($RR = 3.575$, $p < .0001$). Again, however, we see these apparently large main effect RR nullified for those substantiated victims who received services. Substantiated victims of physical abuse or neglect receiving FCS services saw their risk of later placement drop by more than two thirds.

Case-level analyses (see Table 4) are not dramatically dissimilar from victim-level analyses. Substantiation has some predictive utility regarding recidivism at the any re-report level and higher associations with other kinds of recidivism. The Substantiation \times Service interaction remains intact, with significant RR ranging from 0.200 to 0.784. The previously described equalization of risk for served substantiated cases therefore persists at the case level.

DISCUSSION

In our study, nearly half of the children and more than half of the cases returned to the attention of child welfare agencies within 4.5 years. These rates of recidivism are consistent with those reported in prior studies (DePanfilis, 1995; English, Marshall, & Orme, 1999). Multivariate analyses both confirm and add additional detail to general trends found at the bivariate level, showing important interactions between service use and substantiation as well as a series of interactions with time. Although dependent on type of maltreatment, level of recidivism, and service use, we found that in general, unsubstantiated victims and cases experience recidivism at a rate only slightly lower than do substantiated victims and cases. Although unsubstantiated events had a slightly lower rate of recidivism, they comprised a far higher volume of the re-reported events.

Overall, these findings are consistent with the harm/evidence model. Although substantiation status was a predictor of recidivism, it was only a weak to moderate predictor. The high levels of recidivism among unsubstantiated cases show unambiguously that such cases are at high risk for subsequent mal-

treatment and show clearly that these cases are not simply erroneous reports made against families unlikely to engage in child maltreatment.

Unsubstantiated events are a significant concern both due to the future risk for children and because of the sheer volume of unsubstantiated events (see Tables 1 and 2 and Figure 2). In Missouri, only about 20% of reports of child abuse or neglect were substantiated initially, meaning that unsubstantiated victims comprise the bulk of the initial assessment and service burden on the child welfare system. As the rate of recurrence is so similar between substantiated and unsubstantiated victims, this large number of initially unsubstantiated victims comprises more than three quarters of the victims that later return to the attention of the child welfare system. Substantiation was difficult to understand separately from whether services were provided to children's families. Such an interaction has not previously been reported. This lack of attention may be due to the fact that substantiation is a necessary precursor to service provision in many states. This study is one of the few able to assess the possible moderating role of services in substantiated compared with unsubstantiated cases. In general, the provision of family-centered or foster care services appeared to cancel out any risk associated with the label of *substantiation* at index at the child level. Besides substantiation, the most consistent predictors of recidivism throughout the analyses were neighborhood poverty at the census tract level, younger child age, and the presence of a parental perpetrator. In general, neglect cases had a high rate of recurrence.

Limitations and Strengths

Most limitations and some strengths of the current work derive from the choice of administrative data as the basis of the study. Administrative data has the advantage of providing data that is practice relevant because it is based on classifications in use in the field. This is a genuine strength of the current work in that it provides data directly relevant to and interpretable by policy makers and practitioners in state child welfare agencies. Furthermore, the cleaning and recoding of variables present in the administrative data were closely guided by information from and discussions with agency staff members who make case determinations, administrators, and data managers at the county and state levels. This helped to ensure that the interpretation of the data matched the day-to-day use and meaning of these variables (Drake & Jonson-Reid, 1999; Goerge, 1995).

One advantage of the Missouri data is that specific subtypes of maltreatment are recorded. Because of

this, we were able to construct our major maltreatment-type variables based on very specific subcategories of maltreatment. This is similar to the system used to identify maltreatment type in case file reviews (Cicchetti & Barnett, 1991), although it does not include severity as a part of the categorization process.

The reader should be mindful that the data used in this study deal specifically with agency caseloads and should be interpreted and generalized as such. Although our data provide a precise picture of recidivism that comes to the attention of the agency, there are undoubtedly maltreatment events not reported to the agency and therefore not captured in our data. It is important to remember that these data are best generalized to child welfare systems and their functioning and do not stand as a database capturing recidivism in a universal or epidemiological sense.

Most data used for archival analysis of child welfare records use single state or county databases. Fortunately, as shown previously, findings from these states are almost universally congruent. Recent work by Fluke et al. (1999) found very consistent patterns of recurrence across states, including Illinois, Louisiana, Maine, Missouri, North Carolina, New Jersey, Pennsylvania, Texas, Vermont, and West Virginia. For example, findings regarding the association of poverty and maltreatment have been replicated in Washington, Maryland, Missouri, Ohio, and nationally (Coulton, Korbin, Su, & Chow, 1995; DePanfilis, 1995; Drake & Pandey, 1996; Drake & Zuravin, 1998).

Although African American children are over-represented in the child welfare system compared with the larger population, once identified by child welfare, non-White children do not appear to face a higher risk of returning to the system. This is consistent with studies of race and child abuse reporting that have found race is not statistically significant once poverty is controlled for (Drake & Pandey, 1996).

Other obvious limitations of the study are that the design is not experimental and the relationships observed cannot be proven to be causal. Thus, the associations between service use and recidivism in our data suggest the impact of services, but this cannot be conclusively shown absent a design employing random assignment.

As a final reminder, we wish to reiterate that multivariate coefficients for the main effect of substantiation upon recidivism cannot be interpreted in isolation from associated interactions. For example, in the neglect and physical abuse victim multivariate analyses, the substantiation coefficient is fairly large, but this is only really true for the minority of substantiated cases that did not receive services.

Implications for Research

Substantiation of a case has long been used in child maltreatment and child welfare research as a standard for sample selection in an effort to limit cases to those that are true events. Our results suggest that this is not a good idea because unsubstantiated cases are at an almost equal risk. Furthermore, our results are consistent with other findings being reported by other investigators of substantiation (English et al., 1999). The *substantiation* label is not an accurate indicator of risk of harm to children. Researchers should take comfort in the similarity between findings from our victim-level analysis, which corresponds to most current research, and our case-level analysis, which corresponds to how families are handled by workers. This suggests that victim-level data can be generalized to the case level.

Implications for Policy

In an examination of the role of substantiation in the decision-making process of child welfare, Drake and Jonson-Reid (2000a) suggested that substantiation's utility lies primarily in its relationship to leveraging court action—either family court or criminal court. This is particularly true given the fact that substantiation does not appear to have a direct relationship to the primary goal of child welfare: to protect children. Thus, any value in attempting to substantiate a case is predicated on the need to meet the evidentiary requirements of a court process. Indeed, the prediction of future risk to the child at the initial report has been the subject of many years of as yet inconclusive research. In other words, we do not appear to be very good at determining which cases will return to the system based on scales or investigative frameworks. This does not mean, however, that child welfare workers are unable to determine whether families require services or resources at the time of the investigation. It seems logical, therefore, to suggest that cases requiring court action be pursued accordingly—perhaps in conjunction with law enforcement or legal partners to ensure that the assessment contains the evidence required. As the vast majority of cases (even among those currently falling within the substantiated category) will not meet the requirements of court involvement, a need-based rehabilitative model seems more appropriate. The theoretical implications of our data are therefore wholly consistent with the emerging “two-track” paradigm (e.g., Missouri and Florida) in which attempts are made to follow a more evidentiary and criminal justice paradigm in apparently severe cases while employing an approach more driven by a community

support and “friendly visitor”-style paradigm in other situations. This allows a focus on service provision across the board while retaining the ability to approach situations likely to result appropriately in court intervention.

Implications for Practice

In many cases, FCS and foster services appear to suppress recidivism. This effect is sometimes stronger when served cases are substantiated. It may be the case, therefore, that we both need to broaden service delivery to unsubstantiated cases and to pay increased attention to how to provide effective voluntary services within the child protective services population. It may be that unsubstantiated cases are served for less time, which is consistent with our findings regarding intensive family preservation service that are not associated with suppressed recidivism. It may well be that length of service is a stronger or as strong a predictor of successful outcome as is intensity of service. This is consistent with recent findings on intensive services (Staudt & Drake, in press). It may well be that a more broadly applied case management model will achieve more than a selective, intensive, and narrowly focused intervention approach.

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