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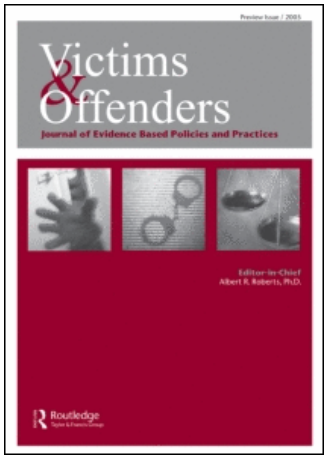

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The Effect of Maltreatment Co-occurrence on Emotional Harm among Sexually Abused Children

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Abstract: This paper examines whether sexual abuse is more harmful to children if it occurs simultaneously with other types of maltreatment. While past studies have examined the relationships between these variables, few have a large enough sample size to adequately assess the contribution of co-occurring child maltreatment to emotional harm. Data from the *Canadian Incidence Study of Reported Child Abuse and Neglect* (CIS) showed a nonsignificant effect of co-occurring sexual abuse on emotional harm once controls for child and maltreatment characteristics were added. Co-occurring sexual abuse appears to have a stronger effect on emotional harm among 12- to 15-year-olds and girls.

Keywords: child maltreatment, child abuse, emotional harm, sexual abuse, co-occurrence

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INTRODUCTION

In 2003, an estimated 17,321 children in Canada were investigated by child protection services as alleged victims of sexual abuse, up from an estimated 15,614 in 1998 (Trocmé, Fallon, MacLaurin, et al., 2005; Trocmé, MacLaurin, Fallon, et al., 2001)[1]. In both periods, a considerable proportion of substantiated investigations occurred in combination with other forms of abuse (approximately 25 percent in 2003 and 49 percent in 1998). Maltreated children often display physical, cognitive, social, and emotional problems. The relationship between child maltreatment and some types of emotional harm, such as major depression and generalized anxiety disorder, is well established in the literature (MacMillan & Munn, 2001; Weiss, Longhurst, & Mazure, 1999). Although many of these studies have used clinical samples of children (Brown & Anderson, 1991; McCauley, Kern, Kolodner, et al., 1997), a growing number have also found this relationship in community samples of adults (e.g., MacMillan, Fleming, Streiner, et al., 2001). This is an important area of research since the impact of emotional harm affects victims, their families and friends, and other relationships over their life course (Murray & Lopez, 1997).

There is increasing evidence that co-occurrence of abuse plays an important role in the experience of emotional problems among maltreated children. In their review of this research, Higgins and McCabe (2001) indicate that co-occurrence (that is, multiple forms of maltreatment inflicted on a child *simultaneously*) is associated with emotional harm in children. However, most of the research is based on retrospective accounts with considerable variation in measures and methods. The authors also indicate that few studies take into account all types of maltreatment. For example, researchers are more likely to concentrate on physical abuse and less likely to include neglect or exposure to family violence. Consequently, conclusions are limited by unmeasured abuse and neglect (e.g., Guathier, Stollack, Messe, & Aronoff, 1996). In addition, most of the literature on co-occurring maltreatment does not attempt to explicitly connect co-occurring maltreatment with emotional harm.

Child maltreatment research also demonstrates that not all children who have experienced abuse exhibit the same level of harm, whether it is immediate or long term (Finkelhor, 1990; Tonmyr, Jamieson, Mery, & MacMillan, 2006). Both risk factors (such as age of onset, frequency, and duration of the maltreatment) and protective factors (such as the response to the maltreatment by a nonoffending caregiver) have been identified as important in determining outcomes of abuse (Bagley & Mallick, 2000; Beitchman, Zucker, Hood, DaCosta, Akman, & Cassavia, 1992; Browne & Finkelhor, 1986).

[1]These cases were where sexual abuse was the primary or secondary reason for the investigation.

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In addition, children who are maltreated often come from families in which other members experience problems such as parental divorce, violence, criminality, psychiatric disorder, and substance abuse—all of which are known to exacerbate the effects of child abuse (Heney & Kristiansen, 1997; Walsh, MacMillan, & Jamieson, 2002, 2003). Both maltreatment and family problems can have serious effects on the well being of children. Indeed, evidence suggests that children of substance abusing parents exhibit symptoms of aggression, somatization, and suicidality (Domenico & Windle, 1993; Williams & Corrigan, 1992). In addition, the risk of developing psychopathology is greater for children of parents with mental health problems (Weissman, Gammon, John, et al., 1987).

Research suggests that these types of family problems, like other life stressors, can have both an individual and a cumulative effect. Dong, Anda, Felitti, et al. (2004) show that adverse childhood experiences are often highly correlated and often occur together. In addition, Felitti and colleagues indicate that these experiences have significant negative effects on children's health and behaviors (Felitti, Anda, Nordenberg, et al., 1998).

There is significant evidence to conclude that child maltreatment, including sexual abuse, has serious deleterious effects for children. These effects can be enhanced by characteristics of the child, the abuser, and the severity and duration of abuse. However, among the limitations of many sexual abuse studies to date is that they were primarily limited to female respondents. In addition, small sample sizes restrict the ability to construct "unique categories" of maltreatment, where respondents who were exposed to more than one type of abuse were separated from those who experienced one type of abuse. Finally, because abuse is often measured retrospectively, bias may result from either problems with recall or unwillingness to report (Widom & Morris, 1997; Widom & Shepard, 1996).

In this context, the *Canadian Incidence Study of Reported Child Abuse and Neglect* (CIS) provides an important contribution to child maltreatment research. It is based on a large national data set with strong maltreatment measures and a variety of child, family, and environment measures. The information comes directly from worker assessments done immediately after the investigation and is not solely dependent on the child's ability to recall the abuse. This is because the investigation gathers information from multiple sources in addition to the child.

Based on the current state of theoretical and empirical knowledge, as well as the limitations of the current research discussed above, the objectives of this study are as follows:

1. To determine if sexual abuse has a greater effect on observed emotional harm in children in both isolation and in the presence of other forms of maltreatment.

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2. To examine if sexual abuse has a greater effect on observed emotional harm in children both in isolation and in the presence of other forms of maltreatment, controlling for other variables.
3. To investigate if sexual abuse in isolation and in the presence of other forms of maltreatment interacts with age, gender, and duration of maltreatment.

METHODS

Sample

Health Canada—in collaboration with the provinces, territories, and CIS study team—collected the CIS data in 1998.[2] The study is a comprehensive survey that provides information from a cross-Canada sample of children (0–15 years of age) reported to and investigated by child welfare authorities for alleged child abuse and neglect. A multistage cluster sampling strategy was used to collect the information from a representative sample of investigations newly opened between October and December of 1998. Excluded from the sample were cases that were not brought to the attention of child welfare authorities, those that were screened out before full investigation, and new allegations of cases that were already open. Age was truncated at 15 years because some provinces and territories use this age as the cutoff point for the delivery of child welfare services. A detailed description of the survey design has been previously published (Trocmé et al., 2001).

The CIS sample consists of 7,672 investigations of emotional maltreatment, neglect, physical abuse, and sexual abuse. In the majority of cases (76 percent), only one type of maltreatment was noted in the investigation (Trocmé et al., 2001). The investigations fell into three categories: substantiated, suspected, and unsubstantiated. This current research examines both substantiated and suspected cases (n = 5,143). A case was considered "substantiated" by the investigating child welfare worker if the balance of evidence indicated that abuse or neglect had occurred. Likewise, a case was considered "suspected" if the investigating caseworker has strong suspicions that maltreatment had occurred but did not have sufficient evidence to substantiate. Initially it was assumed that substantiated and suspected cases could be treated as one category in the analysis. However, several variables of interest—including age of the victim, duration of the abuse, and evidence of

[2]In 2004, the Public Health Agency of Canada was created from the Population and Public Health Branch of Health Canada. The CIS surveillance program is now part of the agency.

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emotional harm—were significantly different between substantiated and suspected groups. Consequently, level of substantiation is a correlate in our logistic regression models.

Measures

In the CIS, investigators were asked to record up to three types of investigated or alleged maltreatment. The nature of the sexual abuse was captured with seven specific forms: completed sexual intercourse, attempted sexual intercourse, touching or fondling a child's genitals, adult exposing his/her genitals to the child, voyeurism (where a child is encouraged to expose him/herself), exploiting a child by involving her/him in pornography or prostitution, and sexually harassing a child.

Physical abuse included three measures: shaken baby syndrome, inappropriate punishment, and other physical abuse. Neglect included eight categories: failure to supervise leading to physical harm, failure to protect leading to sexual abuse, physical neglect, medical neglect, failure to provide treatment for psychological problems, failure to address the child's maladaptive behavior, abandonment, and educational neglect. Finally, emotional maltreatment included the following categories: emotional abuse,[3] nonorganic failure to thrive, emotional neglect, and exposed to family violence.

If more than three categories of maltreatment were present in an investigation, the investigator was asked to identify the three forms that best represent the specific case. The measures, by themselves, neither distinguish between single or multiple incidents of maltreatment nor between incidents of short and long duration.

The preceding variables were used to create a broader categorization of maltreatment. Co-occurrence of maltreatment was measured by a variable that included the following categories: sexual abuse in isolation (henceforth *isolated sexual abuse*), sexual abuse co-occurring with other forms of maltreatment (henceforth *sexual abuse co-occurring*), nonsexual abuse in isolation (i.e., physical abuse, neglect, and emotional maltreatment—henceforth *isolated other abuse*), and nonsexual abuse co-occurring with each other (henceforth *other abuse co-occurring*). For the logistic regression analysis, this variable was dummy coded and *isolated sexual abuse* used as the reference category (see table 1).

An investigated child was considered emotionally harmed if the investigating worker was aware of any changes in the child's behavior, development (e.g., regression or withdrawal), self-regulation (e.g., sleep patterns or elimination), or emotions (e.g., crying or anxiety) that appeared to result from

[3]Overtly hostile or punitive treatment, or habitual or extreme verbal abuse.

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Table 1: Definitions of variables

Name of Variable	Variable Type	Measurement
1. Dependent		
Emotional harm	binary	1 = Changes in the child's behavior, development (e.g., regression or withdrawal), self-regulation (e.g., sleep patterns or elimination), or emotions (e.g., crying or anxiety) that appeared to result from the maltreatment 0 = No changes observed
2. Independent		
Sexual abuse co-occurring	binary	1 = { Sexual abuse + physical abuse or Sexual abuse + neglect or Sexual abuse + emotional maltreatment or Sexual abuse + (any combination of physical, neglect, emotional) 0 = Any other combination
Isolated sexual abuse	binary	1 = Sexual abuse completed *or* sexual abuse attempted *or* touching/fondling *or* exposure of genitals (perpetrator) *or* voyeurism *or* sexual exploitation *or* sexual harassment 0 = Any other form or combination of maltreatment *except* sexual abuse
Other abuse co-occurring	binary	1 = { Physical abuse + neglect Physical abuse + emotional maltreatment Neglect + emotional maltreatment Physical abuse + neglect + emotional maltreatment 0 = Any other combination
Isolated other abuse	binary	1 = Physical abuse *or* emotional maltreatment *or* neglect 0 = Any combination of abuse or neglect *except* sexual abuse

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3. Control		
Age of child	categorical	0–3 years, 4–7 years, 8–11 years, 12–15 years
Duration of abuse	categorical	Single incident, less than six months, greater than six months
Child behavioral problems	binary	1 = Self-harming behavior, negative peer involvement, substance abuse, behavior problem (home/community), violence toward others, running away (one incident), running away (multiple incidents), involvement in prostitution, age-inappropriate sexual behavior, criminal involvement, special education class, and irregular school attendance
		0 = None of the above
Child health problems	binary	1 = Developmental delay, physical/developmental disability, substance abuse—related birth defects, depression/anxiety, psychiatric disorder, other health condition
		0 = None of the above
Perpetrator identity	binary	1 = Biological mother, biological father, stepmother, stepfather, or common-law partner
		0 = Strangers, siblings, peers, babysitters, teachers, and others
Alcohol or drug abuse	binary	1 = Alcohol abuse or drug abuse (prescription, illegal, or other)
		0 = No alcohol abuse or drug abuse (prescription, illegal, or other)
Mental health problems	binary	1 = Mental health diagnosis or problem
		0 = No mental health diagnosis or problem

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the maltreatment. The measurement instrument states that these signs of emotional harm are to be noted only when their presence is attributed to the investigated maltreatment.

The child's age in years was classified using the following categories: 0–3, 4–7, 8–11, and 12–15. *Duration of abuse* includes the values "single incident," "less than six months," and "more than six months."

Finally, child functioning consisted of behavioral and health problems that were observed, diagnosed, or disclosed during the past six months. The behavioral problems included self-harming behavior, negative peer involvement, substance abuse, behavior problem (home/community), violence toward others, running away (one incident), running away (multiple incidents), involvement in prostitution, age-inappropriate sexual behavior, criminal involvement, special education class, and irregular school attendance. Health problems included developmental delay, physical/developmental disability, substance abuse–related birth defects, depression/anxiety, psychiatric disorder, and other health condition. For these analyses, binary variables were used—one measuring the presence/absence of any behavioral problem and one measuring the presence/absence of any health problem.

Because the literature indicates that children suffer more if they are sexually abused by someone in a position of primary authority, *perpetrator identity* combines all parental figures (biological mother, biological father, stepmother, stepfather, and common-law partners) into a binary variable which contrasts parental perpetrators with all other perpetrators (including strangers, siblings, peers, babysitters, teachers, and others).

The caregiver concerns of alcohol/drug abuse and mental health problems were included in this analysis. Each is a binary variable indicating presence or absence of each concern, which was noted by the investigating caseworker.

Statistical Procedures

Analyses were carried out on the weighted sample using WesVarPC (Version 4.1) in order to assess the effect that the complex sampling design has on the reliability of the estimates. Jacknife replicate weighting procedures were applied to control for the effects of stratification and clustering. Pearson's chi-square analysis was used to determine if there were significant bivariate associations between emotional harm and child maltreatment, victim characteristics, household and caregiver characteristics, and duration and co-occurrence of abuse. Bivariate and adjusted associations were tested using logistic regression. Models were constructed to test whether there is an association between maltreatment co-occurrence and emotional harm. In addition the relationship between co-occurrence and emotional harm was examined controlling for caregiver concerns and child functioning. Odds ratios (OR) and 95 percent confidence intervals (CI) were used to assess the associations.

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Finally, interactions were examined by running unadjusted logistic regressions models between co-occurring maltreatment and emotional harm separately for each value of age, sex, and maltreatment duration.

RESULTS

Table 2 shows the distribution of emotional harm by type of abuse. Of particular note is that a higher proportion of children show signs of emotional harm with sexual abuse co-occurring than with any of the other maltreatment combinations. The table also shows that many maltreated children do not manifest signs of emotional harm.

Table 3 examines the bivariate relationships between emotional harm, sexual abuse, and other key variables. Several variables are associated with emotional harm, including victim age, co-occurring maltreatment, and caregiver mental health problems. Likewise, all of the child-functioning variables were significantly related to emotional harm as were two of the caregiver concerns.

Table 4 provides results from the logistic regression. For comparison, we include the bivariate odds ratios next to the adjusted odds ratios. Model 1 showed significant effects of isolated sexual abuse, child's age, case substantiation, and maltreatment that lasted more than six months. Neither sexual abuse co-occurring nor other abuse co-occurring significantly changed the odds of emotional harm, relative to isolated sexual abuse. Also, children over three years of age were significantly more likely to display signs of emotional harm compared to younger children.

Model 2 adds the two key caregiver problems as two possible sources of spuriousness. Here the effects of age and duration remained statistically significant, as did isolated sexual abuse. Model 3 adds childhood functioning

Table 2: Percentage of maltreatment cases with signs of emotional harm (weighted data)

Substantiated and Suspected Cases of Maltreatment (n = 5,143)	% Showing Signs of Emotional Harm (n)
All cases of maltreatment	33% (1,800)
All sexual abuse	43% (240)
Isolated sexual abuse	40% (131)
Sexual abuse co-occurring	51% (109)
Isolated other abuse	43% (614)
Other abuse co-occurring	27% (946)

Notes: Caseworkers were only asked about signs of emotional harm for the substantiated and suspected cases of child maltreatment.
Percentage differences in emotional harm by maltreatment co-occurrence were statistically significant at $p < 0.01$.

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Table 3: Percentage distribution of emotional harm by child maltreatment, child characteristics, and family variables, CIS 1998 (weighted data) N = 5,143

Variable	Emotional Harm % (n)	No Emotional Harm % (n)	p-value
Victim age			
0–3 years	15.7 (250)[1]	84.2 (899)	
4–7 years	27.6 (420)	72.3 (945)	<0.001
8–11 years	39.1 (460)	60.9 (768)	
12–15 years	45.5 (656)	54.5 (703)	
Victim gender			
Male	32.3 (927)[1]	67.7 (1,684)	
Female	33.0 (867)	67.0 (1,640)	n.s.
Family income			
<$15,000	31.1 (538)[1]	68.9 (902)	
$15,000–$24,999	31.2 (335)	68.8 (678)	
$25,000–$40,999	35.9 (242)	64.1 (422)	n.s.
$41,000–$57,999	44.2 (105)	55.8 (176)	
$58,000–$79,999	45.0 (37)	55.0 (74)	
$80,000+	–	64.1 (42)[†]	
Family structure			
Both bio parents	30.4 (497)[1]	69.5 (1,076)	
Bio parent with partner	37.0 (435)	63.0 (609)	
Lone female	30.2 (627)	69.8 (1,311)	n.s.
Lone male	44.8 (134)	55.2 (191)	
Other	34.8 (94)[†]	65.2 (116)	
Perpetrator			
Parent or parent figure[2]	32.9 (1,658)	67.1 (2,997)	
Nonparent	31.3 (142)	68.7 (334)	n.s.
Caregiver concerns:			
Alcohol/Drug abuse			
Yes	33.3 (715)	66.7 (1,216)	
No	32.3 (1,085)	67.7 (2,115)	n.s.
Mental health problem			
Yes	43.3 (577)	56.7 (674)	
No	28.7 (1,223)	71.4 (2,657)	<0.001
Child functioning:			
Any behavior concerns			
Yes	53.6 (1,003)	46.4 (763)	
No	20.6 (797)	79.5 (2,568)	<0.001
Any health concern			
Yes	60.1 (876)	39.9 (505)	
No	21.3 (924)	78.7 (2,826)	<0.001

[1]Numbers do not add up to 5,143 due to missing cases.
[2]Includes stepparents, adoptive parents, and foster parents.
[†]Indicates coefficient of variation between 16 and 33 percent; result should be interpreted with caution.
– Indicates a coefficient of variation above 33 percent; estimate is too imprecise to report with any level of confidence.

indicators as a way to control for the effect of prior physical and emotional problems on current levels of emotional harm. The significant effect of isolated sexual abuse remains. Finally, the effect of age is reduced to slightly less than half the odds, compared to previous models, for those 12–15 years old and by about a third for those 8–11 years old.

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Table 4: Logistic regression: Risk factors for sexual abuse on emotional harm N = 5,143

Predictor	Bivariate OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Male victim	1.0 (0.8, 1.2)	1.1 (0.9, 1.4)	1.1 (0.9, 1.4)	0.9 (0.7, 1.2)
Age				
0–3 years (ref)	*1.00*	*1.00*	*1.00*	*1.00*
4–7 years	2.0 (1.1, 3.9)*	2.0 (1.1, 3.6)*	2.0 (1.1, 3.6)*	1.7 (0.9, 3.3)
8–11 years	3.4 (2.1, 5.6)***	3.8 (2.2, 6.5)***	3.8 (2.2, 6.6)***	2.8 (1.4, 5.4)***
12–15 years	4.5 (3.1, 6.4)***	4.9 (3.3, 7.2)***	5.2 (3.5, 7.6)***	2.8 (1.7, 4.4)***
Isolated sexual abuse (ref)	*1.00*	*1.00*	*1.00*	*1.00*
Isolated other abuse	0.6 (0.5, 0.7)**	0.5 (0.4, 0.6)***	0.5 (0.3, 0.6)***	0.5 (0.4, 0.8)**
Sexual abuse co-occurring	1.6 (0.7, 3.5)	1.0 (0.4, 2.6)	0.9 (0.3, 2.5)	0.9 (0.3, 2.8)
Other abuse co-occurring	1.2 (0.7, 2.0)	0.8 (0.4, 1.4)	0.7 (0.3, 1.4)	0.7 (0.4, 1.1
Case substantiation	1.7 (1.3, 2.1)***	1.5 (1.2, 1.9)**	1.5 (1.1, 1.9)**	1.5 (1.1, 2.1)*
Duration				
Single incident (ref)	*1.00*	*1.00*	*1.00*	*1.00*
Less than six months	1.3 (0.9, 1.9)	1.3 (0.8, 1.9)	1.2 (0.8, 1.8)	1.2 (0.7, 1.9)
More than six months	3.5 (2.3, 5.2)***	3.2 (2.2, 4.7)***	3.0 (2.0, 4.4)***	2.9 (2.1, 3.9)***
Caregiver concerns				
Mental health problems[1]	1.9 (1.6, 2.3)***		1.5 (1.2, 1.8)***	1.5 (1.2, 1.8)***
Alcohol/Drug abuse[1]	1.1 (0.9, 1.3)		1.0 (0.7, 1.3)	1.0 (0.7, 1.3)
Any child health concern[1]	5.6 (4.7, 6.6)***			3.9 (3.3, 4.5)***
Any child behavior concern[1]	4.5 (3.5, 5.7)***			2.6 (2.0, 3.4)***
Cox and Snell R^2		0.14	0.15	0.24

*p < 0.05.
**p < 0.01.
***p < 0.001.
[1]Since these variables are measured as "yes/no," the reference category for this variable is the absence of the condition.

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Table 5: Odds ratios co-occurring maltreatment and emotional harm by age, duration of abuse, and sex of investigated child

	Predictor Variable	Odds Ratio Predicting Emotional Harm	95% CI
Panel 1			
0–3 years	Isolated sexual abuse	1.00	
	Isolated other abuse	1.7	(0.3, 10.2)
	Sexual abuse co-occurring	12.9**	(1.9, 86.7)
	Other abuse co-occurring	1.9	(0.3, 10.8)
	Isolated sexual abuse	1.00	
4–7 years	Isolated other abuse	0.2*	(0.08, 0.8)
	Sexual abuse co-occurring	0.6	(0.1, 6.3)
	Other abuse co-occurring	0.7	(0.2, 2.5)
	Isolated sexual abuse	1.00	
8–11 years	Isolated other abuse	0.9	(0.3, 2.7)
	Sexual abuse co-occurring	1.5	(0.5, 5.2)
	Other abuse co-occurring	3.3	(0.9, 12.8)
	Isolated sexual abuse	1.00	
12–15 years	Isolated other abuse	0.7	(0.4, 1.2)
	Sexual abuse co-occurring	2.3	(0.8, 6.5)
	Other abuse co-occurring	1.1	(0.4, 3.0)
Panel 2			
Single incident	Isolated sexual abuse	1.00	
	Isolated other abuse	0.3**	(0.2, 0.6)
	Sexual abuse co-occurring	0.9	(0.3, 2.9)
	Other abuse co-occurring	0.4	(0.1, 1.0)
	Isolated sexual abuse	1.00	
Less than six mos.	Isolated other abuse	0.5	(0.2, 1.2)
	Sexual abuse co-occurring	0.5	(0.1, 2.7)
	Other abuse co-occurring	0.8	(0.2, 4.0)
	Isolated sexual abuse	1.00	
Greater than six mos.	Isolated other abuse	0.6	(0.4, 1.1)
	Sexual abuse co-occurring	1.5	(0.5, 4.5)
	Other abuse co-occurring	1.1	(0.8, 1.7)
Panel 3			
Girls	Isolated sexual abuse	1.00	
	Isolated other abuse	0.6*	(0.3, 0.9)
	Sexual abuse co-occurring	2.2**	(1.3, 3.7)
	Other abuse co-occurring	1.1	(0.6, 2.0)
	Isolated sexual abuse	1.00	
Boys	Isolated other abuse	0.6	(0.2, 1.2)
	Sexual abuse co-occurring	0.7	(0.1, 6.0)
	Other abuse co-occurring	1.2	(0.5, 3.1)

*$p < 0.05$.
**$p < 0.01$.

The next step was to examine the relationship between sexual abuse co-occurring and emotional harm within each category of duration, child age, and child sex. Table 5 presents the unadjusted odds on emotional harm.

First, there appears to be some effect of co-occurring maltreatment and age (panel 1). As the extremely large confidence interval for the 0–3 year age

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group suggests a lack of precision within this age group, it will be ignored. While not statistically significant, the effect of sexual abuse co-occurring on the odds of emotional harm increases with age (excluding the 0–3 year age group). Specifically, the odds increase from 0.6 in the 0–3 year age group to 1.5 and 2.3 in the 8–11 year and 12–15 year age groups, respectively.

On the other hand, there are fewer differences between odds ratios for co-occurring maltreatment when effects are calculated within each category of duration. Considering that the bivariate odds for the effect of co-occurring maltreatment on emotional harm is 1.6 (see table 3), the odds represented in table 5, panel 2 do not differ much.

Finally, there appears to be a significant difference in the odds ratios between sexual abuse co-occurring and emotional harm for girls and boys. Specifically, the odds of emotional harm in cases of sexual abuse co-occurring is twice what it would be in cases of isolated sexual abuse. At the same time, the odds of emotional harm in cases of isolated other abuse is about half what it would be compared to cases of isolated sexual abuse.

In sum, sexual abuse co-occurring was significant in the bivariate analysis but not in the multivariate analysis. However, it still shows an increased effect on the odds of emotional harm. Maltreatment lasting more than six months and age remained statistically significant in the multivariate model. Because of this, we examined for possible interactions between these variables and co-occurring maltreatment, finding only a nonsignificant effect with age of the maltreated child.

DISCUSSION

This article highlights several key issues in child maltreatment research. First, there is no significant, independent effect of sexual abuse co-occurring on emotional harm. However, the effect of isolated sexual abuse on emotional harm remains when controls are added to the logistic regression model. This contradicts much of the current findings in the literature, and is likely a result of our larger sample size and inclusion of statistical controls.

Second, co-occurring maltreatment (whether or not it includes sexual abuse) is not significantly associated with emotional harm, while isolated other abuse significantly reduces the odds of emotional harm (compared to isolated sexual abuse). This suggests that it is not co-occurring maltreatment that matters for emotional harm but, rather, sexual abuse. In other words, it may be more harmful for a child to experience sexual abuse alone than to experience multiple forms of maltreatment. One possible explanation is that isolated sexual abuse has more psychological impact both because of its greater degree of taboo compared to other forms of maltreatment and because there are no other forms of maltreatment that might affect its impact.

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At the same time, there appears to be a nonsignificant interaction between co-occurring maltreatment and age, with sexual abuse co-occurring having more of an effect in 12- to 15-year-olds and possibly in those less than 3 years. Older children are more likely to articulate their psychological distress, while younger children may simply be more vulnerable to all forms of maltreatment.

Finally, the relationship between co-occurring maltreatment and emotional harm appears to be significant for girls but not for boys. This likely reflects the greater vulnerability of sexually abused girls to emotional harm. This is partially supported by MacMillan, Fleming, Streiner, et al. (2001) who show, in their adult retrospective study, that women who were sexually abused as children have significantly higher odds of experiencing anxiety disorders and marginally significant higher odds of experiencing major depressive disorder and antisocial behavior when compared to men who reported childhood sexual abuse. What is more, MacMillan and colleagues point out that women who experienced child *physical* abuse were significantly more likely to report major depressive disorder, alcohol abuse and dependence, illicit drug use abuse or dependence, or antisocial behavior when compared to men who experienced child sexual abuse. It is possible, therefore, that our significant association between sexual abuse co-occurring and emotional harm, in girls, is picking up the harmful effects of physical abuse, while the significant negative effect of isolated other abuse is likely reflecting the effect that isolated sexual abuse has on signs of anxiety in girls.

Our findings also show how other variables impact on emotional harm irrespective of child maltreatment. For example, we find a statistically significant increase of child's age and prolonged duration of abuse on the odds of emotional harm. As proxies for the age of onset of abuse, these findings are also contrary to previous findings—studies indicate that the age of onset of abuse and trauma has no clear association with emotional harm (Beitchman et al., 1992). Notwithstanding, our finding that abused teens are more likely to show signs of emotional harm than younger children suggests two possibilities: (1) teens suffer more emotional harm because they have a better understanding that sexual behavior is actually inappropriate or (2) emotional harm is less likely to be detected in younger children because they are not able to vocalize their symptoms as well. In the first situation, more intervention for teens is needed; in the second situation, younger children require better intervention.

Our measures of caregiver mental health problems and alcohol or drug use displayed mixed results, with mental health problems associated with a significant increase in the odds of observing signs of emotional harm in the child. This seems to fit with a general consensus in the literature which suggests that family dysfunction is associated with problematic mental health outcomes for survivors of child maltreatment (Bryer, Nelson, Miller, & Krol,

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1987; Dong et al., 2004; Russell, 1986). However, alcohol and drug abuse appear not to be significantly related to emotional harm, suggesting that it matters less when other variables are controlled. More importantly, it appears that these variables explain neither the association between sexual abuse co-occurring and emotional harm nor the significant effect of isolated sexual abuse.

The importance of these findings must be understood in the context of the current literature on co-occurring child maltreatment. Most are adult retrospective studies which suffer from other limitations such as small sample sizes and a lack of statistical controls (Higgins & McCabe, 2001). The CIS, on the other hand, consists of a large, representative sample of child maltreatment investigations and measures of many different contextual variables. Thus the current study provides information not normally available in smaller studies or studies of adult populations.

The present study also confirms findings from other research which demonstrates that many sexually abused children do not display signs of emotional harm. While this may be a result of inadequate measures or of a delayed response to the maltreatment, it also suggests the possible need to rethink current approaches for helping abused children. For example, MacMillan (2000) argues that until more research is conducted on the effectiveness of interventions and treatment for sexually abused children, the focus of professionals should be on assisting children who actually display signs of emotional harm.

Despite this, our statistical models explain about 25 percent of the variation in emotional harm. While problems with the measures we use may explain some of this, it also encourages us to think about other measures that may provide additional insight if they could be a part of the CIS data set. Of particular importance would be social and psychological protective factors. Evidence from the literature on psychiatric epidemiology suggests that, at least in adults, mastery, self-esteem, and perceived support can be important contributions to mental health (De Marco, 2000). In addition, our measures of maltreatment only take into consideration current circumstances, with limited information on past maltreatment or other life stressors. However, research on adults suggest the importance of including the cumulative burden of stress (including childhood traumas) in models predicting incidence and prevalence of psychiatric disorders (Turner, Wheaton, & Lloyd, 1995). While our study was not designed for this level of specificity, it is important to consider other possible factors in a comprehensive model of psychological distress in children.

Overall, this research contributes to the literature because it reveals relationships between variables that might not otherwise be seen. This is due to the large sample size, which provides a unique opportunity to study the immediate emotional effects of sexual abuse, particularly the role that is

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played by co-occurring maltreatment. In addition, the final analysis controls for the duration of maltreatment. Finally, as this is a study of current maltreatment investigations, there are fewer problems associated with recall bias often cited as a limitation in retrospective studies (Widom, Raphael, & DuMont, 2004). Likewise, all measures used in this study were assessed by trained child welfare professionals. Finally, since children or their families were not directly interviewed for the study, there was no risk of retraumatizing the child as a result of having to re-experience the feelings and emotions of the trauma.

Conversely, the results of this analysis must be interpreted within the limitations of the study. The maltreatment measures focus on the act of the alleged perpetrator and also take into account whether or not the child has suffered (or is at substantial risk of suffering) physical, developmental, or mental problems. There was no follow-up research to ascertain whether emotional harm was present at a later date, nor was the emotional harm independently confirmed by a psychologist or a psychiatrist. There were also no pre-abuse measures of emotional harm to provide a benchmark. In addition, the potential exists for both systematic and random biases at both the worker and agency levels. For example, certain cases involving abuse may be screened out because they do not meet the criteria of the particular jurisdiction. Specifically, some agencies do not investigate cases of extrafamilial abuse. In addition, since this is a study that uses only investigated cases of maltreatment, it inevitably undercounts the number of cases. Critics suggest that uninvestigated cases may be more severe or carry higher emotional consequences due to their associated secrecy and coercion (Kendall-Tackett & Becker-Blease, 2004). Also, since caseworkers often were not accustomed to noting multiple types of abuse in one investigation, their assessments may undercount co-occurring maltreatment. Finally, the use of investigated cases precludes the existence of a control group of nonabused children.

Future research could include following up on these children to examine long-term effects of sexual abuse. In addition, it would be useful to compare reported to nonreported cases as they may differ on important variables.

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