

Epidemiologic Differences Between Sexual and Physical Child Abuse

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• Sexual and physical child abuse are assumed to differ; however, these differences have not been well characterized epidemiologically. Furthermore, despite assumed differences, these types of abuse are often analyzed as one entity. This can have significant effects on assessment of risk and recommendations for intervention. We compared 735 cases of sexual abuse and 3,486 cases of nonsexual physical abuse confirmed by the Georgia Department of Protective Services. Sexual and physical child abuse cases differed in age, sex, and relationship of perpetrators and victims; demographic and socioeconomic characteristics of families at risk; and morbidity and mortality caused by the event. The most important recommendation based on these findings is that epidemiologically distinct forms of child abuse must be analyzed separately before intervention measures are proposed.

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THE FIRST national study of child abuse noted that one in six cases involved sexual maltreatment and suggested that sexual abuse was situationally different from other forms of child abuse.¹ These differences have not been well defined epidemiologically, however, and most state child abuse registries include sexual molestation as one category of physically traumatic injury.² Awareness of sexual child abuse would be improved by separate epidemiologic assessment of this entity. More important, child

abuse registry data can be meaningfully analyzed only if epidemiologically distinct forms of child abuse are considered separately.

Definitions of child abuse have broadened since the possibility of purposeful infant battering was first raised.³ Sexual abuse was identified as another manifestation of child maltreatment⁴ and was defined by one author as "the involvement of dependent, developmentally immature children and adolescents in sexual activities that they do not fully comprehend, to which they are unable to give consent, or that violate the

social taboos of family roles."⁵ Interest in sexual abuse as a pediatric problem has only recently escalated^{5,8}; there are only a few epidemiologic studies of it. Data have been restricted by small numbers,⁹⁻¹¹ non-random sample selection,⁸ or a lack of appropriate population information.¹² Most work has been hospital based.⁹⁻¹¹ Population-based studies have concentrated on urban centers^{7,13-16} and may not have separately analyzed pediatric and adult cases.^{15,16}

We compared population-based data on sexual and nonsexual physical child abuse to define sexual abuse better and to differentiate these two types of abuse epidemiologically.

MATERIALS AND METHODS

Information concerning cases of physical and sexual child abuse in Georgia has been centrally computerized since July 1975. Details of the reporting system are described elsewhere.^{17,18} Briefly, instances of suspected physical or sexual assault of a person younger than 18 years are reported to the state Protective Services agency and are investigated by local Protective Services personnel. After investigation, cases are classified as follows: (1) confirmed, if investigation leads to substantiation of abuse; (2) nonconfirmable, if suspicion remains but cannot be documented; and

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Fig 1.—Calculation for determining observed-to-expected ratio for population subgroups. ACs indicates abuse cases; SCs, specified characteristics; Ga, Georgia.

$$\frac{[(\text{No. of ACs With SCs})/(\text{No. of Ga Persons} < 18 \text{ Yr With SCs})]}{[(\text{Total No. of ACs})/(\text{Total No. of Ga Persons} < 18 \text{ Yr})]}$$

Table 1.—Reported Sexual and Physical Child Abuse, by Confirmation Status, Georgia, July 1975 to December 1979

Confirmation Status	Sexual Abuse, % (n=1,187)	Physical Abuse, %* (n=6,315)
Confirmed	62	55
Nonconfirmable	25	17
Ruled out	13	28
Total	100	100

* $P < .001$ for distribution of confirmation status between sexual and physical abuse.

Table 2.—Confirmed Sexual and Physical Child Abuse Rates* by Sex of the Child, Georgia, July 1975 to December 1979

	M†	F†
Sexual abuse	1.7 (64)	18.4 (671)
Physical abuse	47.2 (1,772)	47.0 (1,711)

*Incidence per 100,000 children younger than 18 years.

†Numbers in parentheses indicate number of cases used in calculating incidence.

(3) ruled out, if the investigator determines that injuries cannot be attributed to child abuse. A summary report of each case is then submitted to the State Central Registry. From July 1975 through December 1979, seven hundred thirty-five cases of sexual abuse and 3,486 cases of nonsexual physical abuse were confirmed. Non-identified data were then computerized at the Centers for Disease Control (CDC) and analyzed in collaboration with the Georgia Department of Child Protective Services.

Reporting biases were addressed in this study by comparing the confirmed and the ruled-out categories with the general population. This technique is discussed in detail elsewhere.¹⁸ Briefly, ruled-out cases represent persons under surveillance by this reporting system. A characteristic or factor is associated with increased risk only if its prevalence in the confirmed category exceeded its prevalence in both the general population and in the ruled-out category. For those situations in which increased risk was determined to exist by these criteria, the observed-to-expected ratio for population subgroups was calculated as shown in Fig 1.

Population data were obtained from the US Bureau of the Census, the Georgia Office of Planning and Budget, and the Georgia Bureau of Family and Children Services. Receipt or nonreceipt of Aid to Families With Dependent Children at the time of abuse was used as an indicator of the poverty status of the family. Statistical analyses were done using the Mantel-Haenszel procedure¹⁹ or a test for goodness-of-fit.

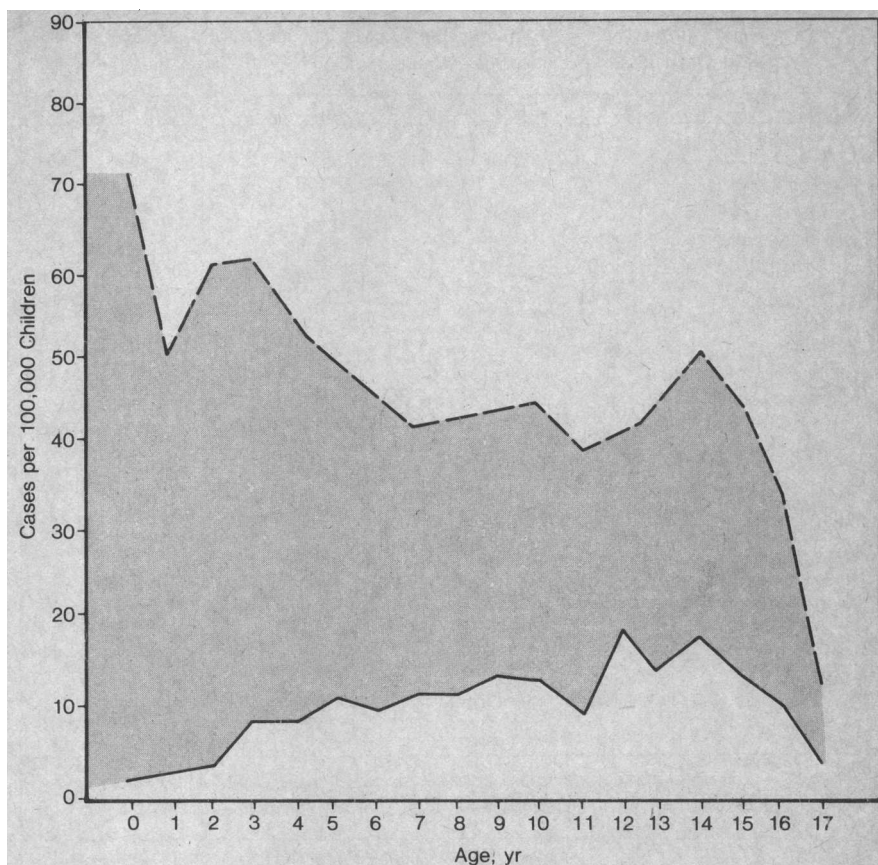


Fig 2.—Rates for confirmed cases of sexual and physical child abuse, by age, Georgia, July 1975 to December 1979. Solid line indicates sexual abuse; broken line, physical abuse.

RESULTS

Sexual abuse accounted for 17% of the confirmed child abuse reports. Confirmation rates were high for clinical sources for sexual abuse (73%), law enforcement sources for both sexual (75%) and physical (71%) abuse, and school sources for physical abuse (68%). The concerned citizen or the relative had the lowest confirmation rates for both sexual and physical abuse. The overall confirmation rate for sexual abuse (62%) was significantly higher than that for physical abuse (55%) (Table 1). Even for the cases that were not confirmed, suspicion remained in significantly more cases of sexual abuse than physical abuse ($P < .001$). Although reporting of child abuse was greater in urban centers,¹⁸ the geographic distribution of confirmed cases of sexual abuse did not differ from that of the general population (56% urban, 44% rural).

Ninety-one percent of children confirmed as being sexually abused were females, placing females at a tenfold greater risk than males. The propor-

tion of sexually abused children that were female was similar for whites and blacks (92% and 91%, respectively). In contrast to sexually abused children, the proportion of physically abused children who were female was not statistically different from that for the Georgia population. Incidence figures reflect these differences (Table 2).

Age-specific incidence rates are shown in Fig 2. The incidence of sexual abuse rose after 2 years of age and peaked only slightly at pubertal ages. Boys made up a slightly, but significantly, greater proportion of the younger age groups than of the older age groups. Of sexually abused children, 16% of those younger than 8 years were boys; 5% of those 8 to 17 years old were boys ($P < .001$ for difference). The sex- and race-specific age distributions for sexually abused children were independent of each other and of the case's economic status. When race, sex, and economic status were stratified by one another and age was analyzed using the intervals 0 to 7 and 8 to 17 years old,

Table 3.—Relationship of Primary Caretakers to the Child in Confirmed Cases of Sexual and Physical Abuse, Georgia, July 1975 to December 1979

	Sexual Abuse, %	Physical Abuse, %
Female caretaker* (n=645)	(n=645)	(n=3,363)
Natural mother	93.8	89.8
Stepmother	0.9	4.2
Mother substitute	0.9	1.5
Adoptive mother	0.7	1.1
Foster mother	0.0	0.7
Grandmother	2.4	1.4
Other relative	0.9	0.9
None	0.4	0.4
Total	100.0	100.0
Male caretaker† (n=547)	(n=547)	(n=2,575)
Natural father	54.7	61.9
Stepfather	34.4	24.5
Father substitute	4.6	7.1
Adoptive father	1.8	1.6
Foster father	0.2	0.7
Grandfather	1.8	1.0
Other relative	0.9	1.3
None	1.6	1.9
Total	100.0	100.0

*Distribution for cases in which it is specified that a female caretaker is present in the household.

†Distribution for cases in which it is specified that a male caretaker is present in the household.

Table 4.—Medical Indicators of Morbidity and Mortality for Confirmed Sexual and Physical Child Abuse, Georgia, July 1975 to December 1979

	Sexual Abuse, % (n=735)	Physical Abuse, %* (n=3,486)
Examination by a physician†		
Performed	53.4	36.8
Not performed	46.6	63.2
Total	100.0	100.0
Physical injury		
Present	19.3	89.1
None apparent	80.7	10.9
Total	100.0	100.0
Hospitalization		
Yes	6.4	11.6
No	93.6	88.4
Total	100.0	100.0
Case-fatality rate	0.3/100	1.4/100

*P value for the difference between sexual and physical abuse was <.001 for all characteristics listed.

†In nine sexual abuse and 24 physical abuse cases, it was not known whether a physical examination was performed.

sexually abused boys tended to be younger than girls ($\chi^2_{M-H}24.0$; $\chi^2_{Hc}1.2$, with 3 *df*), and blacks tended to be younger than whites ($\chi^2_{M-H}21.3$; $\chi^2_{Hc}1.4$, with 3 *df*). Those below the poverty level were younger than those above ($\chi^2_{M-H}12.4$; $\chi^2_{Hc}0.9$, with 3 *df*). These race-, sex-, and economic-specific distributions differed from those of the general Georgia population aged 0 to 17 years. The age distribution of sexual abuse cases was not affected by urban-rural residence of the abused child.

The incidence of physical abuse had a bimodal age distribution; the peaks

were in infancy and the late teens. The latter was due largely to abuse of females, although these cases were not reported to have been sexual in nature. The age distribution of physically abused children did not vary in any simple or consistent fashion with race, economic, or urban-rural status. While most abused children resided with their natural mothers, this was significantly more frequent with sexual abuse than with physical abuse cases ($P<.001$). A stepmother was less frequently present in households of the sexually abused ($P<.001$) (Table 3). In sexual abuse cases as com-

pared with physical abuse cases, the male caretaker was significantly less often the natural father ($P<.01$) and was more often a stepfather ($P<.001$) (Table 3).

Ninety-eight percent of the known perpetrators of sexual abuse and 56% of perpetrators of physical abuse were male. With physical abuse, the sex of the victim and the perpetrator was the same in 53% of cases, although adult male caretakers were absent in 39% of these households. For most perpetrator categories, sexual abuse was committed at an older mean age than physical abuse. However, this trend was reversed in cases involving the following perpetrators: other relatives, babysitters, foster parents, and adoptive parents. Stepfathers constituted a significantly greater proportion of those committing sexual abuse (24%) than those committing physical abuse (13%; $P<.001$). The percentage of perpetrators who were unknown or unrelated to the abused child was significantly higher for sexual abuse than physical abuse (11% v 3%; $P<.001$). Confirmation led to court action in 32% of sexual abuse cases and in 22% of physical abuse cases ($P<.001$).

Physical findings and medical indicators of physical morbidity and mortality differed distinctly for sexual and physical abuse (Table 4). A physician examined the child in 53% of sexual abuse and 37% of physical abuse cases ($P<.001$). Ninety-one percent of nonhospitalized, sexually abused children had no signs of trauma, while only 12% of the nonhospitalized physically abused children showed no signs of injury. Six percent of confirmed sexual abuse cases required hospitalization; in contrast, 12% of the children involved in physical abuse were hospitalized. Rates of apparent physical injury for hospitalized patients were 25% for sexual abuse and 98% for physical abuse. Most children hospitalized for sexual abuse were in the 3- to 5-year-old and 12- to 14-year-old age groups, but the greatest hospitalization rate for cases was in the 0- to 2-year-old group (13% of abused children in this age group were hospitalized). For physical abuse, 0 to 2 years was the peak age for both number hospitalized and proportion of cases requiring hospitalization (33% of cases in this age

Table 5.—Populations at Increased Risk of Sexual and Physical Child Abuse*

	Ratio†
Sexual abuse	
Rural white children living below the poverty level‡	5.0
Black children with the mother as sole head of household	1.5
Physical abuse	
Rural white children living below the poverty level	4.1
Rural black children living below the poverty level	1.4

*Ratio of rate for a given population compared with total Georgia rate, Georgia, July 1975 to December 1979.

†Ratio of rates calculated by dividing rate for this subset by the rate for the entire Georgia population. See Fig 1.

‡Receipt or nonreceipt of Aid to Families With Dependent Children at the time of abuse was used as an indicator of family's financial status.

group were hospitalized).

Abrasions and bruises were the most frequently reported physical injuries for both sexually abused and physically abused children. For physically abused children who required hospitalization, however, bone fractures and burns were also frequent injuries. Skull fractures, subdural hematomas, and brain damage were most common at 0 to 2 years of age. Bone fractures were most frequent in the physically abused population at ages 0 to 2 and 15 to 17 years. All these injuries were rare (0.1% or less of cases) in the sexually abused population. Two deaths associated with physical injuries received during confirmed sexual abuse occurred during this time period (3/1,000 cases) compared with 49 deaths associated with confirmed physical abuse not associated with sexual assault (14/1,000), giving a relative risk for fatality of almost 5 to 1 for physical compared with sexual abuse.

The populations assessed as being at increased risk for sexual abuse were poor rural white children and black children living in households where the mother was the only head of the household (Table 5). The former were confirmed as being sexually abused five times as often as would have been predicted by their population size; the latter, 1.5 times that predicted. The populations assessed as being at increased risk for physical abuse were rural children living below the poverty level. Rural black children living below the poverty level had 1.4 times the number of confirmed physical abuse events expected for their population size. Rural whites living below the poverty level had 4.1 times the number of confirmed physical abuse reports expected; however, a portion of this

difference may have been due to heightened surveillance. This is suggested by the fact that ruled-out reports were three times as common as would have been expected by this population's size.¹⁸

COMMENT

Gil¹ proposed in 1970 that sexual and physical child abuse differed significantly in regard to motivation of the perpetrator and dynamics of the situation. We found that sexual and physical abuse cases in Georgia were indeed two epidemiologically distinct entities. Sexual and physical abuse differed in age and sex of victim and perpetrator and in family and socioeconomic situations associated with increased risk.

Kempe⁵ estimated that less than one tenth of sexual abuse cases are recognized. In a nonrandom survey of New England college students, Finkelhor⁸ found that 19.2% of females and 8.6% of males had been sexually victimized as children. We found that the confirmation rate for sexual abuse was higher than that for physical abuse. We also found that reported sexual abuse more frequently necessitated court action than did physical abuse, even though confirmation of sexual abuse was oriented toward obtaining physical evidence that was not present in most cases. These findings are consistent with those of Kempe and Finkelhor, in that they may reflect the public's relative unwillingness to consider and report the possibility of sexual child abuse unless the evidence is overwhelming.

Despite definitional and sampling differences, our findings agree with those of other workers in that (1) the majority of sexual abuse cases were not associated with moderate or

severe physical injury^{8,10,16,20}; (2) the vast majority of sexual abuse perpetrators were male^{8,12}; (3) the majority of sexual abuse victims were female^{8,10,12,16}; (4) a high proportion of sexual abuse victims were prepubertal at the time of reported abuse^{5,7,8,11,12}; and (5) rural life seems to be associated with heightened risk of sexual abuse.²⁰ Last, although we found that the incidence of physical abuse decreased for boys in their teenage years, there was a secondary peak in incidence of physical abuse for girls in their teens.²⁰ The peak age for sexual abuse was younger than this secondary peak for physical abuse in females.²⁰

In this study, we found that, in Georgia, male victims of sexual abuse tended to be younger than female victims. This agrees with the findings of the most recent national incidence study²⁰ but is at variance with the findings of Tilelli et al,¹⁰ who found no sexual differences in the age of victims, and of Finkelhor,⁸ who found that sexually victimized males tended to be older than victimized females at the time of the incident.⁸ The latter study population differs greatly from our own, in that it consisted of a nonrandomly selected group of New England college students coming largely from white, rural, two-parent households.

Our study is unique in a number of respects. First, it is population specific and, when possible, rate specific. Second, it specifically outlines epidemiologic differences between sexual and physical child abuse. Third, it addresses the problem of reporting bias by comparing two types of abuse reported to the same system, ie, sexual and physical child abuse, and by comparing confirmed and ruled-out cases to determine populations with evidence of heightened risk for abuse without evidence of heightened risk of surveillance.¹⁸ To our knowledge, only one other study of sexual abuse has examined unfounded reports, and it does not present these data in detail.⁷ Fourth, we provide information about interacting sexual, racial, and demographic patterns of abuse. Last, we examine how the perpetrator's relation to the victimized child varies with the parental composition of the abused child's household and how that relationship relates to the perpe-

trator's age at the time of abuse.

Certain intervention and therapeutic measures can be inferred from our data. First, the fact that sexually abused children tended to be school aged, but that school officials were not major sources of sexual abuse reports, suggests that school personnel need to be educated about the existence, manifestations, and management of sexual abuse. Counseling of a sexually abused child could then be expedited by trained school advisors who know the child. Second, the lack of physical findings in our sexual abuse cases supports the appropriateness of emphasizing psychological evaluation as an essential part of the initial assessment for sexual abuse.^{16,21}

Specific suggestions based on our findings are as follows. First, further epidemiologic study of nonincestuous sexual abuse is needed. Our data suggest that some households in which a mother is the sole household head may be at increased risk for sexual abuse. Surveillance should thus not overlook households without a male caretaker. Second, surveillance of rural areas should be heightened, especially in regard to sexual abuse. Third, physical abuse of adolescents merits further psychosocial investigation. We found that the incidence of physical abuse had a bimodal age distribution, with the second peak representing nonsexual abuse of adolescent girls. Concern about maltreatment of this age group is growing,²²

although surveillance may not be as intense as for abuse of infants.¹⁸ Our results could reflect differences in parent-adolescent interactions or in the definitions of abuse and discipline used with female v male teenagers. Last, cases of child maltreatment cannot be analyzed as if they were a homogeneous entity. Forms that differ epidemiologically must be studied separately, or risk cannot be assessed and interventions cannot be directed correctly.

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