

**Predictors of Injury in Reported Cases of Child Punishment Abuse in Canada**

by

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## Abstract

Child injury and risk of injury are criteria that are heavily weighted in child protection decisions, considered in legal decisions, and often used to distinguish between punishment and maltreatment in the research literature. While some research has examined factors that may predict injury in reported cases of child physical abuse, the literature that exists comes primarily from American studies, where reporting criteria may differ from those used in Canada. Information on predictors of injury would serve two purposes. First, it would contribute to the ongoing development of methods to assess risk in child protection work. Second, it would contribute to development of theory regarding the nature of child physical abuse, as it could help to answer the question of whether non-injurious and injurious physical assault are independent phenomena, predicted by different sets of factors. This study examined the power of child, perpetrator, and socio-economic characteristics to predict injury in cases of reported child physical abuse. Data from the Canadian Incidence Study of Reported Child Abuse and Neglect were used. The selected subsample consisted of 512 substantiated cases of child physical abuse where the abuse was the result of inappropriate punishment. Models were constructed to test two theoretical frameworks, and were evaluated through logistic regression. Child age, perpetrator sex, the vulnerability of the child to abuse, family well-being, economic stress, and social stress did not predict injury to the child. The findings suggest that factors other than those studied account for injury in substantiated punishment abuse cases. Accepting any of the theoretical explanations found in the literature on the question of injurious versus non-injurious abuse depends upon further investigation.

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## CHAPTER 1

## Introduction

In 1998 an estimated 135, 573 child maltreatment investigations were conducted in Canada (Canadian Centre for Justice Statistics, 2001). Of these reports, 45% were substantiated by the investigating child welfare worker. Across all maltreatment categories investigated (physical, emotional, sexual, neglect), physical harm was documented in 17% of substantiated cases. Furthermore, almost half (44%) of all the substantiated physical abuse cases documented physical harm, the harm being sufficiently severe to require medical treatment in 6% of the cases. The majority of injuries (86%) involved bruises, cuts, and scrapes, and the remaining injuries were evenly distributed over the other physical harm types such as burns, scalds, broken bones, head trauma, fatal harm, or other health condition (Canadian Centre for Justice Statistics, 2001).

Figures highlighted by police-reported data and hospitalization records of injuries to children resulting from maltreatment also present a cause for concern. In 1999, police-reported data indicated that 55% of children and youth physically assaulted by family members suffered minor injuries requiring first aid and 3% suffered physical injuries that required medical attention at the scene or transportation to a medical facility (Canadian Centre for Justice Statistics, 2001). Also, although hospitalization records for assault and maltreatment in Canada from 1993/1994 to 1998/1999 revealed that overall rates of children treated in hospitals for injuries as a result of violence declined slightly from a rate of 26 to 23 per 100,000 children, the rate for children under the age of one increased from 45 to 58 per 100,000 children during this time period (Canadian Centre for Justice

Statistics, 2001). In fact, 42 per 100,000 children under the age of one were reported by doctors to have been injured as a result of child maltreatment during this time period.

The fact that physical injuries can often be linked to incidents of maltreatment highlights the important role the presence of injuries may play in identifying child physical abuse cases. However, physical abuse does not always result in injury to the child. In fact, the same act (i.e. a slap) may result in injury to one child but not to another. Therefore, injuries sustained as a result of physical abuse constitute a serious and ongoing problem, one that has not shown any sign of declining over the last decade.

In the present study, the issue of child abuse injury was explored from both applied and theoretical perspectives. First, the importance placed on physical injury in the identification of child physical abuse was explored. Following this discussion, a theoretical debate was introduced that demonstrates the importance of investigating predictors of injury for increasing our understanding of the etiology of child physical abuse. Finally, a review of the literature on predictors of injury was presented in order to identify the gaps in current knowledge in this area. The primary purpose of the present study was to investigate the predictors of injury in child physical abuse cases in order to advance the process of identification of maltreatment, and to address the theoretical controversy around the etiology of injurious child physical abuse.

#### *Criteria Used in Defining Child Physical Abuse*

A review of the child abuse literature reveals that a range of criteria have been used to define child physical abuse. These include social norms, caregiver intent, caregiver actions, and the presence or absence of injury (Parke & Collmer, 1975).

#### *Social Norm*

This approach asserts that physical abuse is a culturally determined label that involves a social judgement on the part of the observer (Friedman, Sandler, Hernandez, & Wolfe, 1981; Giovanni & Becerra, 1979; Walters & Parke, 1964). According to this approach, various factors are taken into account in order to make this judgement (Walters & Parke, 1964). These factors include the perpetrator's intentions; the antecedents, form and intensity of the response; the extent of the injury; and the role and status of the agent and victim of the behaviour (Parke & Collmer, 1975). This approach, however, does not lead to an objective means of identifying child physical abuse as it requires the observer to make a social judgement. Furthermore, definitions of what is appropriate versus inappropriate physical punishment or abuse is based on own experience and will vary from individual to individual. Thus, what one may perceive as abuse, another may not. For instance, a ruling from a 1992 Manitoba case dictated that repeated kicking, slapping, and punching of a child was "well within the range of what has been accepted by parents in this province". The judge also concluded that the discipline administered was "mild indeed" compared to what he had experienced as a child (McGillivray, 1993).

#### *Caregiver Intent*

Another approach to defining child physical abuse considers the caregiver's intent (Parke & Collmer, 1975). The focus is on the implicit intent to inflict harm or on the incapability of the caregiver to protect the child from harm (Wolfe, 1999). However, a number of studies have demonstrated that in the majority of physically abusive incidents, the perpetrator's primary intent was to correct the child's behaviour (Coontz & Martin, 1998; Gershoff, 2002; Gil, 1970; Herrenkohl, Herrenkohl, & Egolf, 1983; Kadushin &

Martin, 1981; Parke & Collmer, 1975; Samuda, 1988; Trocmé & Durrant, 2003; Trocmé, Fallon, MacLaurin, & Copp, 2002; Trocmé & McPhee, 1995; Wilson-Oyelaron, 1989; Zigler & Hall, 1989). For instance, Vasta (1982) suggests that parents who use physical punishment may actually expect to produce positive results. However, their heightened levels of arousal may “act on the intended degree of physical punishment to produce responses involving a dangerous or injurious level of force” (p. 135). Thus, focusing on the individual’s intent to inflict harm to define child physical abuse is not useful. Focusing on the concept of intent to define child physical abuse also poses another serious limitation in that intent is not an observable behaviour, so problems in the reliability and validity of judgements can arise (Parke & Collmer, 1975).

### *Caregiver Actions*

Some authors focus on the caregiver’s acts to identify whether child physical abuse has occurred. However, there seems to be no consensus regarding the specific behaviours that should be labeled “abusive” (Miller-Perrin & Perrin, 1999). For instance, Rimer and Prager (1998) define physical abuse as all acts by a caregiver that result in physical harm to a child whereas Straus (1979) considers kicking, biting, punching, beating, threatening with a gun or knife, or using a gun or knife as acts that constitute “serious violence”. As another example, the National Center on Child Abuse and Neglect (1992) suggests physical abuse is characterized by inflicting physical injury by punching, beating, kicking, biting, burning or otherwise harming a child whereas the Third National Incidence Study of Child Abuse and Neglect considered hitting with a hand, stick, strap, or other object; punching; kicking; shaking; throwing; burning; stabbing; or choking a child as acts constituting physical abuse (Sedlak & Broadhurst, 1996). This lack of

consensus as to the specific acts or behaviours that should be labeled “abusive” has further contributed to ambiguities and communication problems in the field (Winton & Mara, 2001).

### *Injury*

In an attempt to reduce the ambiguities and problems created by other approaches, some authors have focused on injury as the criterion that clearly indicates that physical abuse has occurred. From this perspective, the definition of child physical abuse emphasizes the presence of nonaccidental injuries as a result of acts of commission (physical assault) or omission (failure to protect) by caretakers (Giovannoni & Becerra, 1979; Kempe & Helfer, 1972). The medical community takes this approach as it sees abused children by virtue of the injuries they present in hospitals or other medical settings (Tower, 2002). Similarly, legal definitions of physical abuse are weighted heavily toward its overt consequences (Wolfe, 1999).

It is not surprising then that injury is an important criterion included in child protection legislation in Canada (George & Mains, 1979; McDonald & Marks, 1991; Sigurdson & Reid, 1996; Simons, Downs, Hurster, & Archer, 1966). For instance, Section 1 of The Child and Family Services Act of Manitoba emphasizes physical injury in its definition of abuse. It defines abuse as an act or omission by any person where the act or omission results in : (a) physical injury to the child; (b) emotional disability of a permanent nature in the child or is likely to result in such a disability; or (c) sexual exploitation of the child with or without the child’s consent.

In Manitoba, a child is in need of protection where the child is likely to suffer harm or injury due to the behaviour, condition, domestic environment or associations of

the child or of a person having care, custody, control, or charge of the child [The Child and Family Services Act of Manitoba; Subsection 17(2)(e)]. Similarly, Section 37(2)(a) of the Child and Family Services Act of Ontario defines physical abuse in the following way:

The child has suffered physical harm, inflicted by the person having charge of the child or caused by the person's failure to care and provide for/or supervise and protect the child adequately.

Sections 37(2)(a)(b) of this Act also state that a child is in need of protection where the child has suffered physical harm or there is a risk that the child is likely to suffer physical harm by the person having charge of the child.

Child protective service investigations often require child welfare workers to assess potential risk of future harm to the child in making child protection decisions (Camasso & Jagannathan, 1995; Fanshel, Finch, & Grundy, 1994; Kolko, 1998; Meddin, 1985). Furthermore, mandatory investigation or intervention by a Children's Aid Society in Ontario, Canada can only occur when there is some "measurable injury" or reasonable and probable grounds to suspect that the caregiver's actions cause the child to be in need of protection (OACAS, 1998). In child protection investigations or matters, risk is often conceptualized as being composed of three elements: the vulnerability of the child, the likelihood of reoccurrence, and the estimate of future severity (Sigurdson & Reid, 1996). In Canada, these factors have been influential in the development of tools to assist child protection staff in formulating decisions concerning the risk levels of their cases. For instance, the Manitoba Risk Estimation System developed by Sigurdson and Reid (1996) is based on these premises and assesses the three elements of risk previously

noted. This tool has been widely used across Canada's agencies including Winnipeg Child and Family Services Agency, the Children's Aid Society of Ottawa-Carleton, the Thunder Bay Children's Aid Society, and the Western Manitoba Child and Family Services Agency (Sigurdson & Reid, 1996). Therefore, the presence of injury is often the primary, or even sole, means used to determine whether a child has been "abused" or is in need of protection. Because it is a visible marker of a caregiver's actions, injury is often considered to be the point at which a hypothetical line is drawn between acceptable and unacceptable discipline.

But is there a qualitative difference between caregivers who do and do not injure their children in the course of disciplining them? Perhaps injury is more the result of bad luck, accident, or the child's relative size than of differences in caregiving or caregivers' qualities. A theoretical question, then, can be raised regarding the generative factors that give rise to injurious acts by caregivers. Are they primarily the result of children's size and strength relative to those of the caregiver, representing similar acts and motivations as non-injurious assaults? Or are they the outcome of qualitatively different caregiving circumstances, representing a different type of violence than that which does not cause injury?

## CHAPTER II

## Theoretical Framework: The Continuum versus Typologies Debate

Theorists in the field of child maltreatment have presented two primary positions on the question of non-injurious versus injurious (or minor and severe) violence. One position holds that most physical violence against children is generated from the same source – the use of physical force to control the child's behaviour. According to this view, all physical violence against children, with rare exceptions, falls along a continuum of force used to discipline the child. The other position holds that minor and severe violence are separate phenomena, originating in qualitative differences among caregivers' circumstances and motivations. According to this view, minor and severe assaults are different typologies of violence. Research supporting each of these positions will be reviewed in the following sections.

*The "Continuum of Violence" Position (Continuum Position)*

Some researchers consider severe/injurious violence and minor/non-injurious violence to be not only related, but points along a continuum of force. For instance, Graziano (1994) has hypothesized that at one end of this continuum are actions that many people consider to be appropriate disciplinary procedures such as spanking, hitting, or whipping at levels of violence too low to be considered by a culture as abusive. Graziano refers to this lower end of the violence continuum as "subabusive violence". At the other end of the spectrum, however, are acts of severe violence such as those that result in death or permanent injury. The point at which culturally accepted punishment begins to shade into culturally unacceptable abuse is subjectively and culturally defined, and the subject of considerable debate in some countries (Graziano, 1994).

Greven (1991), in his analysis of the religious roots of physical punishment, also claims that physical punishments, from the mildest and most infrequent to the most severe and deadly, form a continuum of violence. Similarly, Wolfe (1987) conceptualizes abusive parenting as "the degree to which a parent uses negative, inappropriate control strategies with his or her child" (p.25). Other researchers also conceptualize physical punishment and child abuse as inextricably related (Bavolek & Henderson, 1990; Durrant & Rose-Krasnor, 1995; Garbarino, 1977; Gil, 1974; Gelles & Straus, 1988; Salzinger, Feldman, Hammer & Rosario, 1991; Straus & Kantor, 1994; Vasta, 1982; Whipple & Richey, 1997).

Indeed, there is considerable evidence that most physical abuse takes place within the context of punishment. For instance, in Nigeria, "physical abuse is primarily the result of corporal punishment which has become excessive" (Wilson-Oyelaron, 1989; p.379). Similarly, a study in Hong Kong found that child abuse injuries are often the result of "culturally acceptable discipline" taken to an extreme (Samuda, 1988; p.287). In the United States, Gil (1970) conducted a national study of all cases of child physical abuse reported during a two-year period and found that 63% of cases involved "incidents developing out of disciplinary action taken by caretakers" (p.126). Other studies in the United States have also revealed that abuse occurs within the context of a disciplinary action (Coontz & Martin, 1988; Kadushin & Martin, 1981; Parke & Collmer, 1975; Zigler & Hall, 1989).

Further corroboration for the physical punishment - physical abuse association comes from findings of a recent meta-analysis that examined the association between parental corporal punishment and various child behaviours and experiences. Gershoff

(2002) conducted separate meta-analyses to examine the association between parental corporal punishment and 7 childhood behaviours and outcomes, as well as 4 adulthood outcomes. One of the childhood outcomes investigated was the likelihood of the child becoming a victim of physical abuse which was defined in this study as 'the infliction of physical injury as a result of punching, beating, kicking, biting, burning, shaking or otherwise harming a child. The parent or caretaker may not have intended to hurt the child, rather the injury may have resulted from over-discipline or physical punishment' (p.540). The meta-analyses revealed that parental corporal punishment was associated significantly with all of the various behaviours and experiences examined, but its relation to physical abuse had one of the largest effect sizes confirming a strong association between corporal punishment and physical harm to the child. Such findings suggest that physical punishment and child abuse are not separate phenomena, differently motivated and executed, but that they are constructs defined primarily in terms of the degree of physical harm to the child.

Findings in Canada are very similar. For instance, in 1993, the Ontario Incidence Study of Reported Child Abuse and Neglect (OIS) examined the incidence of reported child maltreatment and the characteristics of the children and families investigated by child welfare agencies in the province of Ontario (Trocmé & McPhee, 1995). Findings indicated that over 70% of the physical abuse investigations occurred in the context of physical punishment (Trocmé & McPhee, 1995). Findings from the 1998 Ontario Incidence Study (which also examined the incidence of reported child maltreatment and the characteristics of children and families investigated by the province's children's aid societies) yielded similar findings. In 1998, 23% of all substantiated investigations of

child maltreatment involved physical abuse due to inappropriate punishment (Trocmé, Fallon, MacLaurin, & Copp, 2002). Similarly, the first national study of the incidence of child abuse and neglect reported to and investigated by child welfare services in Canada (the Canadian Incidence Study of Reported Child Abuse and Neglect: CIS) revealed that 69% of substantiated cases of child physical abuse “occurred as a result of inappropriate punishment that led to physical harm, or put the child at substantial risk of harm” (Trocmé et al., 2001, pp. 30-31). In an analysis of the CIS data, Trocmé and Durrant (2003) not only conclude that physical punishment cases are one of the most common types of maltreatment investigated by the Canadian child welfare system, but that as previous large-scale studies have found, most child physical abuse incidents occur within the context of a disciplinary interaction. That is, these authors found that the majority of physical abuse investigations and substantiated physical abuse reports were cases of physical punishment (Trocmé & Durrant, 2003).

These studies provide support for the notion that abuse is located on a continuum of physical force, rather than a unique form of violence distinguishable from noninjurious violence. However, other researchers have suggested that there are really two continua: one which operates when parents are rational and clear about the behaviour they wish to change; and a second which operates when parents are out of control, and reacting to various factors and not to the child alone (Williams, 1984). Whereas many researchers conceptualize child abuse as representing one end of a continuum of physical force, evidence has been presented to question this assumption.

*The “Distinct Forms of Violence” Position (Typologies Position)*

While the continuum of violence position suggests that the same factors that

explain violence at one end of the continuum should also explain violence at the other end and that rates of various forms of violence should be similar within time periods and cultures (Straus, 1983), the distinct forms of violence or Typologies position suggests otherwise. That is, the Typologies position suggests that different underlying patterns of factors are associated with different types of violence and that differences in the rates of different forms of violence exist within time periods and cultures. For example, Strassberg, Dodge, and Pettit (1994) examined the relation between parental spanking and other physical punishment of preschool children and children's aggressive behaviour toward peers later in kindergarten. The findings indicated that parents who spank have children who aggress toward peers more than children with nonspanking parents but less than children with violent parents. The authors conclude that the "differential prediction from spanking versus other physical punishment practices demonstrates the empirical utility of maintaining discriminations among theoretically distinct punishment practices" (p. 456).

In an attempt to provide further support for the Typologies position, Gelles (1991) reviewed rates of violence and abuse reported by Straus and Gelles (1986) and official report data. Straus and Gelles analyzed the results of two parent self-report surveys (one conducted in 1975, the other in 1985). In this study, overall violence referred to whether a parent used any minor violence (threw something; pushed, grabbed, or shoved; slapped or spanked) or any severe violence (kicked, bit, hit with a fist; hit or tried to hit with something; beat up the other; threatened with knife or gun; used a knife or gun) at least once during the 12-month period covered by the survey. Straus and Gelles found no change in the rate of overall violence toward children between 1975 and 1985. However,

they did find a 47% decrease in very severe violence (kicking, biting, punching, hitting, beating, threatening with a gun or knife, or using a gun or knife). Gelles (1991) contrasted these findings with those of officially reported cases of child abuse. For instance, he pointed to data collected by the American Association for Protecting Children (1989) which indicated that for all forms of maltreatment, there was a 225% increase in rates of reporting between 1976 and 1987. Similarly, the National Center on Child Abuse and Neglect conducted a national survey of the incidence of reported child abuse and neglect in 1988 and found that countable cases of child maltreatment increased 51% over the number of cases found in 1980 (Burgdorf, 1980; National Center on Child Abuse and Neglect, 1988). Although these increases may be due to the use of different definitions and methodologies, Gelles (1991) also suggests they may also indicate that each study tapped a different type of violence.

Gelles (1991) also reviewed another study that suggests physical punishment and abuse may be distinct forms of violence. This study compared violence toward children in Sweden and the United States and found that the rate of physical punishment in Sweden was lower than the rate in the United States (Gelles & Edfeldt, 1986). However, the rate of severe violence was the same in both countries. Further, the rates of severe violence were extremely low in both countries (4.1% in Sweden, 3.6% in the U. S.) compared to the rates of physical punishment reported (51.3% and 79.2%, respectively). Gelles suggests that these differences in the rates of physical punishment and severe violence can be attributed to the different generative causes of these two distinct forms of behaviour.

Finally, Gelles (1991) cites a study by Milner, Robertson, and Rogers (1990)

in which childhood history of abuse and child abuse potential in adulthood were examined. Although no significant difference in child abuse potential was found between those who experienced mild abuse and those who experienced no abuse, in various analyses significant differences were found between the group that experienced moderate abuse and the groups that experienced mild and no abuse. Significant differences in child abuse potential in adulthood were also found between the group that experienced severe abuse and the groups that experienced mild and no abuse.

Although the studies presented in this section might provide support for the Typologies position, the data and arguments presented must be critically examined. For instance, Milner, Robertson, and Rogers' (1990) findings come from an assessment of the relationship between the severity of physical abuse received or observed in childhood and adult child abuse potential scores. The value of highlighting differences in child abuse potential scores in adulthood to provide support for the notion that these groups of adults experienced distinct forms of violence in childhood is debatable.

Gelles' (1991) review of the changing rates of violence found in official report data suggests that each study tapped a different type of violence. However, the data sources he reviewed assessed on all forms of maltreatment, not on physical abuse specifically. Thus, these findings cannot be considered to provide support for the position that physical punishment and physical abuse specifically represent different forms of violence.

To date, the available data more strongly support the Continuum position. However, more systematic testing of this assumption is needed. This issue was addressed in the present study by examining whether injurious and

non-injurious physical abuse are predicted by the same set of factors. Although injury is an important criterion taken into account in child protection legislation and child protective investigations and decisions in Canada, little research attention has been given to distinguishing empirically among factors that account for variation in injury severity (Hegar, Zuravin, & Orme, 1994; Searberg, 1977; Zuravin & Orme, 1994). Knowledge in this area is important as it would aid not only in the development of empirically-based risk assessment tools but it would also assist child protective service workers in making decisions related to child protection (Hegar, Zuravin, & Orme 1994; Rosenthal, 1988; Seaberg, 1977; Zuravin & Orme, 1994). What follows is a brief review of what is known to date about predictors of injury severity due to child physical abuse.

## CHAPTER III

## Predictors of Injury Severity

The scant literature on prediction of injury severity comes from studies that have examined multiple correlates or predictors of injury severity and smaller child abuse research efforts based on data from state reporting systems and hospitals in the United States (Hegar, Zuravin, & Orme, 1994). Only five studies have examined multiple correlates of injury severity: first Seaberg (1977) and later Daley and Piliavin (1982) using Gil's (1970) data from his national study of child physical abuse; Hampton (1987) using data from the 1980 National Study of the Incidence and Severity of Child Abuse and Neglect (NIS-1); Rosenthal's (1988) analysis of confirmed child abuse and neglect reports made to the Colorado Central Registry from 1977-1984; and Zuravin and Orme's (1994) study of a subset of child physical abuse reports made to the Baltimore City Department of Social Services from January 1 to December 31, 1984. All of these studies employed multivariate analytic techniques to predict severity of injury but each defined severity somewhat differently.

To define severity of injury, Seaberg (1977) constructed a severity index by asking child protection service workers to rate the severity of 13 injury categories. An 11-point scale was used where 1 was "least serious" and 11 was "most serious". The means of the ratings were then used to assign scores to each category of injury and the sum of the scores for each case became the severity score. Daley and Piliavin (1982) attempted to overcome the problems inherent with this summative procedure (interpreting multiple-injury cases as more severe) by using the score of the most severe injury sustained by the victim as the indicator of severity. Similarly, Zuravin

and Orme (1994) assigned a severity code on the basis of the most severe injury sustained, regardless of the total number of injuries. Finally, Hampton (1987) used the NIS-1 categorization of severity of injury (fatal, serious, moderate, probable) whereas Rosenthal (1988) used the Colorado's Central Registry injury classification of "serious" or "minor injury". Minor injuries included burns, scalds, cuts, bruises, and welts not judged as serious whereas serious injuries included brain damage, skull fracture, bone fracture, dislocations, sprains, twists, internal injuries, serious burns and scalds, and serious cuts, bruises, and welts. Although these studies defined severity of injury differently and thus obtained different findings, they nonetheless provide essential information about the crucial factors antecedent to injury severity.

#### *Findings on Predictors of Injury Severity*

##### *Report Characteristics*

A few studies have examined the relationship between report characteristics (nature of the allegations, source of the report) and severity of injury. Zuravin and Orme (1994) found that severity was greater when the allegations were more severe and the report was from a medical professional. Hampton and Newberger's (1985) analysis of data from the NIS revealed that when hospitals were the source of the report, more serious injuries tended to be involved. Other studies have found severity to be less when the report was from a nonprofessional or an anonymous source (Adams, Barone, & Tooman, 1982). However, when anonymous reports are substantiated, they are as likely to be judged as severe as reports by professionals and nonprofessional reporters (Zuravin, Watson, & Ehrenschaft, 1987).

##### *Child Characteristics*

In their review of the literature on predictors of severe child physical abuse, Hegar, Zuravin, and Orme (1994) found that age of the child was the variable about which there was substantial agreement, with young children being at greater risk for severe physical injury. Support for this conclusion comes not only from studies that have examined multiple correlates or predictors of injury severity (Daley & Piliavin, 1982; Seaberg, 1977) but also from studies of child abuse fatalities in the United States (Anderson, Ambrosino, Valentine, Lauderdale, 1983; McCurdy & Daro, 1994). For instance, Rosenthal's (1988) analysis of confirmed child abuse and neglect reports made to the Colorado Central Registry from 1977 to 1984 found that younger children were at greater risk for severe injury. Similarly, Anderson, Ambrosino, Valentine, and Lauderdale's (1983) analysis of child deaths associated with abuse or neglect in Texas during 1975 through 1977 found a mean age of 1.8 years for fatalities due to child maltreatment compared to a mean of 10.1 years for the population of maltreated children. McCurdy and Daro's (1994) analysis of child abuse reports and fatalities for 1992 in the United States also supports the link between young age and severe outcomes of child abuse. Findings from this study indicated that very young children faced the greatest risk of dying from maltreatment. That is, results indicated that 87% of child maltreatment fatality victims were younger than age 5 and 46% of the victims were less than 1 year of age.

The relationship between sex of the child and severity of injury is much less clear (Hegar, Zuravin, & Orme, 1994). A review of studies that examined multiple predictors of injury severity indicated that only Rosenthal's (1988) analysis found that gender made a significant contribution to predicting severity of injury (Hegar, Zuravin, &

Orme, 1994). Rosenthal found that male children were significantly more likely to be severely injured. He also found that among younger victims (aged 12 and younger) boys outnumbered girls but among adolescent victims, female victims outnumbered male victims. Whereas some studies have found boys to be overrepresented in cases of major physical injury (American Humane Association, 1988), other studies have found no significant differences in the gender of victims (Anderson et al., 1983; Greenland, 1987; Jason & Andereck, 1983; Nixon, Pearn, Wilkey, & Petrie, 1981; Oliver, 1983).

Although research definitions of race have differed both in terms of categorization of race (i.e. White versus Non-White, Hispanic ethnicity) and the identity of the person whose race is being classified (i.e. some investigators classify the race of the child, others the family, while others classify the race of the perpetrator), various studies have found that victims of non-White perpetrators are at increased risk for severe injury (Daley & Piliavin, 1982; Hegar, Zuravin, & Orme, 1994; Johnson & Showers, 1985; Seaberg, 1977). For instance, Hampton (1987), in an analysis of data from the 1980 NIS-1, compared Black, White, and Hispanic child maltreatment cases and found higher rates of serious and moderate injury in Black families compared with the other two groups. A review of studies of child abuse fatalities also indicates that Black children are overrepresented (Hegar, Zuravin, & Orme, 1994). For instance, Jason and Andereck's (1983) study of fatal child abuse in Georgia revealed that incidence of child fatality was 2.6 times higher for Black children than for White children among families not receiving Aid to Families with Dependent Children (AFDC). However, fatality rates were comparable for Black and White AFDC children. Jason and Andereck (1983) also found that the incidence of child fatality was 2.8 times higher for Black perpetrators than for

White perpetrators. Although other studies also suggest that Black children are overrepresented in fatality cases (Anderson et al., 1983), findings concerning the relationship between race and child abuse fatalities must be interpreted with caution (Hegar, Zuravin, & Orme, 1994). That is, findings from such studies may be due to a greater willingness on the part of professionals to attach stigmatizing labels to families of colour or to the failure of some studies to control for socioeconomic status (Hegar, Zuravin, & Orme, 1994).

Results of studies that have examined the relationship between injury severity and child characteristics such as child misconduct, child physical/developmental disability, and child developmental delay are mixed and also require further investigation. For instance, Seaberg's (1977) study of factors that might account for variation in severity of child physical abuse examined the child's tendency to behave abnormally (and possibly stimulate the perpetrator to action) as well as limited physical or intellectual capabilities of the child as possible predictors of injury severity. His analysis revealed that these measures were not significantly associated with variation in injury severity. In fact, the coefficient for the child abnormal behaviour factor, although not statistically significant, was negative in sign indicating that the more the child's behaviour was seen as abnormal, the less severe the injuries. Similarly, Daley and Piliavin's (1982) analysis of possible predictors of injury severity revealed that the coefficient for the abnormal or atypical behaviour of the child was not statistically significant but negative in sign, indicating once again that the more atypical the behaviour of the child, the less severe the injuries. Daley and Piliavin, however, did find that misconduct and physical problems such as infirmity or disability, were important in predicting injury severity. Specifically,

decreased injury severity was associated with situations where there was a specific act of misconduct present while increased severity was associated with children with physical problems. Rosenthal's (1988) study of factors predictive of severity of physical abuse also found victims' physical problems or handicapping conditions to be associated with serious injuries. After controlling for age of victim, Rosenthal found victim handicapping condition to be predictive of severity for children aged 1 or 2. Within this group, 39.6% of handicapped victims but only 16.7% of nonhandicapped victims sustained serious injuries.

#### *Perpetrator Characteristics*

After the age of the victim, the sex of the perpetrator is the factor that has been linked most clearly and consistently to severity of child abuse injury (Hegar, Zuravin, & Orme, 1994). A review of studies of predictors of severe and fatal child physical abuse indicates that victims of male perpetrators suffer more serious injury (Hegar, Zuravin, & Orme, 1994). Support for this conclusion comes not only from studies that examine multiple predictors of injury severity but also from fatality studies that report a preponderance of male perpetrators in fatality cases (Anderson et al, 1983; Bergman, Larsen, & Mueller, 1986; Daley & Piliavin, 1982). For instance, Rosenthal's (1988) analysis of confirmed child abuse and neglect reports made to the Colorado Central Registry from 1977 to 1984 found that victims of male perpetrators tended to sustain more serious injuries. Similarly, Daley and Piliavin's (1982) analysis of the child abuse data collected by Gil (1970) also revealed that male perpetrators showed a tendency to inflict more severe injury. Findings from fatality studies further support these conclusions. For instance, Jason and Andereck's (1983) study of fatal child abuse in

Georgia revealed that incidence of child abuse death was 1.8 times higher when the perpetrators were male.

Although the research literature supports the link between sex of the perpetrator and severity of child abuse injury, the literature examining the relationship of perpetrator and victim as a predictor of injury severity is practically nonexistent. Rosenthal's (1988) study is cited as one of the most comprehensive studies of this variable (Hegar, Zuravin, & Orme, 1994). Rosenthal, who categorized stepparents and adoptive parents as "nonrelatives" ("relatives" was synonymous with blood kinship), found that "biological parent versus stepparent and relative versus nonrelative variables emerged as predictors of severity for male perpetrators only. In most age groups, stepfathers as opposed to biological fathers and male nonrelatives as opposed to male relatives were more likely to inflict serious injuries" (p. 269). Rosenthal also found that biological mothers as opposed to stepmothers and "unspecified" perpetrators (which he suggested may be the parents' lovers) inflicted significantly more serious injuries.

Results of the remaining studies on this question are mixed and thus provide little guidance concerning the question of relationship as a predictor of injury severity (Hegar, Zuravin, & Orme, 1994). For instance, although some fatality studies have found fathers (including biological, adoptive, or stepfathers) to be implicated as perpetrators of fatalities as often as are mothers (Anderson et al., 1983), other studies have found a high proportion of nonparent perpetrators to be involved in fatalities (Greenland, 1987). Margolin and Craft's (1990) analysis of abuse by adolescent caretakers, however, revealed that kinship and severity of injury were not related. Thus, more systematic examination of the relationship between perpetrator and victim as

a predictor of injury severity is needed.

The relationship between alcohol use and severity of child abuse injury also requires further investigation. For instance, whereas Rosenthal (1988) found parent alcohol dependence to be a modest predictor, Seaberg (1977) found it did not predict severity of injury. It is important to note however, that in Seaberg's study, a caretaker quarrel component was combined with alcohol intoxication to produce the factor that did not yield a significant coefficient. Thus, the difference in findings may be a function of a difference in measurement.

Results concerning the relationship between injury severity and perpetrator mental health problems are also mixed. For instance, although Rosenthal's (1988) study found parent mental health problems to be a modest predictor of injury severity, Daley and Piliavin (1982) found that it was not a significant predictor. The relationship between injury severity and perpetrator abuse history also requires further investigation. Only two studies have examined abuse history as a predictor of severity (Daley & Piliavin, 1982; Seaberg, 1977). These studies found the perpetrator's abuse history to have no effect in explaining injury severity.

#### *Socio-Economic Characteristics*

Results of studies that have examined the relationship between injury severity and other perpetrator characteristics such as employment status, income, and social isolation are also mixed. For instance, Seaberg's (1977) analysis of possible predictors of injury severity in child physical abuse revealed that employment status (being unemployed for more than 6 months) and perpetrator income were not important in predicting severity of injury. That is, the coefficients for extended unemployment and perpetrator income were

of very minor magnitude and not statistically significant. Similarly, in their reanalysis of the child abuse data collected by Gil (1970), Daley and Piliavin (1982) found that perpetrator employment status (being unemployed) and perpetrator income did not predict injury severity. However, Rosenthal's (1988) analysis of confirmed child abuse and neglect reports made to the Colorado Central Registry from 1977 to 1984 found unemployment of the father and lower income to be modest predictors of severity. Thus, the relationship between injury severity and perpetrator characteristics, such as income and employment status, is not clear. The relationship between injury severity and social isolation also requires further investigation. That is, although some studies have found social isolation to be a modest predictor of injury severity (Rosenthal, 1988), in others it has not reached statistical significance (Daley & Piliavin, 1982).

### *Summary*

Age of the child and sex of the perpetrator are the two factors that have been linked most consistently to severity of child physical abuse injury (Hegar, Zuravin, & Orme, 1994). Younger children and victims of male perpetrators are at greater risk of severe injury. Other factors that have been examined as predictors of injury severity such as source of the report, nature of the allegations, child's gender and race, and relationship of perpetrator and victim require further investigation. The relationship between injury severity and other child characteristics such as child misconduct, physical/developmental disability, and developmental delay; and other socio-economic and perpetrator characteristics such as income, employment status, social support, mental health problems, alcohol abuse, and perpetrator abuse history also require further investigation.

It is important to note that the evidence for these conclusions comes

predominantly from findings of American studies where reporting criteria may differ from those used in Canada. Thus, systematic examination of variables that could account for variation in severity of injury in Canada is worthwhile. Information on predictors of injury severity would serve two purposes. First, it would contribute to the ongoing development of empirically based risk assessment tools and would thus assist child protective service workers in making decisions related to child protection (Hegar, Zuravin, & Orme, 1994; Rosenthal, 1988; Seaberg, 1977; Zuravin & Orme, 1994). Second, it would contribute to the development of theory regarding the nature of child physical abuse, as it would help to answer the question of whether injurious and non-injurious physical abuse are the same phenomena, predicted by the same set of factors.

#### Purpose of the Present Study

In an attempt to address the lack of research on predictors of injury in Canada, the present investigation examined victim, perpetrator, and socio-economic characteristics that might account for the presence or absence of child physical abuse injury with a Canadian sample of physically abused children.<sup>1</sup>

Through this analysis, the present study was designed to contribute to the Continuum versus Typologies debate by examining the power of child, perpetrator, and socio-economic characteristics to predict injury in cases of reported child physical abuse. It was hypothesized that if the Continuum position is valid, injury would be predicted by child age and perpetrator sex, demonstrating that relative size and strength,

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<sup>1</sup> The present study did not permit an analysis of injury severity due to the near absence of cases of moderate and severe injury in the nationally representative data set used. Therefore, this study examined the relationship of victim, perpetrator, and socio-economic variables to the presence of injury per se. Further explanation follows in Chapter IV.

not qualitative differences in the perpetrator's characteristics determine the presence of injury. However, if the Typologies position is valid, injury would be predicted by other child, perpetrator, and socio-economic characteristics such as the vulnerability of the child to abuse, parent functioning, and socio-economic stress.

It was expected that the findings of the present study would have practical as well as theoretical implications. An understanding of the predictors of injury would assist in child protection investigations and decisions that emphasize injury as an important criterion. An understanding of the factors that distinguish injurious from non-injurious acts of violence would contribute to the development of theory in this field as well as the development of policies aimed at treating and preventing violence.

#### *Selection of Predictors*

The predictors examined in the present study were selected on the basis of previous research.

#### *Child Characteristics*

Previous findings suggest that age of the child is an important predictor of injury severity with young children being at greater risk for severe physical injury. The present investigation examined the power of child age to predict the presence of injury in a Canadian sample. Child misconduct, child physical/developmental disability, and child developmental delay were also examined as predictors of injury. These variables served as indicators of the vulnerability of the child to abuse. Results of studies that have examined the relationship between these child characteristics and injury severity are mixed and thus the ability of these variables to predict injury needs to be further investigated.

*Perpetrator Characteristics*

After the age of the victim, the sex of the perpetrator is the factor that has been linked most clearly and consistently to severity of child abuse injury. That is, victims of male perpetrators tend to suffer more serious injury. The present investigation examined the power of perpetrator sex to predict injury in a Canadian sample. The predictive power of caregivers' mental health problems and alcohol abuse were also examined. Results of studies that have examined the relationship between these characteristics and injury severity are mixed and require further investigation.

The predictive power of other caregiver characteristics such as caregivers' drug abuse, physical health problems, and cognitive impairment were also examined. These characteristics have been linked to child physical abuse. For instance, a number of studies indicate a strong association between substance abuse and child maltreatment (Black & Myer, 1980; Chaffin, Kelleher, & Hollenberg, 1996). Whipple and Webster-Stratton (1991) found that physically abusive mothers were more likely to report having a drug history than non-abusive mothers. Similarly, Wolfner and Gelles (1993), using the 1985 National Family Violence Survey, found that drug use was associated with both minor and severe parent-to-child physical aggression.

The contribution of perpetrator physical health problems to child physical abuse is also well documented. Although not frequently studied, some researchers report that child physical abusers have more physical handicaps and health problems (Conger, Burgess, & Barrett, 1979). For instance, Milner (1986) found that abusive parents relative to matched comparison parents, indicate on the Child Abuse Potential Inventory that they have more physical handicaps and health problems than matched comparison

parents. Similarly, Lahey, Conger, Atkeson, and Treiber (1984) found that abusive mothers reported more physical symptoms than two matched comparison groups.

The relationship between cognitive factors and child physical abuse is also well established. Several reports indicate that mentally retarded parents are more likely to maltreat their children (Schilling, Schinke, Blythe, & Barth, 1982; Seagull & Scheurer, 1986). Recently however, the role of mental retardation as a factor in child abuse has been questioned (Tymchuk & Andron, 1990; Tymchuk, Andron, & Unger, 1987). Although the role of general intelligence in child physical abuse remains under debate, there is evidence that abusers have problems in specific cognitive areas such as abstract reasoning ability, flexibility in understanding children's behaviour, and ability to generate appropriate child management strategies (Hansen, Pallota, Tishelman, Conaway, & MacMillan, 1989; Walker, Bonner, & Kaufman, 1988). Elliott (1988) has also suggested that cognitive deficits such as limited vocabulary and slowness of thought related to minimal brain dysfunction reduces the parents' ability to effectively communicate, which decreases their ability to adequately cope with family problems. Such cognitive difficulties are believed to increase the likelihood of inappropriate parental behaviour, including child physical abuse. It is important to note that cognitive impairment as well as other perpetrator characteristics such as perpetrator physical health problems, drug abuse, alcohol abuse, and mental health problems served as indicators of parent functioning.

#### *Socio-Economic Characteristics*

The predictive power of other characteristics such as caregivers' social support and income source were also examined. As previously noted, results of studies that have

examined the relationship between these characteristics and injury severity are mixed and require further investigation. Social support served as the indicator of social stress and income source was used to construct the measure of economic stress.<sup>2</sup>

### Hypotheses

On the basis of the weight of findings to date, it was hypothesized that the Continuum position would be supported. Specifically, it was expected that child age and perpetrator sex would predict injury to the child. The vulnerability of the child to abuse, parent functioning, social stress, and economic stress were not expected to add to the predictive power of child age and perpetrator sex.

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<sup>2</sup> Originally, social support and income source were to serve as indicators of socio-economic stress. However, a frequency analysis of the socio-economic stress measure constructed using these variables revealed that there were too many missing cases. Thus, the stress variable was broken down into its two components. Social support was used as the measure of social stress and a new index was constructed to serve as the measure of economic stress. Further explanation follows in Chapter IV.

## CHAPTER IV

## Method

This study examined the data collected for the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS). What follows is a brief description of the data collection instrument, design, and method of data collection used in the CIS. The sample selected for the present study as well as the method of data analysis used are also described.

*Canadian Incidence Study of Reported Child Abuse and Neglect*

The Canadian Incidence Study of Reported Child Abuse and Neglect is the first national study to examine the incidence of reported child abuse and neglect in Canada (CIS: Trocmé et al., 2001). Child welfare workers recorded information about children and their families as they came into contact with child welfare services over a 3 month sampling period from October 1 to December 31, 1998. The study includes substantiated, suspected, and unsubstantiated child welfare investigations but does not include maltreated children who were not reported to child welfare services, new allegations on cases currently open at the time of case selection, screened-out uninvestigated reports, or cases that were investigated only by the police (Trocmé et al., 2001).

*Maltreatment Assessment Form*<sup>3</sup>

The main data collection instrument used for the CIS was the Maltreatment Assessment Form, which was completed by the primary investigating child welfare worker upon completion of a child welfare investigation. This form was pilot tested to assess the level of clarity of the items, completion rates, the relevance of the information requested, and to examine case selection procedures. Child welfare pilot sites were

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<sup>3</sup> All information about the CIS procedures is taken from Trocmé et al., 2001.

selected based on convenience of location and availability. Pilot test feedback revealed that completion time for the instrument was under 10 minutes, that the instrument was compatible with provincial and territorial child welfare statutes, and that case selection procedures were compatible with the varying investigation procedures (Trocmé et al., 2001).

The Maltreatment Assessment Form included an Intake Face Sheet, a Household Sheet, and a Child Sheet. The Intake Face Sheet collected information about the report or referral as well as information about the child(ren) involved. However, no directly identifying information was collected. Specifically, this sheet requested information on the date of the referral, referral source, number of children in the home under the age of 19, age and sex of children, whether there was suspected or alleged maltreatment, whether the case was screened out, the family's postal code, and the reason for the referral or screening out. This information was obtained for all cases opened during the study period whether or not an allegation of maltreatment had been made. However, the remainder of the form was only completed when abuse or neglect was suspected at any point during the investigation.

The Household Information Sheet was completed only when at least one child in the family was investigated for maltreatment. The household was defined as all the adults living at the address of the investigation. This sheet collected information on up to two caregivers, including their relationship to the child, sex, age, income source and level, educational level, and ethno-cultural origin. Other information collected included the nature of the contact with the caregiver (i.e. cooperative/not cooperative), the caregiver's own history of abuse, whether other adults lived in the home, housing

accommodations, caregiver functioning, case status, and referral(s) to other services.

Finally, the Child Information Sheet was completed for each child who was investigated for maltreatment. This sheet collected information on up to three different forms of maltreatment, duration of maltreatment, levels of substantiation, and the relationship of the alleged perpetrator to the child. The sheet also collected information on child functioning, physical and emotional harm to the child caused by the investigated maltreatment, child welfare court activity, out-of-home placement, police involvement, and the caregiver's response to sexual abuse. An open comment section was also provided for additional comments or for situations/cases that did not directly apply to the categories provided.

### *Design*

The Canadian Incidence Study used a multi-stage sampling design to select a representative sample of child welfare offices across Canada and to sample cases within these offices. From a national list of 327 child welfare service areas, a total of fifty-one sites was randomly selected. Cases within each of these sites over the 3-month period of October to December 1998 were selected for study. These cases were screened to identify those that met CIS definitions of suspected maltreatment. Children who had been investigated because of suspected maltreatment were then identified, yielding a final sample of 7,672 child maltreatment investigations. A detailed diagram and description of the four-stage sampling process used in the CIS can be found in Trocmé et al., 2001.

### *Data Collection*

Research associates in each of these CIS sites were responsible for coordinating site training and case selection. Child welfare workers received training

in the implementation of the Maltreatment Assessment Form and case selection procedures prior to data collection. Data for the CIS were then collected using the Maltreatment Assessment Form.

Research associates were also responsible for visiting the CIS sites regularly to collect forms, respond to questions, and monitor study progress. Research associates also reviewed the Maltreatment Assessment Forms for completeness and consistency before identifying information was stored on site and non-identifying information was sent to the central data entry locations of Montreal (for Quebec sites) or Toronto (for the remaining sites). Once at the data entry locations, forms were verified for completeness and consistency before being entered into the computer. The databases from the central data entry locations were then combined into one database yielding the final sample of 7,672 cases of investigated child maltreatment.

### *Procedure*

#### *Cases Selected for the Present Study*

Substantiated reports of child physical abuse where the perpetrator was either the biological mother or biological father were selected for the present study. This yielded a final subsample of 512 cases. The sample for this study was limited to biological parents to eliminate the potentially confounding effects of step-parenting relationships. The CIS defined substantiated cases as those for which the balance of evidence indicated that abuse or neglect had occurred. Physical abuse cases were those in which the investigated child suffered physical harm or was at substantial risk of suffering physical harm at the hands of his or her alleged perpetrator (Trocmé et al., 2001). The CIS identified three subtypes of physical abuse: Shaken Baby Syndrome (1% of substantiated physical abuse

cases), Inappropriate Punishment (69% of substantiated physical abuse cases), and Other Physical Abuse (3% of substantiated physical abuse cases). The present study focused on substantiated cases of Inappropriate Punishment to maximize homogeneity of cases. Inappropriate punishment as defined by the CIS referred to “child abuse that had occurred as a result of inappropriate punishment (i.e., hitting with a hand or object) that has led to physical harm, or put the child at substantial risk of harm. The judgment of appropriateness is based on various factors including the severity of harm, the amount of force used, the type of punishment relative to the age of the child, and the frequency of punishment” (Trocmé et al., 2001; p. 30-31).

#### *Variables Selected for the Present Study*

To examine the present study’s hypothesis that child age and perpetrator sex would predict injury to the child and that other child, perpetrator, and socio-economic characteristics (i.e., the provocative nature of the child, parent functioning, social stress, and economic stress) would not add to the predictive power of child age and perpetrator sex, a number of variables were selected, recoded, and four indices were constructed.

*Outcome variable: Presence of injury.* Using the CIS physical harm categories, an Injury Severity Index was first created<sup>4</sup>. This index was constructed using the variables that pertain to the physical harm suspected or known to be caused by the investigated maltreatment. These variables included the degree of endangerment sustained by the maltreatment (q18b\_p); whether medical treatment was required for the harm inflicted (q18a); and whether any physical harm (q18\_1), bruises, cuts, and scrapes

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<sup>4</sup> The present study did not permit an analysis of injury severity due to the near absence of cases of moderate and severe injury in the data set used. This section details the Injury Severity Index originally constructed and describes the categorical level variable chosen as the outcome variable for this study.

(q18\_2), burns and scalds (q18\_3), broken bones (q18\_4), head trauma (q18\_5), or fatal harm (q18\_6) was present.

The Injury Severity Index was conceptualized as a 4-point scale. Level 0 – no injury – indicated that the child experienced no harm, required no medical treatment, and suffered no serious endangerment to health or safety. Level 1 – mild injury – indicated that the child sustained bruises and/or cuts and/or scrapes, but no medical treatment was required and there was no serious endangerment to health or safety. Level 2 – moderate injury – indicated that the child sustained bruises and/or cuts and/or scrapes and that medical treatment was required but there was no serious endangerment to health or safety. Level 3 – severe injury – indicated that the child sustained burns, scalds, broken bones, head trauma and that medical treatment was required, and that serious endangerment to health or safety was present. Fatalities were also included in this category.

A preliminary frequency analysis of this index revealed that its distribution was highly skewed, with very few cases in the moderate (N= 2) and severe (N= 4) categories. As a result, a categorical level variable that assessed whether harm had been inflicted was used instead (Q18\_1). Response categories for this variable included: “Yes, harm was inflicted” and “No, harm was not inflicted”.

*Predictor variables.* The child age variable chosen for this study was an interval level variable (q13a) which measures age in years. Thus, no changes were made to it. For the perpetrator sex variable, a dummy variable was created so that a value of 0 corresponded to female and a value of 1 corresponded to male.

To measure the vulnerability of the child to abuse, a Vulnerability to Abuse Index was constructed. This index was constructed using variables that pertain to the investigated child's functioning: whether the child exhibits developmental delay (q13\_1dv), a physical/developmental disability (q13\_2dv), or a behaviour problem (q13\_9dv). These variables are dummy variables such that a value of 0 indicates that the problem has not been noted by the investigating child welfare worker whereas a value of 1 indicates that the problem has indeed been noted. Originally, the Vulnerability to Abuse Index was constructed to range in value from 0 to 3 where 0 indicated that the child exhibited no developmental delay, no physical/developmental disability, and no behaviour problem. A value of 1 indicated that one of these problems was present whereas a value of 2 indicated that two of these problems were present. A value of 3 indicated that the child exhibited all three problems: developmental delay, a physical/developmental disability, and a behaviour problem.

A preliminary frequency analysis of this index revealed that its distribution was highly skewed with very few cases falling at the 2 and 3 levels ( $N = 16$ ,  $N = 3$  respectively). As a result, this index was recoded into a categorical level variable where 0 indicated that none of these problems (developmental delay, physical/developmental disability, behaviour problem) were present whereas a value of 1 indicated that at least one of these problems was present.

The Parent Functioning Index was constructed using variables that pertain to the caregivers' functioning, specifically whether cognitive impairment (q10\_4dv), mental health issues (q10\_5dv), physical health issues (q10\_6dv), alcohol abuse (q10\_1pdv), and drug abuse (q10\_2pdv) apply to caregivers in the household. These variables are dummy

variables; a value of 0 indicates that the problem has not been noted by the investigating child welfare worker and a value of 1 indicates that the problem is present in the household. The Parent Functioning Index ranged in value from 0 to 5. The value assigned indicating the number of these problems that were present in the household.

A preliminary frequency analysis of this index revealed that this variable was highly skewed with the majority of the cases falling in the 0 category (N = 237). The number of cases falling at the 1, 2, 3, 4, and 5 levels decrease as the number of problems present in the household increase. Thus, this index was recoded into a categorical level variable where 0 indicated that none of these problems (cognitive impairment, mental health issues, physical health issues, alcohol abuse, and drug abuse) were present in the household whereas a value of 1 indicated that at least one of these problems was present.

A measure of Socio-Economic Stress was also constructed. Originally, this measure was to be constructed from variables that pertain to the caregivers' primary income source (q2a, q2b) and the caregivers' social support (q10\_7). This index was to range in value from 0 to 1 where 0 indicated the caregivers had adequate social supports, none of the caregivers was on social assistance, and at least one of the caregivers was working full time. A value of 1 would indicate that the caregivers had few social supports, that none of the caregivers was working full time, and that at least one of them was on social assistance.

A preliminary frequency analysis of this index revealed that there were too many missing cases. The problem was that there were many families under economic stress who had adequate social supports and vice-versa. Combining these two variables into one index yielded 186 missing cases ( 46.75 percent of the sample). To account for this

problem as well as the fact that there were not too many caregiver Bs (the construction of the socio-economic index as discussed above was based on responses from both caregiver As and Bs), the stress variable was broken down into its two components. Thus, the caregivers' social support variable (q10\_7) was used as the measure of social stress and a new index was constructed to serve as the measure of economic stress. The caregivers' social support variable was recoded so that a value of 0 indicated that caregivers had adequate social supports (no social stress) and a value of 1 indicated that caregivers had few social supports (social stress). The measure of economic stress was constructed so that a value of 0 indicated none of the caregivers was on social assistance and both or at least one of the caregivers was working full time. A value of 1 indicated that both or at least one of the caregivers was on social assistance.

#### *Method of Data Analysis*

To examine the present study's hypotheses, various models were constructed and evaluated through logistic regression. The categorical variables selected and constructed for the outcome and predictor variables were used in this analysis. A total of 5 models were tested. Model 1 consisted of the child age and the perpetrator sex variables. The remaining models were then constructed by adding each of the remaining predictor variables sequentially to see if these variables added to the predictive power of child age and perpetrator sex. That is, Model 2 consisted of the child age, perpetrator sex, and the vulnerability to abuse index. Model 3 consisted of the child age, perpetrator sex, and the parent functioning index. Model 4 consisted of the child age, perpetrator sex, and the economic stress index. The final model, Model 5, consisted of the child age, perpetrator sex, and the social stress index.

*Weighting*

The CIS used a multi-stage sampling design to select a representative sample of child welfare agencies across Canada and to sample cases within these agencies. This sampling method introduces design effects into the data gathered. A design effect is a measure of the extent to which the variance of an estimate is changed by the departure from simple random sampling (Sedlak & Winglee, 2001). To account for the complex design of this survey as well as for design effects, the statistical analysis of the present study used weighted data (the weight assigned to each case) so findings would be generalized to the national population of child investigations. WesVar, a statistical software package used in the analysis of data from complex surveys, was also used. WesVar computes estimates and replicate variance estimates that reflect complex sampling and estimation procedures (Westat, 2002). Thus, to obtain meaningful results, the case weights provided in the CIS dataset were used and replicate weights were developed using WesVar.

## CHAPTER V

## Results

*Univariate Descriptive Analysis*

A descriptive analysis of the outcome and predictor variables revealed that physical harm was present in 41.63% of the cases (see Table 1). The most common age category was 12 to 15 years (39.60%), only 7.81% of the children were in the 0 to 3 age category. Of the perpetrators, 45.72% were male and 42.79% were female.

The descriptive analysis of the Vulnerability to Abuse, Parent Functioning, Economic Stress, and Social Stress indices revealed that the percentage of cases with such problems was fairly low (33.26%, 18.84%, 25.36%, and 12.57% respectively). In fact, the majority of cases had 'No problems' on each index (56.78%, 56.02%, 63.39%, and 71.73% respectively). At least one-half of the families had a caregiver working full time (49% of Caregiver A's; 36% of Caregiver B's). A minority of families (23.66%) primarily obtained their income through social assistance.

Table 2 contains the results of the crosstabulations of the predictor variables by physical harm. The relationships between the variables were examined using chi square tests of significance. Of those children who were physically harmed, 7.39% were aged 0 to 3 and 40.95% were aged 12-15 years. The association between harm and child age was not significant ( $\chi^2 = 0.20, p > .05$ ), nor was the association between harm and perpetrator sex ( $\chi^2 = 0.72, p > .05$ ).

The crosstabulation also shows that of those children who were physically harmed, 25.51% had confirmed problems in functioning (Vulnerability to Abuse Index) whereas of those not harmed, 38.79% had such problems ( $\chi^2 = 9.01, p < .05$ ). An

Table 1  
Frequencies for Predictor and Outcome Variables<sup>a</sup>

Variable	Frequency	Percent of Cases
<b>Physical Harm</b>		
No	4236.65	58.37
Yes	3021.32	41.63
Missing data	0.00	0.00
<b>Child's age</b>		
0-3 yrs	566.78	7.81
4-7 yrs	1638.78	22.58
8-11 yrs	2178.52	30.02
12-15 yrs	2873.89	39.60
Missing data	0.00	0.00
<b>Perpetrator sex</b>		
Female	3105.75	42.79
Male	3318.48	45.72
Missing data	833.74	11.49
<b>Vulnerability to abuse index</b>		
No problems	4121.29	56.78
Problems	2414.13	33.26
Missing data	722.55	9.96
<b>Child functioning: Developmental delay</b>		
Not noted	6649.46	91.62
Suspected	286.76	3.9
Confirmed <sup>b</sup>	321.75	4.43
Missing data	0.00	0.00

Variable	Frequency	Percent of Cases
<b>Child functioning: Physical/developmental disability</b>		
Not noted	6872.72	94.69
Suspected	74.58	1.03
Confirmed <sup>b</sup>	310.67	4.28
Missing data	0.00	0.00
<b>Child functioning: Behaviour problem (home/community)</b>		
Not noted	4321.45	59.54
Suspected	662.47	9.13
Confirmed <sup>b</sup>	2274.05	31.33
Missing data	0.00	0.00
<b>Parent functioning index</b>		
No problems	4066.27	56.02
Problems	1367.74	18.84
Missing data	1823.96	25.13
<b>Caregiver concerns: Cognitive impairment</b>		
Not noted	6882.46	94.83
Suspected	246.47	3.40
Confirmed <sup>b</sup>	129.04	1.78
Missing data	0.00	0.00
<b>Caregiver concerns: Mental health issues</b>		
Not noted	5469.53	75.36
Suspected	1229.57	16.94
Confirmed <sup>b</sup>	558.87	7.70
Missing data	0.00	0.00
<b>Caregiver concerns: Physical health issues</b>		
Not noted	6646.03	91.57

Variable	Frequency	Percent of Cases
Caregiver concerns: Physical health issues (cont'd)		
Suspected	118.86	1.6
Confirmed <sup>b</sup>	493.08	6.79
Missing data	0.00	0.00
Caregiver concerns: Alcohol abuse		
Not noted	5539.19	76.32
Suspected	1242.19	17.11
Confirmed <sup>b</sup>	476.59	6.57
Missing data	0.00	0.00
Caregiver concerns: Drug abuse		
Not noted	6663.85	91.81
Suspected	496.92	6.85
Confirmed <sup>b</sup>	97.20	1.34
Missing data	0.00	0.00
Economic stress index		
No stress	4600.60	63.39
Stress	1840.70	25.36
Missing data	816.67	11.25
Caregiver A: Primary income source		
Full time <sup>b</sup>	3570.23	49.19
Part time <30hrs	879.34	12.12
Multiple jobs	68.49	0.94
Seasonal	141.11	1.94
Unemployment	67.37	0.93
Social assistance <sup>b</sup>	1717.18	23.66
Other benefits	62.72	0.86

Variable	Frequency	Percent of Cases
Caregiver A: Primary income source (cont'd)		
Unknown	331.38	4.57
None	388.99	5.36
Missing data	30.66	0.42
Caregiver B: Primary income source		
Full time <sup>b</sup>	2617.64	36.07
Part time <30hrs	296.74	4.09
Multiple jobs	257.93	3.55
Seasonal	45.28	0.62
Unemployment	17.22	0.24
Social assistance <sup>b</sup>	503.93	6.94
Other benefits	21.70	0.30
Unknown	374.94	5.17
None	130.08	1.79
Missing data	2992.51	41.23
Social stress index: Few social supports		
No Stress	5206.02	71.73
Stress	912.36	12.57
Missing data	1139.59	15.70

<sup>a</sup>Frequencies and percentages are based on weighted data. <sup>b</sup>Identifies the categories used to construct each index.

Table 2

Percentage of Participants Who Sustained Physical Harm by Predictor Variables

Variable	Physical Harm			
	Yes		No	
	<u>N</u>	(%)	<u>N</u>	(%)
<b>Child's age</b>				
0-3 yrs	223.38	(7.39)	343.40	(8.11)
4-7 yrs	649.09	(21.48)	989.69	(23.36)
8-11 yrs	911.52	(30.17)	1267.00	(29.91)
12-15 yrs	1237.33	(40.95)	1636.56	(38.63)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
<b>Perpetrator sex</b>				
Female	1227.46	(40.63)	1878.29	(44.33)
Male	1537.98	(50.90)	1780.50	(42.03)
Missing data	255.88	(8.47)	577.86	(13.64)
Total	3021.32	(100.00)	4236.65	(100.00)
<b>Vulnerability to abuse index *</b>				
No problems	1761.09	(58.29)	2360.20	(55.71)
Problems	770.61	(25.51)	1643.52	(38.79)
Missing data <sup>a</sup>	489.62	(16.21)	232.93	(5.50)
Total	3021.32	(100.00)	4236.65	(100.00)
<b>Child functioning: Developmental delay</b>				
Not noted	2819.60	(93.32)	3829.86	(90.40)
Suspected	103.63	(3.43)	183.13	(4.32)
Confirmed <sup>b</sup>	98.09	(3.25)	223.66	(5.28)

Variable	Physical Harm			
	<u>Yes</u>		<u>No</u>	
	<u>N</u>	(%)	<u>N</u>	(%)
Child functioning: Developmental delay (cont'd)				
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Child functioning: Physical/developmental disability				
Not noted	2913.96	(96.45)	3958.76	(93.44)
Suspected	52.35	(1.73)	22.23	(0.52)
Confirmed <sup>b</sup>	55.01	(1.82)	255.66	(6.03)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Child functioning: Behaviour problem (home/community) *				
Not noted	1819.83	(60.23)	2501.62	(59.05)
Suspected	489.62	(16.21)	172.85	(4.08)
Confirmed <sup>b</sup>	711.87	(23.56)	1562.18	(36.87)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Parent functioning index				
No problems	1343.51	(44.47)	2722.76	(64.27)
Problems	531.75	(17.60)	835.99	(19.73)
Missing data <sup>a</sup>	1146.06	(37.93)	677.90	(16.00)
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver concerns: Cognitive impairment				
Not noted	2800.00	(92.67)	4082.46	(96.36)
Suspected	159.70	(5.29)	86.77	(2.05)

Variable	Physical Harm			
	<u>Yes</u>		<u>No</u>	
	<u>N</u>	(%)	<u>N</u>	(%)
Caregiver concerns: Cognitive impairment (cont'd)				
Confirmed <sup>b</sup>	61.62	(2.04)	67.42	(1.59)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver concerns: Mental health issues *				
Not noted	2089.78	(69.17)	3379.75	(79.77)
Suspected	786.58	(26.03)	442.99	(10.46)
Confirmed <sup>b</sup>	144.96	(4.80)	413.91	(9.77)
Missing data	0.0	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver concerns: Physical health issues				
Not noted	2719.26	(90.00)	3926.77	(92.69)
Suspected	73.13	(2.42)	45.73	(1.08)
Confirmed <sup>b</sup>	228.93	(7.58)	264.15	(6.23)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver concerns: Alcohol abuse *				
Not noted	1942.42	(64.29)	3596.77	(84.90)
Suspected	863.83	(28.59)	378.36	(8.93)
Confirmed <sup>b</sup>	215.07	(7.12)	261.52	(6.17)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver concerns: Drug abuse				
Not noted	2701.00	(89.40)	3962.85	(93.54)
Suspected	317.79	(10.52)	179.13	(4.23)

Variable	Physical Harm			
	Yes		No	
	<u>N</u>	(%)	<u>N</u>	(%)
Caregiver concerns: Drug abuse (cont'd)				
Confirmed <sup>b</sup>	2.53	(0.08)	94.67	(2.23)
Missing data	0.00	-	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Economic stress index *				
No stress	2149.78	(71.15)	2450.82	(57.85)
Stress	516.12	(17.08)	1324.58	(31.26)
Missing data	355.42	(11.76)	461.25	(10.89)
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver A: Primary income source				
Full time <sup>b</sup>	1690.70	(55.96)	1879.53	(44.36)
Part time <30hrs	374.33	(12.39)	505.01	(11.92)
Multiple jobs	68.49	(2.27)	0.00	-
Seasonal	6.85	(0.23)	134.26	(3.17)
Unemployment	34.53	(1.14)	32.84	(0.78)
Social assistance <sup>b</sup>	513.20	(16.99)	1203.98	(28.42)
Other benefits	13.58	(0.45)	49.14	(1.16)
Unknown	95.39	(3.16)	236.49	(5.58)
None	193.59	(6.41)	195.40	(4.61)
Missing data	30.66	(1.01)	0.00	-
Total	3021.32	(100.00)	4236.65	(100.00)
Caregiver B: Primary income source				
Full time <sup>b</sup>	1043.25	(34.53)	1574.39	(37.16)
Part time <30hrs	60.86	(2.01)	235.88	(5.57)
Multiple jobs	57.43	(1.90)	200.50	(4.73)

Variable	Physical Harm			
	Yes		No	
	<u>N</u>	(%)	<u>N</u>	(%)
Caregiver B: Primary income source (cont'd)				
Seasonal	10.99	(0.36)	34.29	(0.81)
Unemployment	11.48	(0.38)	5.74	(0.14)
Social assistance <sup>b</sup>	195.23	(6.46)	308.70	(7.29)
Other benefits	0.00	-	21.70	(0.51)
Unknown	230.81	(7.64)	144.13	(3.40)
None	100.25	(3.32)	29.83	(0.70)
Missing data	1311.02	(43.39)	1681.49	(39.69)
Total	3021.32	(100.00)	4236.65	(100.00)
Social stress index: Few social supports				
No Stress	2022.10	(66.93)	3183.92	(75.15)
Stress	381.47	(12.63)	530.89	(12.53)
Missing data	617.75	(20.45)	521.84	(12.32)
Total	3021.32	(100.00)	4236.65	(100.00)

<sup>a</sup>Missing data on the indices is primarily due to the exclusion of 'suspected' cases in the construction of the indices. <sup>b</sup>Identifies the categories used to construct each index.

\* $p < 0.05$

examination of the children's specific problems revealed that this association was due to the frequencies of behaviour problems in each of the two groups. Children who were not physically harmed were more likely to have confirmed behaviour problems. Children who were physically harmed were more likely to have confirmed but not suspected behaviour problems ( $\chi^2 = 8.17, p < .05$ ).

On the Parent Functioning Index, no association was found between physical harm and parent functioning ( $\chi^2 = 2.60, p > .05$ ). Of those families in which the child was harmed, 17.60% had such problems, while 19.73% of families in which the child was not harmed had such problems. However, among families in which the child was not physically harmed, caregiver mental health issues were twice as likely to be confirmed, but half as likely to be suspected as they were among families in which the child was physically harmed ( $\chi^2 = 7.71, p < .05$ ). Among families in which the child was not physically harmed, it was less likely that alcohol abuse was suspected than it was among families in which the child was physically harmed ( $\chi^2 = 14.75, p < .05$ ).

Of those families with children who were physically harmed, 17.08% were under economic stress whereas of those who were not harmed 31.26% were under this type of stress ( $\chi^2 = 3.98, p < .05$ ). No significant association was found between physical harm and caregiver social stress ( $\chi^2 = 1.53, p > .05$ ). Of those children who were physically harmed, 12.63% had caregivers who experienced social stress (had few social supports). Of those children who were not physically harmed, 12.53% had caregivers who experienced such stress. However, for families in which the child was physically harmed, missing data was twice as likely on this index than it was for families in which the child was not physically harmed.

### *Multivariate Analysis*

Table 3 provides the results of the logistic regression on physical harm. All cases for which data were missing on any variable were excluded from the analysis. For each model, a logistic regression was conducted and the odds ratio was examined.

#### *Model 1: Child Age and Perpetrator Sex*

The first model included only the child age and perpetrator sex variables. This model represented the 'Continuum' assumption; that is, the child's physical vulnerability due to small size and strength relative to those of the perpetrator would predict the likelihood of physical injury. Contrary to the study's hypothesis, the results of the logistic regression revealed that neither variable affected the likelihood of injury ( $p > .05$ ).

#### *Model 2: Child Age, Perpetrator Sex and Vulnerability to Abuse Index*

This model tested the 'Typologies' assumption. If the 'Typologies' position is valid, injury would be predicted by other child, perpetrator, and socio-economic characteristics above and beyond the effects of the child's relative size and strength. This model examined whether child functioning is a determinant of physical harm to the child. As predicted, the presence of child functioning problems did not affect the likelihood of physical harm ( $p > .05$ ).

#### *Model 3: Child Age, Perpetrator Sex and Parent Functioning Index*

This model also tested the 'Typologies' assumption; that is, that the caregivers' psychological functioning is a determinant of physical harm to the child. As predicted, parent functioning did not affect the likelihood of injury ( $p > .05$ ). However, in this model perpetrator sex approached significance ( $p = 0.092$ ) and the odds ratio indicated that male perpetrators were twice as likely to cause injury than female perpetrators.

*Model 4: Child Age, Perpetrator Sex and Economic Stress Index*

This model tested the 'Typologies' assumption by examining whether economic stress is a determinant of physical harm to the child. As predicted, the presence of economic stress did not affect the likelihood of physical harm ( $p > .05$ ). Although the odds ratio approached significance ( $p = 0.068$ ), the odds ratio itself was small (0.38).

*Model 5: Child Age, Perpetrator Sex and Social Stress Index*

The final model also tested the 'Typologies' assumption. This model examined whether social stress is a determinant of physical harm to the child. As expected, social stress did not affect the likelihood of injury ( $p > .05$ ).

*Multivariate Analysis Summary*

Contrary to this study's hypothesis, child age and perpetrator sex did not predict injury to the child. As expected however, the vulnerability of the child to abuse, parent functioning, economic stress, and social stress also did not affect the likelihood of physical harm.

Table 3

Results of Logistic Regression on Physical Harm

Model	Odds ratio	p
Model 1		
Child's age	0.99	0.865
Perpetrator sex	1.31	0.563
Model 2		
Child's age	1.02	0.654
Perpetrator sex	1.45	0.369
Vulnerability to abuse index	0.68	0.285
Model 3		
Child's age	1.00	0.889
Perpetrator sex	2.08	0.092
Parent functioning index	0.81	0.752
Model 4		
Child's age	1.02	0.652
Perpetrator sex	0.99	0.974
Economic stress index	0.38	0.068
Model 5		
Child's age	1.01	0.903
Perpetrator sex	1.52	0.355
Social stress index	0.79	0.411

## CHAPTER VI

## Discussion

Theorists in the field of child maltreatment have presented two primary positions on the question of non-injurious versus injurious (or minor and severe) violence. One position holds that most physical violence against children is generated from the same source – the use of physical force to control the child's behaviour. According to this view, all physical violence against children, with rare exceptions, falls along a continuum of force used to discipline the child. This is known as the 'Continuum' position. The other position, the 'Typologies' position, holds that minor and severe violence are separate phenomena, originating in qualitative differences among caregivers' circumstances and motivations. According to this view, minor and severe assaults are different typologies of violence.

Through the examination of child, perpetrator, and socio-economic characteristics as predictors of injury, the present study sought to further examine the "Continuum of Violence" assumption found in much of the child abuse literature. If the Continuum of Violence position is valid, injury would be predicted by child age and perpetrator sex demonstrating that relative size and strength, not qualitative differences in the perpetrators' characteristics determine the presence of injury. However, if the Typologies position is valid, injury would be predicted by other child, perpetrator, and socio-economic characteristics such as the vulnerability of the child to abuse, parent functioning, economic stress, and social stress. It was hypothesized that the Continuum of Violence position would be supported. Specifically, it was expected that child age and perpetrator sex would predict injury to the child. The vulnerability of the child to abuse,

parent functioning, economic stress, and social stress were not expected to add to the predictive power of child age and perpetrator sex.

The results of the present study did not support either position. That is, child age and perpetrator sex were not useful in predicting injury to the child, nor were the vulnerability of the child to abuse, parent functioning, economic stress, or social stress.

#### *Evidence for the Continuum Position*

Studies that have examined child age and perpetrator sex as predictors of injury severity have found that younger children and victims of male perpetrators are at greater risk for severe physical injury (Anderson et al., 1983; Bergman, Larsen, & Mueller, 1986; Daley & Piliavin, 1982; Jason & Andereck, 1983; McCurdy & Daro, 1994; Rosenthal, 1988; Seaberg, 1977). In the present study, however, these relationships were not found. The proportion of children in each age group was not related to the presence of injury, nor was child age a predictor of the likelihood of injury. This finding is surprising, given the consistency of previous findings on this relationship. However, it is important to note that the most common age category in the present sample was 12 to 15 years (39.60%); only 7.81 % of the investigated children were in the 0 to 3 age category. Thus, the failure of child age to predict injury to the child may be the result of the relatively small number of young children included in the sample. This age distribution might reflect reporting patterns; abuse might be more difficult to detect and therefore, less likely to be reported in the youngest age group. Yet, this is the group that would be physically most vulnerable to injury. It must be noted that the small number of young children included in the sample may also reflect that younger children (those in the 0 to 3 age category) may be more likely to be reported for other types of abuse.

With regards to the finding that perpetrator sex did not predict injury to the child, it is important to note that the present study focused on physical punishment cases only. Studies that have found perpetrator sex to be a strong predictor of injury severity have focused on child abuse fatalities or examined heterogeneous cases of child physical abuse. Moreover, these studies have examined the power of perpetrator sex to predict *severity* of injury. The present study however, examined the relationship between perpetrator sex and the *presence* of injury. An analysis of injury severity was not possible as a preliminary frequency analysis of the severity index constructed for this study indicated a near absence of cases of moderate and severe injury. Therefore, what can be concluded from this finding is that, in cases of punishment abuse resulting in mild injury, the sex of the perpetrator is not a relevant factor.

#### *Evidence for the Typologies Position*

If the Typologies position is valid, injury would be predicted by child, perpetrator, and socio-economic characteristics such as the vulnerability of the child to abuse, parent functioning, economic stress, and social stress. Overall, the present study found that these variables are not useful in predicting injury. However, the findings raised some important methodological and conceptual issues.

#### *Vulnerability of the Child to Abuse*

Previous studies have yielded conflicting findings regarding the relationship between child functioning and injury due to abuse. That is, whereas some studies have found that child functioning problems, such as misconduct and physical problems, are important in predicting injury severity (Daley & Piliavin, 1982; Rosenthal, 1988), others have concluded that measures of the child's functioning are not significantly associated

with variation in injury severity (Seaberg, 1977).

The present findings suggest that child functioning does not predict injury. However, in the crosstabulation of the child's functioning by physical harm, the association was significant. This association was due exclusively to variation in the frequencies of behaviour problems present in children who were physically harmed and those who were not harmed. But the association differed depending on whether behaviour problems had been confirmed or were merely suspected. Behaviour problems were *suspected* more often in children who had been harmed than in those who were not harmed, lending some support to the Typologies position. But behaviour problems were *confirmed* more often in children who had not been harmed than in those who were harmed, contradicting the Typologies position. This finding raises important questions about the nature of 'suspected' cases in the CIS, as they appear to be a different group than the 'confirmed' cases. More information about these cases is needed to understand the meaning of this finding.

When the Vulnerability to Abuse Index was constructed, only the confirmed cases of child functioning problems were included in order to ensure the homogeneity of the 'problem' and 'no problem' groups. It was this index that was used to predict injury in the logistic regression analysis. Using only confirmed but not suspected cases, the child's functioning did not predict the likelihood of injury.

#### *Parent Functioning*

Findings of previous studies examining the relationship between parent functioning and abuse injury have been inconclusive. That is, whereas some studies have found alcohol abuse and mental health problems to be modest predictors of injury, others

have found they are not useful predictors (Daley & Piliavin, 1982; Rosenthal, 1988; Seaberg, 1977).

The results of the logistic regression analysis in the present study demonstrated that the Parent Functioning Index did not predict injury to the child. It is important to note however, that the crosstabulations of the individual predictor variables by physical harm revealed a significant association between injury and caregiver mental health issues. The nature of this association mirrored that found between child behaviour problems and injury; that is, caregiver mental health issues were *suspected* twice as often in cases where children had been harmed than in cases of no harm. This association lends some support to the Typologies position. But caregiver mental health issues were *confirmed* twice as often in cases where children had not been harmed than in cases of harm, contradicting the Typologies position. A similar, though not identical, trend was observed for caregiver alcohol abuse which was three times as likely to be *suspected* in cases where the child had been harmed than in those cases of no harm. There was, however, no association between harm to the child and *confirmed* caregiver alcohol abuse. The meaning of these findings cannot be ascertained without further information about the 'suspected' cases.

In order to maximize homogeneity of the 'problem' and 'no problem' groups on the Parent Functioning Index, suspected cases were excluded in the construction of this index. Therefore, only those cases in which caregiver concerns were either confirmed or not noted were included in the logistic regression analysis. This analysis yielded no evidence that the presence of confirmed parent functioning concerns predicts injury to the child.

### *Economic and Social Stress*

Previous studies examining the power of factors such as employment status and social isolation to predict injury have yielded mixed results. Whereas some studies have found employment status and social isolation to be modest predictors (Rosenthal, 1988), in other studies, these variables have not reached statistical significance (Daley & Piliavin, 1982; Seaberg, 1977). Economic stress and social stress did not predict injury to the child in the present study.

The crosstabulations suggested that economic stress may be lower in cases where children have been harmed, contradicting the Typologies position. Indeed, it was almost twice as likely that social assistance was the primary caregiver's main income source in cases where children had *not* been harmed than in cases of harm. The proportion of primary caregivers who worked full-time was *higher* in cases of harm than in cases of no harm. However, the results of the logistic regression indicated that the Economic Stress Index did not significantly affect the odds of injury to the child. Together, these findings suggest that economic stress is, at best, not useful in predicting injury.

### Limitations of the Present Study

A number of limitations can be identified for the present study. First, the findings pertain to physical punishment cases only. That is, the findings of the present study cannot be generalized to other forms of physical assault inflicted on children that are not intended as punishment.

Second, this research was conducted using data that pertain to child maltreatment cases reported to and investigated by child welfare agencies in Canada only. That is, the dataset does not include unidentified cases (i.e. those that are not known to the

community, its structures, and services), unreported cases, cases reported to the police but not to child welfare, or cases that are not investigated by child welfare. Thus, results from this study pertain to child welfare investigations only, not to all cases of child maltreatment in Canada.

Third, the Vulnerability to Abuse and Parent Functioning indices constructed for the present study included confirmed but not suspected cases of functioning problems. The results may have differed had suspected cases been included in the indices, as these cases performed differently than the confirmed cases in the crosstabulations. Further, exclusion of the suspected cases reduced the sample size, lowering the power of the multivariate test.

Fourth, the number of young children (0 to 3 years of age) present in the sample was relatively small. This truncated age range may have reduced the power of child age to predict injury. The fact that previous research consistently indicates that younger children are at greater risk of injury suggests efforts should be made to overcome the reporting bias inherent in datasets of this nature.

Fifth, the reliability and validity of the measures of economic stress, social stress, parent functioning, and vulnerability to abuse used in the present study were not evaluated prior to data analysis. An evaluation of the statistical properties of these measures would add not only credibility to the measures but also strengthen the present study's findings. Also, these measures may have been too limited as they were only categorical measures. The results may have differed had these measures been more refined.

Finally, due to the nature and availability of variables in the dataset used,

an analysis of injury severity was not possible. The present findings pertain to the presence or absence of injury, not to its severity.

#### Directions for Future Research

Various directions for future research can be derived from the present study's findings. First, this study focused on physical punishment cases. It would be useful to determine whether evidence for the Typologies position would be stronger among cases of non-punishment abuse, which may be more likely to involve caregiver mental health issues and economic or social stress. Perhaps it is in those cases where abuse is motivated not by a goal of 'correction' but as a reaction to environmental events or as a result of mental illness or substance abuse where the likelihood of injury depends on child and family characteristics.

Second, it is important to gain an understanding of the 'suspected' cases of problems in child and caregiver functioning. On some variables, these cases appear to be very different from those for which functioning problems have been confirmed. The information available about these suspected cases is inadequate to assess the meaning of this finding. Future research should include a full examination of these cases, so that findings can be interpreted more fully and accurately.

Third, the problems inherent in interpreting findings based on 'suspicion' without confirmation, extend to the entire sample used in the present study, which focused on 'substantiated' cases. That is, We do not know whether the variables examined here would predict injury in 'suspected', but not substantiated, cases of physical abuse. A related question is, what are the criteria used to substantiate abuse? Given that fewer than half of the substantiated cases examined in the present study involved injury, a question

is raised about how workers substantiated cases - and what factors predict injury in suspected, but not substantiated, cases of physical abuse.

Fourth, future research needs to further probe the relationship between child age and the infliction of injury. Efforts should be made to overcome the potential reporting bias in data collection on physical abuse. Perhaps data collection instruments should be carefully constructed to specifically address this problem.

Fifth, the present study focused on child, perpetrator, and socio-economic characteristics as predictors of injury. Future research should also examine the power of report characteristics (i.e. nature of the allegations, source of the report) and other child and perpetrator characteristics such as the sex of the child, relationship of perpetrator and victim, and perpetrator abuse history to predict injury to the child. Further, it may be the case that the dynamics of the specific punishment episode make a stronger contribution to the likelihood of injury than do demographics or other characteristics of the case.

Sixth, future research should examine the importance of the measurement of 'injury'. Studies measuring injury severity have yielded strong evidence for the role of child age and perpetrator sex and some evidence for the role of child and caregiver functioning in predicting the degree of injury sustained by the child. The outcome measure used in the present study was the presence or absence of injury. It is possible that the predictors examined here affect the severity of injury once it has been sustained.

Seventh, the present study used a sample where the perpetrator was either the biological mother or biological father. Future research on predictors of injury should make use of samples where the perpetrator is a foster parent, an adoptive parent, or a

step-parent. Research with such samples would not only contribute to the external validity of the findings but would also provide a more comprehensive understanding of injurious abuse.

Finally, it would be interesting to examine how the cultural context affects the power of injury predictors. For instance, it would be interesting to examine whether the factors that reliably predict injury in Canada predict injury in other countries, such as Sweden (where physical punishment is much less common), or Mexico (where physical punishment may be more common). Cross-cultural analyses of this nature would further contribute to our knowledge about injurious abuse and thus increase our ability to explain and predict injury.

### Conclusions

This research has contributed to our knowledge of predictors of injury by demonstrating that child age, perpetrator sex, vulnerability of the child to abuse, parent functioning, economic stress, and social stress do not predict injury in substantiated punishment abuse cases. These findings suggest that factors other than those studied here account for injury in these cases. Accepting any of the theoretical explanations found in the child abuse literature on the question of injurious versus non-injurious violence depends upon further investigation with data specifically collected to address this issue. Only through more research will a better understanding of the dynamics of injurious abuse and its etiology be attained.

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