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Age effects of reported child maltreatment in a Canadian sample of children and adolescents

Diane C. Reinke
Alberta Solicitor General and Public Safety

The general purpose of this study was to examine the proportions of children and adolescents identified with behavioral, emotional and cognitive clinical findings and disabilities. Data from the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS) were used in this study. Participants in this study included 7672 children aged 0 to 15 years who were reported for maltreatment and investigated by child welfare services across Canada. It was found that behaviour problem was the most common clinical finding in all age levels and psychiatric disorder was among the least common across all ages. Significant relationships were found among age levels and each clinical finding. A significant relationship was also found among age levels and having at least one clinical finding. Generally, the proportions of children for each clinical finding increased with age. Developmental delay was the most common disability at all age levels. Significant relationships among age levels were revealed for other health conditions, physical or developmental disability, and having at least one disability. The proportions of children identified for each disability generally decreased as age increased. The results suggest the use of a developmental approach to address the assessment, prevention, and intervention needs of these children and adolescents.

Introduction

Since seriousness of child maltreatment has been acknowledged as a public health issue, there has been considerable attention to the physical, mental, emotional, and social effects of child maltreatment (Kaplan, Pelcovitz, & Labruna, 1999). Generally, when compared to non-maltreated children and adolescents, maltreated children and adolescents exhibit a wide range of problems: (a) school or academic difficulties (Eckenrode, Laird, & Doris, 1993); (b) psychiatric symptoms

or diagnoses such as depression, anxiety, and conduct disorders (Flisher, Kramer, Hoven, & Greenwald, 1997; McLeer et al., 1998); (c) aggression or delinquent behaviour (Vissing, Straus, Gelles, & Harrop, 1991); (d) high risk behaviours including substance use (Arellano, 1996), running away (Goldston, Turnquist, & Knutson, 1989), and sexually inappropriate behavior (Goldston et al., 1989; McClellan, McCurry, Ronnei, & Adams, 1996); and, (e) self- and other-directed destructive behaviours (Stone, 1993; Taussig & Litrownik, 1997). Overall, these findings support the hypothesis that maltreatment leads to adverse effects for children and adolescents. However, differences in maltreatment effects across ages are not clear from these studies because of methodological shortcomings, including inconsistent measures and number of maltreatment effects examined, lack of representative samples or appropriate control groups, and use of a wide range of ages which may not distinguish the effects of maltreatment for younger and older children and adolescents. Therefore, the purpose of this study is to address the issue of age in the effects of maltreatment. The following discussion is divided into preschool, school age and adolescent groups in reviewing the literature on maltreatment effects on these age groups.

Maltreatment Effects on Preschool-Aged Children

Preschool children are at risk for serious injuries due to physical child abuse. Ewing-Cobbs and others (1998) found 45% of children surviving brain injury resulting from violence to be mentally retarded compared to only 5% of those surviving accidental injury. DiScala, Sege, Li, and Reece (2000) reported almost 11% of all brain injury to children five years old and under resulted from battery, shaking, and other forms of violence. Shaken Baby Syndrome or Shaken Impact Syndrome, a vigorous manual shaking of an infant who is being held under the arms or by the shoulders, can result in the child's brain moving within the skull, causing blood vessels to stretch and tear with no obvious external signs of injury and may cause death, permanent brain damage, or long-term disability (David, 1999; Miller-Perrin & Perrin, 1999). In fact, about 60% of infants who survive Shaken Baby Syndrome will have severe disabilities and most of the remaining survivors will have milder disabilities (Lund, Sandgren, & Knudsen, 1998).

Women who use alcohol or illicit substances during pregnancy place their unborn infants at risk for disabilities. The effects of alcohol and other drugs can directly cause problems for the fetus, such as prematurity, low birth weight, small head size, oxygen deprivation, brain hemorrhaging, congenital heart defects, and learning problems (Jaudes & Shapiro, 1999).

Researchers also have found that maltreated preschoolers are likely to show developmental delay (White, Halpin, Strom, & Santilli, 1988), delayed motor development (Lyons-Ruth, Connell, & Zoll, 1989), delayed language skills (Allen & Oliver, 1982; Culp et al., 1991), and diminished intellectual functioning and academic achievement (Erickson, Egeland, & Pianta, 1989; Vondra, Barnett, & Cicchetti, 1990). As previously discussed, child maltreatment can cause disabilities. According to Mullins' review (1986), studies also show that disabilities of some children who were originally diagnosed with disabilities are exacerbated by maltreatment. While cause and effect are not easily determined in some cases, researchers agree that there is a relationship between disability and maltreatment (Mullins, 1986).

Compared to non-maltreated preschoolers, maltreated preschool children showed symptoms of depression, social withdrawal or anxiety disorders, and inappropriate sexual behaviour (Mian, Marton, & LeBaron, 1996). Kashani and Carlson (1987) also found that all clinically depressed preschoolers in their sample were maltreated by a parent. Depressive symptoms of this age group, including sadness, appetite loss, sleep changes, fatigue, and somatic complaints, distinguished depressed preschoolers from psychiatric preschoolers. Maltreated preschoolers also tend to be more withdrawn and aggressive with peers (Haskett & Kistner, 1991; Klimes-Dougan & Kistner, 1990), and more aggressive with siblings (Crittenden, 1992) than non-maltreated children.

Maltreatment Effects on School-Aged Children

The effects of maltreatment appear to continue into the school-age years. An examination of maltreated and non-maltreated 5-to-10 year-olds

revealed a significant incidence of psychiatric disorder diagnoses among maltreated children. These disorders included attention-deficit hyperactivity disorder; oppositional defiant disorder; post-traumatic stress disorder; personality, adjustment, mood, and conduct disorder diagnoses. Compared to a control group, maltreated children were found to have a significant incidence of psychotic symptomatology (9.3% vs. 0%; Famularo, Kinscherff, & Fenton, 1992). In other research, maltreated children of school age scored significantly higher on self-report measures of depression than non-maltreated children (Allen & Tarnowski, 1989; Kazdin, Moser, Colbus, & Bell, 1985).

Researchers also found difficulties in behaviour among maltreated school-aged children, including withdrawal and sexual behaviour problems (Hibbard & Hartman, 1992; Kaufman & Cicchetti, 1989), aggressive behaviour (Salzinger, Feldman, Hammer, & Rosario, 1993; Sheilds & Cicchetti, 1998), and drug use (Kolko, Moser, & Weldy, 1990).

Developmental, physical, and cognitive signs of maltreatment in maltreated children also have been found. Compared to non-maltreated counterparts, maltreated school-aged children exhibited more early developmental delays, chronic health problems, neurologic soft signs, serious physical injuries, skin marks, and scars (Kolko et al., 1990). Maltreated children also had significantly lower cognitive maturity scores as measured by standardized verbal comprehension and school competence tests than non-maltreated children (Trickett, 1993).

Maltreatment Effects on Adolescents

Maltreated adolescents appear to have a combination of many effects. Compared to non-abused adolescents, abused adolescents showed significant impaired functioning including more depressive symptoms, anxiety, psychiatric disorders, emotional-behavioural problems, suicidal ideation and suicide attempts (Pelcovitz, Kaplan, DeRosa, Mandel, & Salzinger, 2000; Silverman, Reinherz, & Giaconia, 1996).

In addition to suicidal tendencies, other risk-taking behaviours have been found among maltreated adolescents. They were three times more

likely than non-maltreated peers to drink alcohol and smoke cigarettes, almost twice as likely to use illicit drugs, and had 3.5 times greater chance of being sexually active (Riggs, Alario, & McHorney, 1990). Generally, maltreated adolescents had a higher incidence of acting-out behaviour, running away, legal involvement, and sexual promiscuity (Cavaiola & Schiff, 1988). Other behaviour problems include antisocial behaviour (Bensley, Van Eeenwyk, Spieker, & Schoder, 1999), and abusive and victimization behaviours in dating relationships (Wolfe, Wekerle, Reitzel-Jaffe, & Lefebvre, 1998).

Study Rationale and Hypotheses

Although studies show that children of different ages are at risk for a variety of mental health, emotional, cognitive, and behavioural issues, the generalizability of these studies is limited. Many of these studies used non-representative samples, lacked appropriate groups for comparison, had small sample sizes, used unstandardized or different measures of maltreatment effects, overlapped the age groups, or have different ranges for specific age groups. As a result, knowledge on the effects of maltreatment on specific age groups is limited.

Therefore, in order to understand age effects of maltreatment, this study aims to improve on previous methodological limitations by (a) using a large nationally representative sample of children and adolescents reported for maltreatment to child welfare agencies, including a comparison group, (b) using a list of several clinical findings that are consistent with those examined in the literature, and (c) using specific age levels of approximate equal frequency and span (e.g., four year intervals).

Because children at different age levels likely show different effects of maltreatment, it is important for professionals within the field of child maltreatment to understand these effects. Such an understanding can lead professionals' efforts to appropriately meet children's and adolescents' specific needs through assessment, prevention, and intervention. Furthermore, understanding effects of maltreatment across age levels can increase these professionals' awareness of different signs

of maltreatment, differentiate normal development and maltreatment effects, and guide their decisions for reporting maltreatment.

The general purpose of this study is to identify and describe the proportions of children and adolescents identified for a variety of clinical findings and disabilities. The two hypotheses to be tested in this study are as follows: (a) There will be no differences in the proportions of children and adolescents identified for various clinical findings across age levels; (b) There will be no differences in the proportions of children and adolescents identified for various disabilities across age levels.

Method

Data Collection

The examination into the detrimental effects of maltreatment among children and adolescents used data from the *Canadian Incidence Study of Reported Child Abuse and Neglect* (CIS). The CIS provides reliable estimates of the scope and characteristics of different types of child abuse cases (physical, sexual, emotional, and neglect) in Canada. The CIS collected data directly from child welfare workers who investigated children and their families reported for child maltreatment. The study includes unsubstantiated, suspected, and unsubstantiated child welfare investigations. Reports that were screened out before a full investigation, cases that were investigated only by police, new incidents of maltreatment on open cases at time of data collection, and unidentified incidents of child maltreatment were not part of the CIS data collection process (Trocme et al., 2001).

A four-stage stratified sampling design was used, first, to select a nationally representative sample of child welfare sites across Canada and, second, to sample child maltreatment cases within those sites. In the first stage, a minimum of one site was selected from each province and territory with a child population under 275,000. Additional stratification by region and agency size was used in larger provinces. From a pool of 327 child welfare service areas in Canada, 51 sites were randomly selected. The second sampling stage involved selecting 9909

family cases opened in every site during a three month period (October to December, 1998). In the third stage, 5449 cases out of 9909 were identified for suspected or reported maltreatment based on CIS definitions. The last stage involved the selection of children who had been specifically investigated for suspected child maltreatment. This yielded a final sample of 7672 child maltreatment investigations.

The CIS survey instruments provide standardized information about children and their families. This information was collected from child welfare workers conducting investigations of reported maltreatment. The Maltreatment Assessment Form was developed as the main data collection instrument. It consisted of three parts: 1) an Intake Face Sheet for recording basic information about the report and identification of children involved in the report; 2) a Household Information Sheet for reporting information about characteristics of the child's caregiver(s) and household; and 3) a Child Information Sheet, for documenting characteristics of maltreatment, any difficulties exhibited by the child, and status of the child investigation.

The present study utilized information from the Intake Face Sheet and a component of the Child Information Sheet, the Child Functioning Checklist. This checklist was used by child welfare workers to document physical, emotional, cognitive, and behavioural problems that are often identified in their child maltreatment investigations. It provides an important estimate of the types of problems identified during these investigations (Trocme et al., 2001).

In using this checklist, investigating workers were asked to document problems that had been confirmed by disclosure by the parent of child, a formal diagnosis by a professional, or direct observation by themselves or other workers. Those problems that were suspected, but could not be fully verified through disclosure, diagnosis, observation at the time of investigation were also documented. For this study, the categories for confirmed and suspected were collapsed as "identified" because the distinction between confirmed and suspected was not documented in all jurisdictions (Trocme et al., 2001). Furthermore, clinical findings in this study are listed as behavioral, physical, emotional, and cognitive health

issues in the CIS. The types of disabilities described in this study are categorized as physical, emotional, and cognitive health issues in the CIS.

Participants

The participants of this study included 7672 children aged 0 to 15 years. These data include only up to age 15 to remain consistent with the application of the varied definitions of "child" across jurisdictions. The mean age of the whole sample is 7.5 years (*SD*=4.48). The analysis also involved the original age categories in the dataset, including 0 to 3 years (*n*=1764; 23.1%), 4 to 7 years (*n*= 2140; 28%), 8 to 11 years (*n*=1876; 24.6%) and 12 to 15 years (*n*=1853; 24.3%).

Results

Due to the categorical nature of the data, a series of chi-square analyses were conducted. Table 1 describes the proportions of children and adolescents identified for a variety of clinical findings at four age levels and the total sample. These results test the hypothesis that there will be no differences in the proportions of children and adolescents identified for various clinical findings across age levels. Table 2 describes the proportions of children and adolescents identified for a variety of disabilities at four age levels and the total sample. The results in this table test the hypothesis that there will be no differences in the proportions of children and adolescents identified for various disabilities across age levels. The average number of clinical findings that a child is likely to have was also calculated.

Children with Identified Clinical Findings

Table 1 reports the percentages of children at each age level and in the sample who were identified as having various clinical findings.

Table 1
Percentages of Children at Age Levels and Total Children in Sample with Identified Clinical Findings

Clinical Finding	Age Level				Total
	0-3	4-7	8-11	12-15	
Behaviour Problem	4.4	16.1	25.9	39.7***	21.6
Depression or Anxiety	1.5	4.7	10.0	18.5***	8.6
Irregular School Attendance	0.1	2.9	4.6	19.2***	6.6
Negative Peer Involvement	0.2	2.3	6.6	16.9***	6.4
Violence to Others	0.9	2.8	6.4	9.9***	5.0
Running Away	0.4	0.3	1.5	13.0***	3.7
Once	(0.2)	(0.0)	(0.7)	(6.1)***	(1.7)
Multiple	(0.3)	(0.2)	(0.9)	(7.6)***	(2.2)
Substance Abuse	0.2	0.2	0.9	12.2***	3.3
Age Inappropriate Sexual Behaviour	0.6	3.0	1.8	5.2***	2.7
Self-Harming Behaviour	0.3	0.6	2.2	7.2***	2.5
Psychiatric Disorder	0.2	1.0	2.4	3.9***	1.9
One or More	7.0	23.8	36.2	59.6***	31.7

Note. Column percentages do not add up to percentage in the One or More column because children were identified in more than one category.
***p<.001 (See text for X^2 values.)

Children of all ages As shown, behaviour problem was the most common clinical finding (21.6%) identified in the whole sample (n=7633). It was more than twice the percentage of depression or anxiety (8.6%). Irregular school attendance (6.6%), negative peer involvement (6.4%), and violence to others (5%) were also among the five most common clinical findings. Running away, substance abuse, age inappropriate sexual behaviour, self-harming behaviour, and psychiatric disorder were each identified at less than five percent of the total sample. Although child welfare workers were required to document other specific concerns not listed on the Child Functioning Checklist, these types of concerns were only categorized as "other" in the CIS data. This "other" category did not specify those concerns and it was not included in the data analysis.

Specific age levels Also shown in Table 1, each age level varies in the frequency of clinical findings. For age level 0 to 3 years, behaviour problem was again the most frequently identified clinical finding at over four percent, and depression or anxiety was the second most common at 1.5 percent. Violence to others and age-inappropriate sexual behavior were the next most common clinical findings at almost one percent each. The remaining clinical findings listed were each identified at less than one percent.

The 4 to 7 year age level also showed behaviour problem (16.1%) and depression or anxiety (4.7%) as the two most frequent clinical findings. Behaviour problem was over three times the percentage of depression or anxiety. Negative peer involvement, violence to others, irregular school attendance, and age inappropriate sexual behaviour range from 2.3% to 3%. Psychiatric disorders, self-harming behaviour, running away, and substance abuse were the least frequently identified clinical findings (one percent or less).

The age level 8 to 11 years showed that behaviour problem was more than twice the percentage of depression or anxiety (25.9% vs. 10%). Similar percentages (over 6% each) of these children were identified for negative peer involvement and violence to others. Over four percent of 8 to 11 year-olds were identified for irregular school attendance. Self-harming behaviour and psychiatric disorder were similar in frequency with each being slightly over 2%. Age inappropriate sexual behaviour, running away, and substance abuse were the least common clinical findings for this age level.

Finally, the 12 to 15 year age level has the highest percentages of each clinical finding. Behaviour problem was the most common clinical finding at almost 40 percent. Irregular school attendance was the second most common clinical finding (more than 19%), followed by depression or anxiety (18.5%). Negative peer involvement was identified at about 17 percent. Running away (13%) and substance abuse (over 12%) were also common for this age level. Almost 10 percent of 12 to 15 year-olds were identified for violence to others. Self-harming behaviour (7.2%), age inappropriate sexual behaviour (5.2%), and psychiatric disorder (3.9%)

were the least common clinical findings. Overall, these percentages were higher than for any other age level.

One or more clinical findings Table 1 also displays the percentage of children who are likely to have one or more clinical findings. Almost 32 percent of the whole sample was identified for at least one clinical finding. Seven percent of children in the age level 0 to 3 years had at least one clinical finding. The other age levels ranged from almost 24 percent to almost 60 percent.

Significant differences in chi-square values Chi-square analyses found significant differences among age levels for the following: behaviour problem, $X^2(3, N=7633) = 726.284$, $p<.001$, depression or anxiety, $X^2(3, N=7633) = 388.126$, $p<.001$, irregular school attendance, $X^2(3, N=7633) = 656.838$, $p<.001$, negative peer involvement, $X^2(3, N=7633) = 517.305$, $p<.001$, violence to others, $X^2(3, N=7633) = 188.756$, $p<.001$, running away (once or multiple times), $X^2(3, N=7633) = 601.136$, $p<.001$, running away (once), $X^2(3, N=7633) = 285.079$, $p<.001$, running away (multiple times), $X^2(3, N=7633) = 338.208$, $p<.001$, substance abuse, $X^2(3, N=7633) = 612.568$, $p<.001$, age inappropriate sexual behaviour, $X^2(3, N=7633) = 80.138$, $p<.001$, self-harming behaviour, $X^2(3, N=7633) = 232.337$, $p<.001$, and psychiatric disorder, $X^2(3, N=7633) = 79.448$, $p<.001$. Chi square analyses also revealed a significant relationship among age levels for one or more clinical findings, $X^2(3, N=7633) = 1244.198$, $p<.001$.

Generally, it was found that the percentages increased as age increased. For each of these clinical findings, the highest percentage was found at the 12 to 15 year age level. In most cases, the percentages in the 12 to 15 year level were much greater than in the younger age levels. The 12 to 15 age level appeared to have the largest difference for each clinical finding and the one or more category.

Average number of clinical findings. Average number of clinical findings that a child is likely to have also has been calculated. Overall, children at age levels 0 to 3, 4 to 7, and 8 to 11 years have a likelihood of having about one clinical finding (1.33, 1.43, 1.76 respectively). Children aged 12 to 15 years are likely to have more than two clinical findings (2.67)

compared to 2.08 issues for the total sample. Regardless of statistical probability, the difference would not be expected to have any clinical significance.

Children with Disabilities

Table 2 shows the percentages of children at each age level and in the sample who were identified as having various disabilities.

Table 2
Percentages of Children at Age Levels and Total Children in Sample with Identified Disabilities

Disability	Age Level				Total
	0-3	4-7	8-11	12-15	
Developmental delay	8.9	9.9	8.1	7.6	8.7
Other health conditions	6.2	3.3	3.1	3.6***	4.0
Physical or developmental disability	4.3	3.7	3.3	2.5*	3.4
Substance abuse related birth defects	2.2	2.1	1.4	2.1	1.9
One or more	16.0	14.4	13.0	12.2**	13.9

Note. Column percentages do not add up to percentage in the One or More column because children were identified in more than one category.
*p<.05 **p<.01 ***p<.001 (See text for X^2 values.)

Children of all ages Developmental delay was the most common disability (8.7%) identified in the whole sample (*n*=7633). It was more than twice the percentage of other health conditions (4%), which includes ongoing health conditions, such as chronic or frequent hospitalizations. Physical or developmental disability, including autism, paralysis, cerebral palsy, or learning disability, was the third most identified disability (3.4%). Substance abuse-related birth defects, such as Fetal Alcohol Syndrome or Fetal Alcohol Effect, cocaine addiction, or solvent use by biological mother, were identified for about two percent of the total sample of children.

Specific age levels Also shown in Table 2, a similar pattern of descending frequency of disabilities appears at each age level.

At age level 0 to 3 years, developmental delay was again the most frequently identified disability at almost 9 percent, followed by other health conditions at 6.2 percent, physical developmental disability at 4.3 percent and, lastly, substance abuse-related birth defects at 2.2 percent.

For children aged 4 to 7 years, developmental delay was three times more commonly identified compared to other health conditions (9.9% and 3.3%). Physical or developmental disability was the second most commonly identified (3.7%) at this age level whereas other health conditions were the third most frequent. Birth defects by substance abuse were the least common disability.

The age level 8 to 11 years also showed that developmental delay was the most common disability (over 8%). Physical or developmental disability and other health conditions were each at slightly over three percent, and 1.4 percent of all 8 to 11 year-olds were identified for substance abuse-related birth defects.

Finally, the 12 to 15 year age level shows that developmental delay is more than twice the percentage of other health conditions (7.6% and 3.6%). Physical or developmental disability and substance abuse-related birth defects were each identified at over two percent.

One or more disabilities Table 2 also displays the percentage of children likely to have one or more disabilities. Almost 14 percent of the whole sample was identified for at least one disability. Sixteen percent of the 0 to 3 year-olds were identified for at least one disability. The other age levels ranged from 12.2 to 14.4 percent.

Significant differences in chi-square values Chi-square analyses found significant differences among age levels for other health conditions, $X^2(3, N = 7633) = 31.005$, $p<.001$. Analysis also revealed significant differences among age levels for physical or developmental disability, $X^2(3, N = 7633) = 8.813$, $p<.05$. Chi-square analyses found a significant relationship between age groups and having at least one disability, $X^2(3, N = 7633) = 12.844$, $p<.01$.

Overall, it was found that the percentages decreased as age increased. The highest percentages were found at the 0 to 3 year age level for other health conditions, physical or developmental disability, substance abuse-related birth defects, and having at least one disability. Age level 4 to 7 years had the highest percentage for developmental delay.

Discussion

The general purpose of this study was to examine the proportions of children and adolescents reported for maltreatment, who were identified for behavioural, social, mental, and emotional clinical findings and

disabilities. Overall, the results show that behaviour problem was overwhelmingly the most common clinical finding and developmental delay was the most common disability for the total sample and all age levels. The least common clinical finding was psychiatric disorder for the total sample and it was among the least common for all age levels. The least common disability was substance abuse-related birth defects for the sample and all age levels.

This study also found significant relationships among age groups and each clinical finding. A significant relationship was also found among age levels and having at least one clinical finding. Generally, the percentages of children identified for each clinical finding had increased as age increased; the percentages of children identified for at least one clinical finding also increased as age increased. Therefore, these findings did not support the first hypothesis, i.e., that there will be no differences in proportions of children and adolescents identified for various clinical findings across age levels.

There was a significant relationship among age levels and other health conditions. The relationship among age levels and physical or developmental disability was also significant. A significant relationship among age levels and having at least one disability was found. In general, the percentages of children identified for each disability had decreased as age increased; the percentages of children identified for at least one disability had decreased as age increased. Thus, these results did not support the second hypothesis, i.e., that there will be no differences in proportions of children and adolescents identified for various disabilities across age levels. The following is a summary of findings for each age level.

Children aged 0 to 3 years had the lowest proportions for each clinical finding. Seven percent of children aged 0 to 3 years were identified for at least one clinical finding, which is the lowest percentage among all age levels. Age level 0 to 3 had on average about one clinical finding (1.33). However, age level 0 to 3 years had the highest proportions for other health conditions (6.2%), physical or developmental disability (4.3%), and substance abuse-related birth defects (2.2%). Children aged 0 to 3

years also had the highest proportion (16%) identified for at least one disability.

In general, the percentages of children aged 4 to 7 years were greater than percentages of children aged 0 to 3 years for each clinical finding. Almost 24% of children aged 4 to 7 years were identified for at least one clinical finding. Regarding disabilities, children in age level 4 to 7 had the highest proportion for developmental delay (9.9%). Over 14% of children aged 4 to 7 were identified for at least one disability, which is lower than the proportion for age level 0 to 3 years (16%).

For every clinical finding, the percentages of children in age level 8 to 11 were higher than the percentages of children in 4 to 7 age level. One exception was age inappropriate sexual behaviour, which was more common among 4 to 7 years-olds (3%) than 8 to 11 year-olds (1.8%). This finding of age inappropriate behaviour among 4 to 7 year-olds is consistent with other results from previously reviewed research examining children aged 4 to 8 years (e.g., Hibbard & Hartman, 1992). Furthermore, this finding of age inappropriate sexual behaviour in children aged 4 to 7 is consistent with Finkelhor and Browne's (1985) traumatic sexualization and likely reflects sexual behaviour that is considered inappropriate in younger children yet tolerated in older children. For each disability, the proportions of children in age level 8 to 11 were lower than proportions of children in age level 4 to 7. Compared to 14.4% of children aged 4 to 7 years who were identified for at least one disability, 13% of children aged 8 to 11 years were identified for at least one disability.

Compared to the younger age levels, age level 12 to 15 years had the highest percentages for all clinical findings. Almost 60% in age level 12 to 15 were identified for at least one clinical finding. Children aged 12 to 15 had the highest average number of issues (2.67). The 12 to 15 age level appeared to have the largest difference for each clinical finding and the one or more category. Regarding disabilities, children aged 12 to 15 years had the lowest proportion (12.2%) identified for at least one disability.

The general patterns of an increase in percentages across age levels for

clinical findings and a decrease in percentages across age levels for disabilities appears to reflect age effects. Therefore, implications for assessment, prevention, and intervention may vary for each age level. The following paragraphs discuss these implications.

Because children aged 0 to 3 years have less sophisticated communication skills to communicate any maltreatment experiences, it is likely that their difficulties will go undetected. It was found in this study that behaviour problem, depression or anxiety, age inappropriate sexual behaviour, and violence to others were the most common clinical findings among 0 to 3 year-olds. Other researchers have found similar results in non-representative samples of preschool maltreated children (Crittenden, 1992; Haskett & Kistner, 1991; Kashani & Carlson, 1987; Mian et al., 1996). These results indicate that assessment of 0 to 3 year-olds may involve detection of signs of depression, such as somatic complaints, sleep disturbance, or loss of appetite, and behaviour indications, including age inappropriate sexual behaviour and violence to others. Also, day care workers, social workers, and other professionals who work with this young population need to assess for physical signs of maltreatment such as unusual bruising, burns, scars, tears, and so forth (Miller-Perrin & Perrin, 1999). Although the proportions of 0 to 3 year-olds were the lowest for all clinical findings in this study, these results suggest that 0 to 3 year-olds are at risk of experiencing various clinical findings.

The 0 to 3 age level's lack of exhibition of clinical findings could also be explained in that they may not show the full effects of maltreatment until later (Beitchman, Zucker, Hood, daCosta, & Akman, 1991). In addition, 0 to 3 year-olds do not have the opportunity to engage in some behaviours as would older children and adolescents. Prevention, such as family focused programs, is an important step in helping these young children. Prevention can involve using community resources for highrisk families, teaching parents about maltreatment, child development, and providing services available to parents, such as home visits, volunteers, parent groups, and parent training courses (Gough, 1988).

The results of this study show that children aged 0 to 3 years were more

likely to have a disability than older children and adolescents, particularly developmental delay and other health conditions. It is difficult to know if these disabilities are a cause or effect of maltreatment (Ammerman, Cassisi, Hersen, & Van Hasselt, 1986), unless there are some obvious signs of physical trauma (e.g., Reece, 1994). Disabilities at this young age can increase the children's risk for initial or ongoing maltreatment. Prevention or early intervention needs to involve extra supervision of children with disabilities at risk for maltreatment. Extra supervision is important to protect these children at risk and to observe interactions between parents and children in order to help parents and their children more effectively (Oates, 1996).

Home services and therapeutic day care are other options for helping children aged 0 to 3 who are identified for various clinical findings and disabilities. Home services of skilled social workers, nurses, or developmental specialists can work with parents and the child together (Kempe, 1997). Therapeutic day care programs with coordinated individual therapy for parents or family therapy are another option (Kempe, 1997; Oates, 1996). This kind of program provides therapeutic day care for children and involves working with the parents to help them with anger management, teach them how to respond to their children's behaviour, and improve their self-concept (Oates, 1996).

In this study, the most common clinical findings among children in age levels 4 to 7 and 8 to 11 years were behaviour problem, depression or anxiety, irregular school attendance and impaired peer relations, such as negative peer involvement and violence to others. Other researchers found similar results in non-representative samples of maltreated school-aged children (Allen & Tarnowski, 1989; Famularo et al., 1992; Salzinger et al., 1993). All of these clinical findings require assessment and treatment to meet school-aged children's needs.

Children aged 4 to 7 and 8 to 11 in this study need to be assessed for cognitive disability or learning problems, which may explain the high percentages of behaviour problems and irregular school attendance. Such assessment is particularly important during school-age years in order to prevent behaviour problems and irregular school attendance in

adolescence. Also, depression or anxiety among school-aged children in this study requires assessment and treatment.

To address negative peer involvement and violence to others found in school-aged children, group therapy may assist these children in their improvement of peer relations, verbalization and sharing of feelings, and socialization and limit-setting. This treatment modality may also help school-aged children with anxiety and behavioural symptoms (Kempe, 1997). Play or art therapy could be another alternative to help these children communicate their feelings. Individual therapy for school-aged children may also be appropriate in conjunction with group therapy or family therapy. School-aged children with serious behaviour problems or psychopathology may require more intensive therapy (Kempe, 1997).

In this study, developmental delay was the most common disability among children aged 4 to 7 and 8 to 11 years. Substance abuse-related birth defects were found to have the largest difference among 8 to 11 year-olds. These results suggest the need to assess school-aged children for these disabilities. Such assessment may aid the development of appropriate ongoing treatment and educational plans for these school-aged children with disabilities.

The results of this study show that adolescents aged 12 to 15 years had the highest proportions for all clinical findings. One explanation is that these older children have been subjected to maltreatment longer than younger children, the effects are cumulative, and they emerge in these later years (Beitchman et al., 1991). Consequently, adolescents have a variety of assessment and intervention concerns.

This study found that depression, anxiety, and substance abuse were common clinical findings among children aged 12 to 15 years. Other researchers report similar results in non-representative samples of adolescents (Pelcovitz et al., 2000; Riggs et al., 1990). Also, in this study, psychiatric disorders were among the least frequent clinical findings identified for age level 12 to 15. However, the proportion of 12 to 15 year-olds identified for psychiatric disorders was higher than at the younger age levels. Comprehensive assessment also could involve

screening for depression, anxiety, substance abuse, and psychopathology. Treatment for these depression, anxiety, substance abuse, and psychiatric disorders may involve medications, therapy and/or addiction recovery programs for adolescents aged 12 to 15 years.

Because behaviour problems, negative peer involvement, and violence to others were frequently identified in this study, adolescents need to learn conflict resolution skills. Treatment may involve residential programs, group counselling, or individual therapy to specifically meet the adolescents' needs (Kempe, 1997).

This study found that running away was another common clinical finding among the 12 to 15 age level. Researchers have found that runaway adolescents are at increased risk of further violence (Janus, Archambault, Brown, & Welsh, 1995) and more likely to engage in suicidal behaviour (Levine Powers, Eckenrode, & Jaklitsch, 1990). Self-harming behaviour was found in over 7% of those aged 12 to 15 in this study. As with the other clinical findings, it is important to view running away and suicidal tendencies as coping mechanisms. Although self-harming behaviour was defined as high-risk or life-threatening behaviour, suicide attempts or physical mutilation or cutting in this study (Trocme et al., 2001), it is important to note that self-harming behaviour may or may not indicate suicidal tendencies. Therefore, assessment and treatment of these behaviours among adolescents need to address intentional and nonintentional behaviours. Adolescents also need to be given alternatives to these behaviours as well as life skills training.

Overall, the results of this study emphasize the need for early and ongoing assessment for various clinical findings and disabilities across all age levels. Assessment could be implemented at regular intervals and with a variety of assessment measurements, such as behavioural observations, parent and/or teacher ratings for preschool-aged children, and self-report for older children and adolescents (Kravic, 1987). Such assessment could help determine risk for certain clinical findings and develop appropriate strategies to prevent or intervene early at each age level. Assessing for disabilities at each age level could also aid in the

development of appropriate strategies to meet children's needs.

The findings of this study may help professionals, such as frontline child and youth workers, day care workers, and teachers, to be aware of the risk of the different types of clinical findings at different age levels. Awareness of these clinical findings at different ages may help professionals who work with children understand differences between developmentally normal behaviour and effects of maltreatment. Understanding these differences may give professionals a clearer sense of how to recognize or suspect child maltreatment. This would be beneficial for the purposes of reporting suspected cases of child maltreatment to child welfare authorities.

It is important to point out that, when professionals are considering reporting maltreatment, they need to be aware of conditions that mimic child maltreatment (e.g. Bays, 1994a; Bays, 1994b; Zinn, 1994). Furthermore, the use of checklists to determine characteristics that may put a child at risk for maltreatment may be beneficial in monitoring a child for possible maltreatment (Browne & Saqi, 1988).

A few limitations of this study need to be considered. First, the effects of maltreatment are not certain in this sample because the design of the study does not allow for conclusions regarding cause and effect. Second, clinical findings and disabilities were only identified by social workers. However, their knowledge of clinical findings and disabilities was based on extensive training, and confirmed concerns were on the basis of specific criteria. Third, the proportions of 0 to 3 years-olds identified for various clinical findings were not zero as one might expect. Irregular school attendance (0.1%), running away (0.4%), substance abuse (0.2%), depression or anxiety (1.5%), are some examples. Because most of these clinical findings are not clearly defined in the CIS, it is unknown how the social workers interpreted these items on the checklist when collecting data. Lastly, because many modern statistical authorities argue against using a prespecified probability level for testing (Shadish, Cook, & Campbell, 2002), no specific criterion level was used to judge statistical significance. It is also important to point out that in each of the two tables, there are multiple tests. This suggests a need for a conservative

standard in evaluating the probability levels of individual variables. Probabilities found to be less than .001 suggest that they are extremely unlikely to have occurred as a result of chance, regardless of the multiple comparisons. Results with probability levels of greater than .01 should be viewed with caution.

Conclusion

These results suggest a myriad of clinical findings and disabilities are present in a nationally representative group of children and adolescents reported for maltreatment. In general, the percentages of children identified for clinical findings increased across age levels, whereas the percentages of children identified for disabilities decreased across age levels. The findings of this study lend to a developmental framework to guide assessment, prevention, intervention, and decisions for reporting child and adolescent maltreatment.

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Author Note

Dr. Diane Reinke, Victims Programs, Training and Information Officer, Alberta Solicitor General and Public Security, 10th Floor North, John E. Brownlee Building, 10365 – 97 Street, Edmonton, AB T5J 3W7, diane.reinke@gov.ab.ca