

# Witnessing violence— aggression and anxiety in young children

- One in twelve children aged 4 to 7 in 1998/99 had witnessed violence at home.
- Children who had seen violent behaviour were more likely than those who had not to be overtly aggressive.
- Levels of physical aggression remained high two and four years later for both sexes, and anxiety was high two years later for boys.

## Abstract

### Objectives

This article provides estimates of the percentage of children aged 4 to 7 who witnessed violence at home. Concurrent, short-term (2 years later) and longer-term (4 years later) associations between witnessing violence and overt aggression, indirect aggression, and anxiety are examined.

### Data source

The data are from the cross-sectional and longitudinal components of the first three cycles of Statistics Canada's National Longitudinal Survey of Children and Youth.

### Analytical techniques

The proportion of children who witnessed violence at home was estimated using weighted cross-sectional data from 1998/99. Multiple logistic regression analysis was used to examine concurrent, short-term and longer-term associations between witnessing violence and overt aggression, indirect aggression, and anxiety.

### Main results

In 1998/99, an estimated 8% of children aged 4 to 7 were reported to have seen violent behaviour at home. Witnessing violence was concurrently associated with overt aggression for both sexes, indirect aggression among boys, and anxiety among girls. Witnessing violence was predictive of overt aggression two and four years later for both sexes. Girls also had high odds of exhibiting indirect aggression in 1996/97 and anxiety in 1998/99; for boys, elevated anxiety was observed in 1996/97.

### Key words

child development, child behaviour, family relations, assaultive behaviour

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Exposure to violence in the home is now recognized as a form of child maltreatment.<sup>1</sup> Nonetheless, the findings of recent research on how witnessing violence may affect children are often unclear, contradictory and inconclusive.<sup>2,3</sup>

Some studies have found that children exposed to family violence have more emotional or “internalizing” problems such as anxiety<sup>4-6</sup> and behavioural or “externalizing” problems such as aggression than do children not exposed to family violence.<sup>7-9</sup> Other studies have not always found such relationships.<sup>5,10,11</sup> As well, some children experience negative effects in the short term, others have both short- and longer-term effects, and still others seem to experience no effects related to witnessing violence.<sup>12</sup> The immediate and longer-term associations between seeing violent behaviour and children’s aggression and anxiety depend on the child’s age and sex, the severity, intensity and chronicity of the violence, the child’s perception of his or her role in the violence, and parental responses.<sup>13</sup> However, much of the research has been based on data collected at one point in time;<sup>14</sup> for example, retrospective accounts from adult survivors of family violence.<sup>15-17</sup>

With cross-sectional data from the 1998/99 National Longitudinal Survey of Children and Youth (NLSCY), this article presents prevalence estimates of witnessing violence at home for children aged 4 to 7 (see *Definitions, Limitations and Methods*). Both cross-sectional and longitudinal NLSCY data are used to study levels of aggression and anxiety in 1994/95, and two and four years later (in 1996/97 and 1998/99) among young children who, in 1994/95, were reported by a parent to have seen violent behaviour at home.

All associations are examined in multivariate models that control for the influence of other variables known to affect the outcomes—characteristics of the child and the parent, family type, and parenting style. Because boys and girls react differently to witnessing violence,<sup>2,18,19</sup> separate analyses are conducted for each sex.

### One in twelve

According to results of the 1998/99 NLSCY, 1 in 12 children (8%) aged 4 to 7 had witnessed violence at home—an estimated 120,000 (Table 1). Most of them (64%) had “seldom” seen violent behaviour. For about a third (30%), the experience had occurred “sometimes,” and for 5%, “often.” Boys and girls were equally likely to have seen violent behaviour.

Witnessing violence was more common among children with an older parent (35 or older) or with other siblings in the household.

Socio-economic status seemed to make a difference: children whose reporting parent had less than secondary graduation were more likely to have witnessed violence than those whose parent had a higher level of education. There was also a link with household income—children in low- or lower-middle

## Definitions

In the National Longitudinal Survey of Children and Youth, the extent of violence witnessed by children in their homes was determined by asking a parent (the person most knowledgeable about the child or PMK), “How often does the child see adults or teenagers in the home physically fighting, hitting or otherwise trying to hurt others?” The response categories were “often,” “sometimes,” “seldom” and “never.” For this analysis, children who were reported to have witnessed violence often, sometimes or seldom were classified as having witnessed violence. When no information about *witnessing violence* was provided, records were excluded.

In 88.8% of all cases, the PMK was the biological mother, and in another 8.7% of cases, the biological father. Therefore, in this article, the term “parent” is used rather than PMK.

The following *age groups* were established for the parent: younger than 35, and 35 or older.

Three *family types* were established: two biological/adoptive parents; two parents with at least one step-parent; and lone-parent. Children who did not live with a parent or who were living with foster parents were excluded from the analysis.

The number of *siblings in the household* was categorized as none or at least one (including full-, half-, step-, adopted and foster siblings).

The *parent’s education* was classified as: less than secondary graduation, secondary graduation, or at least some postsecondary.

Employment status of the parent was either *employed* or not currently working.

*Household income* was determined according to total household income from all sources in the previous 12 months and the number of household members.

Household income group	People in household	Total household income
Lowest/Lower-middle	1 to 4 5 or more	Less than \$20,000 Less than \$30,000
Middle/Upper-middle/ Highest	1 to 4 5 or more	\$20,000 or more \$30,000 or more

To measure parents’ perceived emotional support, they were asked to respond to the following statements on a four-point scale ranging from “strongly disagree” (score 0) to “strongly agree” (score 3):

- If something went wrong, no one would help me. (Reverse scored.)
- I have family and friends who help me feel safe, secure and happy.
- There is someone I trust whom I would turn to for advice if I were having problems.
- There is no one I feel comfortable talking about problems with. (Reverse scored.)
- I lack a feeling of closeness with another person. (Reverse scored.)
- There are people I can count on in an emergency.

The responses were summed, with potential values ranging from 0 to 18 (Cronbach’s alpha = 0.82). Scores of 11 or less were considered to indicate *low emotional support*. This cut-off was established based on the lowest quartile of the weighted distribution of the 1994/95 cross-sectional data.

income households were almost twice as likely to have witnessed violence as children in middle- or higher-income homes.

Table 1  
**Prevalence of witnessing violence at home, by selected characteristics, household population aged 4 to 7, Canada excluding territories, 1998/99**

	%
<b>Both sexes</b>	<b>8.1</b>
Boy <sup>†</sup>	8.2
Girl	8.0
<b>Child's age</b>	
4 or 5 <sup>†</sup>	8.3
6 or 7	7.9
<b>Parent's age</b>	
Younger than 35 <sup>†</sup>	6.8
35 or older	9.3*
<b>Family type</b>	
Two biological/adoptive parents <sup>†</sup>	7.5
Two parents (at least one step-parent)	6.9 <sup>E2</sup>
Lone parent	11.4*
<b>Siblings in household</b>	
None	4.7 <sup>E1</sup>
One+ <sup>†</sup>	8.7*
<b>Parent's education</b>	
Less than secondary graduation	11.9*
Secondary graduation	8.2
At least some postsecondary <sup>†</sup>	7.4
<b>Parent employed</b>	
Yes <sup>†</sup>	8.1
No	8.4 <sup>E1</sup>
<b>Household income</b>	
Lowest/Lower-middle	13.1*
Middle/Upper-middle/Highest <sup>†</sup>	7.3
<b>Parent has low emotional support</b>	
Yes	9.1
No <sup>†</sup>	8.0
<b>Parenting style</b>	
<b>Low positive interaction</b>	
Yes	10.8*
No <sup>†</sup>	7.3
<b>Low consistency</b>	
Yes	11.8*
No <sup>†</sup>	7.1
<b>Hostile</b>	
Yes	12.1*
No <sup>†</sup>	7.0
<b>Punitive</b>	
Yes	12.3*
No <sup>†</sup>	7.3

**Data source:** 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file

**Note:** Based on 11,484 records

<sup>†</sup> Reference category

<sup>E1</sup> Coefficient of variation between 16.6% and 25.0%

<sup>E2</sup> Coefficient of variation between 25.1% and 33.3%

\* Significantly higher than reference category ( $p < 0.05$ , adjusted for multiple comparisons)

A relatively high proportion (11%) of children in lone-parent families had witnessed violence. The likelihood that children living with a step-parent would have seen violent behaviour at home was about the same as for children living with two biological/adoptive parents (around 7%).

This analysis of NLSCY data indicated that parenting style was a factor in witnessing violence, a finding consistent with other research.<sup>20</sup> Higher rates were reported for children whose parents gave little positive feedback, were inconsistent, or were quite hostile or punitive (see *Parenting style*).

For most children, witnessing violence at home was not a recurrent experience. Close to 60% of those reported to have witnessed violence in 1994/95 did not do so in the two subsequent survey cycles. Approximately one-quarter (24%) witnessed violence in 1996/97, and 29% in 1998/99.

Nonetheless, having witnessed violence in 1994/95 had both an immediate and longer-term association with children's aggression and anxiety (see *Aggression and anxiety*).

### Overt aggression

Fighting, making threats, getting angry, and bullying are all signs of overt aggression. For both boys and girls, witnessing violence at home was associated with such behaviour in the short-term. Forty-three percent of boys who witnessed violence in 1994/95 were overtly aggressive, compared with 25% of boys who had not observed violence (Chart 1). The figures were lower among girls, but the gap remained: 27% versus 17%.

Of course, many other factors may have played a role in the children's aggressive behaviour; for example, family type, socio-economic status and parenting practices. Yet even when these and other potential confounders were taken into account, having witnessed violence was independently associated with overt aggression among both sexes in 1994/95 (Table 2, Appendix Table A). The high odds of overt aggression among girls is somewhat unexpected. Other studies have found that girls are more likely to react with internalizing behaviour such as anxiety, rather than externalizing behaviour such as aggression.<sup>21</sup>

For both sexes, levels of aggression remained elevated. Boys and girls who witnessed violence in 1994/95 were more likely than those who had not to exhibit overt aggression two (in 1996/97) and four (in 1998/99) years later. Previous research has also found that although children's reactions may be more pronounced immediately after they have been

## Parenting style

Four scales were used to establish parenting style: positive interaction, consistent, hostile/ineffective, and punitive.

To measure *positive interaction*, the parent was asked to respond to five statements on a five-point scale: "never" (score 0), "about once a week or less" (1), "a few times a week" (2), "one or two times a week" (3) or "many times each day" (4).

- How often do you praise him/her, by saying something like "Good for you!" or "What a nice thing you did!" or "That's good going!"?
- How often do you and he/she talk or play with each other, focusing attention on each other for five minutes or more, just for fun?
- How often do you and he/she laugh together?
- How often do you do something special with him/her that he/she enjoys?
- How often do you play sports, hobbies or games with him/her?

The responses were summed with potential values ranging from 0 to 20 (Cronbach's alpha = 0.81). Scores of 11 or less (the lowest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate low positive interaction.

To measure *consistency*, the parent was asked to respond to five statements on a five-point scale: "never" (score 0), "less than half the time" (1), "about half the time" (2), "more than half the time" (3), or "all the time" (4).

- When you give him/her a command or order to do something, what proportion of the time do you make sure that he/she does it?
- If you tell him/her, he/she will get punished if he/she doesn't stop doing something, and he/she keeps doing it, how often will you punish him/her?
- How often does he/she get away with things that you feel should have been punished? (Reverse scored.)
- How often is he/she able to get out of a punishment when he/she really sets his/her mind to it? (Reverse scored.)
- How often when you discipline him/her, does he/she ignore the punishment? (Reverse scored.)

The responses were summed with potential values ranging from 0 to 20 (Cronbach's alpha = 0.66). Scores of 12 or less (the lowest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate low consistency.

To identify *hostile/ineffective* parenting, the parent was asked to respond to five statements on a five-point scale: "never" (score 0), "about once a week or less" (1), "a few times a week" (2), "one or two times a week" (3), or "many times each day" (4).

- How often do you get annoyed with him/her for saying or doing something he/she is not supposed to?
- How often do you get angry when you punish him/her?
- How often do you think the kind of punishment you give him/her depends on your mood?
- How often do you feel you have problems managing him/her in general?
- How often do you have to discipline him/her repeatedly for the same thing?

The parent was also asked to respond to two statements on a five-point scale: "never" (score 0), "less than half the time" (1), "about half the time" (2), "more than half the time" (3), or "all of the time" (4).

- Of all the times you talk to him/her about his/her behaviour, what proportion is praise? (Reverse scored.)
- Of all the times you talk to him/her about his/her behaviour, what proportion is disapproval?

The responses to these seven questions were summed, with potential values ranging from 0 to 28 (Cronbach's alpha = 0.71). Scores of 12 or more (the highest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate high hostility.

To identify *punitive* parenting, the parent was asked to respond to four statements on a five-point scale: "never" (score 0), "rarely" (1), "sometimes" (2), "often" (3), or "always" (4). When he/she breaks the rules or does things that he/she is not supposed to, how often do you:

- Raise your voice, scold or yell at him/her?
- Calmly discuss the problem? (Reverse scored.)
- Use physical punishment?
- Describe alternative ways of behaving that are acceptable? (Reverse scored.)

The responses were summed with potential values ranging from 0 to 16 (Cronbach's alpha = 0.57). Scores of 7 or more (the highest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate punitive parenting.

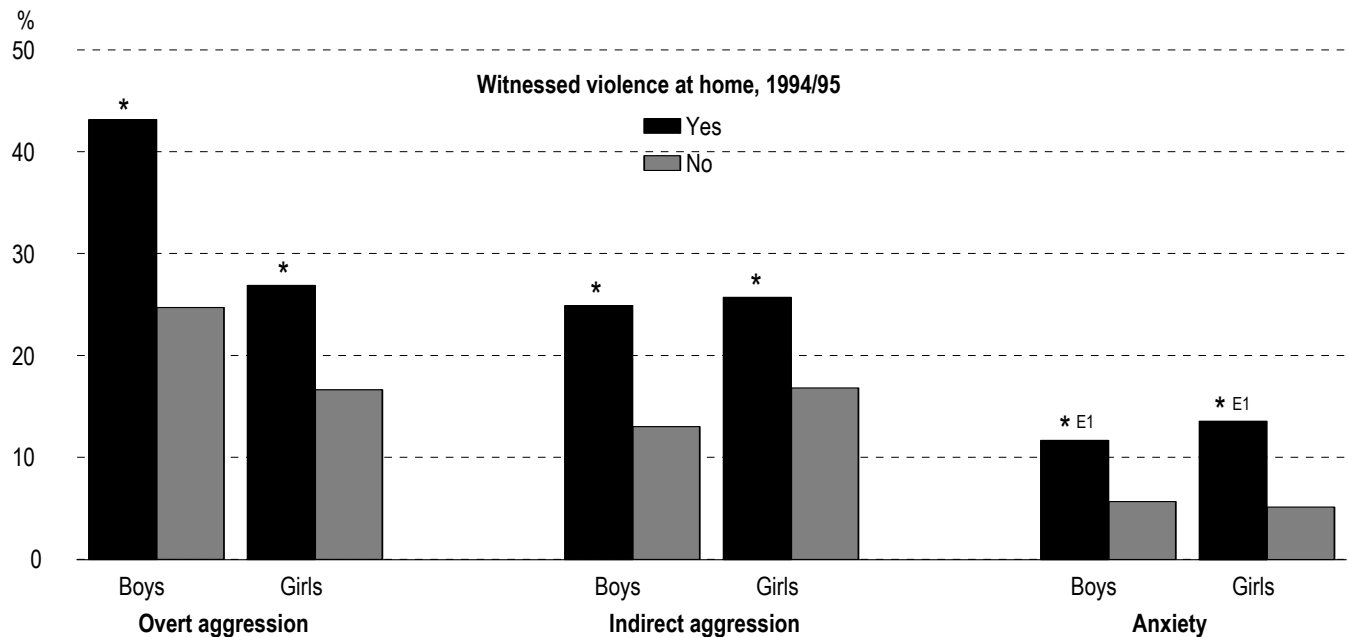
exposed to violence, they can also display longer-term developmental and/or psychological problems, such as conduct disorder and antisocial or self-injurious behaviour.<sup>22</sup> It has also been noted that conduct disorders such as aggression in childhood may be the single best predictor of future conduct disorders.<sup>23</sup>

### Indirect aggression

Aggression is not necessarily physical or overt. It may involve more subtle behaviour such as trying to get others to dislike or exclude a particular person, gossiping, and disclosing someone's secrets; in other words, indirect aggression.

Chart 1

**Overt aggression, indirect aggression, and anxiety, by sex and witnessing violence at home, household population aged 4 to 7, Canada excluding territories, 1994/95**



Data sources: 1994/95 National Longitudinal Survey of Children and Youth, cross-sectional file

\* Significantly higher than those who did not witness violence ( $p < 0.05$ )

E1 Coefficient of variation between 16.6% and 25.0%

Table 2

**Adjusted odds ratios relating witnessing violence at home in 1994/95 to overt aggression, indirect aggression, and anxiety in 1994/95, 1996/97 and 1998/99, by sex, household population aged 4 to 7 in 1994/95, Canada excluding territories**

	Boys						Girls					
	1994/95		1996/97		1998/99		1994/95		1996/97		1998/99	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Overt aggression</b>												
<b>Witnessed violence at home, 1994/95</b>												
Yes	1.9*	1.2, 2.8	1.7*	1.1, 2.7	2.1*	1.0, 4.0	1.8*	1.1, 2.8	2.3*	1.3, 4.1	2.1*	1.2, 3.9
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Indirect aggression</b>												
<b>Witnessed violence at home, 1994/95</b>												
Yes	1.6*	1.0, 2.4	1.1	0.6, 1.9	1.5	0.8, 2.8	1.4	0.8, 2.2	2.0*	1.2, 3.3	1.5	0.8, 2.5
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Anxiety</b>												
<b>Witnessed violence at home, 1994/95</b>												
Yes	1.4	0.8, 2.6	1.9*	1.0, 3.6	1.0	0.5, 2.0	2.6*	1.4, 4.9	1.4	0.6, 3.1	2.2*	1.0, 4.6
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...

Data sources: 1994/95 National Longitudinal Survey of Children and Youth, cross-sectional file; 1994/95 to 1996/97 National Longitudinal Survey of Children and Youth, longitudinal file; 1994/95 to 1998/99 National Longitudinal Survey of Children and Youth, longitudinal file

Notes: Adjusted for: age of child; siblings in household; family type; household income; age, employment and emotional support of parent; and parenting style (Appendix Tables A to C). Because of rounding, some confidence intervals with 1.0 as lower limit are significant.

† Reference category

\* Significantly different from reference category ( $p < 0.05$ )

... Not applicable



## Aggression and anxiety

Three outcomes were considered in assessing the potential effects of witnessing violence on children: overt aggression, indirect aggression and anxiety.

To measure the child's level of *overt aggression*, the parent was asked to respond to six statements on a three-point scale: "never or not true" (score 0), "sometimes or somewhat true" (1), or "often or very true" (2). How often would you say that he/she:

- Gets into fights?
- When another child accidentally hurts him/her (such as by bumping into him/her), assumes that the other child meant to do it, and then reacts with anger and fighting?
- Physically attacks people?
- Threatens people?
- Is cruel, bullies or is mean to others?
- Kicks, bites, hits other children?

The responses were summed with potential values ranging from 0 to 12 (Cronbach's alpha = 0.77). Scores of 3 or more (the highest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate high overt aggression.

To measure *indirect aggression*, the parent was asked to respond to five statements on a three-point scale: "never or not true" (score 0), "sometimes or somewhat true" (1), or "often or very true" (2). How often would you say that when mad at someone he/she:

- Tries to get others to dislike that person?

- Becomes friends with another as revenge?
- Says bad things behind the other's back?
- Says to others: let's not be with him/her?
- Tells the other one's secrets to a third person?

The responses were summed with potential values ranging from 0 to 10 (Cronbach's alpha = 0.78). Scores of 3 or more (the highest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate high indirect aggression.

To measure the child's level of *anxiety*, the parent was asked to respond to eight statements using a three-point scale: "never or not true" (score 0), "sometimes or somewhat true" (1), or "often or very true" (2). How often would you say that he/she:

- Seems to be unhappy, sad or depressed?
- Is not as happy as other children?
- Is too fearful or anxious?
- Is worried?
- Cries a lot?
- Appears miserable, unhappy, tearful, or distressed?
- Is nervous, high strung or tense?
- Has trouble enjoying him/herself?

The responses were summed with potential values ranging from 0 to 16 (Cronbach's alpha = 0.79). Scores of 7 or more (the highest quartile of the weighted distribution of the 1994/95 cross-sectional data) were considered to indicate high anxiety.

In 1994/95, levels of indirect aggression tended to be high among children who were reported to have witnessed violence at home. Around a quarter of such boys and girls displayed indirect aggression, compared with 13% of boys and 17% of girls who had not witnessed violence (Chart 1). When other factors were taken into consideration, the relationship between witnessing violence and indirect aggression in 1994/95 remained for boys, although it was no longer significant for girls (Table 2, Appendix Table B). However, two years later (in 1996/97), girls who had witnessed violence in 1994/95 had high levels of indirect aggression.

### Anxiety

A child classified as having high anxiety was, in the parent's opinion, unhappy, fearful and tense. Such characteristics were relatively common among children who had witnessed violence, compared with their contemporaries who had not done so. In 1994/95, 12% of boys who had witnessed violence had a high

level of anxiety, compared with 6% of those who had not; the corresponding percentages for girls were 14% and 5% (Chart 1). For boys, the relationship between witnessing violence and anxiety in 1994/95 did not persist when factors such as family type and parenting style were taken into account (Table 2, Appendix Table C). By contrast, for girls, even allowing for the effects of these other variables, the odds of high anxiety in 1994/95 were over two times greater for those who had witnessed violence, compared with those who had not.

Research has found that the earlier children exhibit anxiety, the more likely it will last and influence their future behaviour.<sup>3</sup> Similarly, results of the analysis of NLSCY data show that for both sexes, witnessing violence in 1994/95 was significantly associated with anxiety in the future—two years later for boys, and four years later for girls. The high odds of anxiety among boys is somewhat surprising. Other studies have found that boys are more likely to react with externalizing behaviour such as physical aggression.<sup>21</sup>

## Limitations

The National Longitudinal Survey of Children and Youth (NLSCY) is a general survey that was designed to monitor child development; therefore, questions about physical violence in the home are limited. The severity of the violence is unknown, and it is not possible to differentiate between children who were reported to have witnessed violence and those who may have been victims of physical violence themselves. The NLSCY asks only about violence that children see; no information is provided about the more covert ways in which children may be exposed to violence (heard the confrontation or experienced the aftermath). As well, the questions pertain only to physical violence and do not include emotional abuse such as verbal insults.

The analysis is based on information provided by a parent. Most notably, "violence in the home" is the parent's interpretation and depends on his or her willingness to disclose such information. Parents may intentionally minimize, deny or discount the extent of the violence because of embarrassment or fear of the consequences, or because they simply do not believe it is "violence." A 1994 study found that 10% of the children in a community-based sample reported witnessing inter-parental violence that neither parent had acknowledged.<sup>24</sup> As well, parents may falsely assume that their children are not aware of the violence. A Canadian study reported that many parents believed their children were sleeping or playing during a violent episode, yet these children were able to provide detailed accounts of the events that they supposedly did not witness.<sup>19</sup>

In addition to their reluctance to report that their child has witnessed violence, parents' wish to provide socially desirable answers may have influenced their descriptions of their parenting style and of their child's behaviour. The account of children's behaviour comes from only one source, typically the mother. When parents are the

perpetrators or victims of abuse, or the partners of child abusers, their ability to assess their children's behaviour may be compromised.<sup>6</sup> For example, parents may project their own frustrations onto their children, and distressed parents are known to rate their children's behaviour more critically than would objective observers.<sup>28</sup>

In some cases, the violence observed by children may have involved teenage siblings. However, it was not possible to determine who was involved in the violence, although this might influence the relationship between witnessing violence and the outcomes.

Although the NLSCY is longitudinal, small sample sizes precluded the possibility of examining the outcome variables in relation to repeated witnessing of violence.

Even with the longitudinal data, a temporal relation was not established, and causality cannot be inferred. The elevated levels of aggression and anxiety may have existed before witnessing violence. Furthermore, there may be variables associated with the outcomes that were not taken into account in the multivariate analyses. The importance of these variables as potential confounders is unknown.

Results of this study may differ from those of other studies because of differences in the scales used to measure overt aggression, indirect aggression, and anxiety.

Excluding children who lived in the Yukon, Nunavut and Northwest Territories, in institutions or on reserves, and those living with foster parents may have yielded different results than if the entire population of Canadian children had been included. As well, many studies examining the effects of exposure to violence on children are based on residents of women's shelters. Children living in such facilities would not be covered by the NLSCY.

Furthermore, these findings are particularly notable given that anxiety is less visible than aggression; therefore, it is more difficult to identify in younger children.<sup>25-27</sup>

### Concluding remarks

In 1998/99, 1 in 12 children aged 4 to 7 was reported to have witnessed violence at home. For most of these young children, this was an infrequent occurrence that was not evident two and four years later. Even so, the experience was related to short- and longer-term behaviour and emotional problems.

The cross-sectional results indicate that for both sexes, witnessing violence was concurrently associated with high levels of overt aggression. For boys, the experience was also linked with indirect aggression, and for girls, with anxiety. Based on longitudinal data, boys and girls who witnessed violence in 1994/95 continued to be overtly aggressive two and four years later. Girls who witnessed violence in 1994/95 were also more likely to display indirect aggression in 1996/97 and anxiety in 1998/99, while for boys, elevated anxiety was observed in 1996/97.

## Methods

### Data source

The biennial National Longitudinal Survey of Children and Youth (NLSCY) is conducted by Statistics Canada and Human Resources Development Canada. The survey, which began in 1994/95, has longitudinal and cross-sectional components. It will follow a representative sample of Canadian children aged newborn to 11 in all provinces and territories into adulthood.

In each household, the person considered most knowledgeable (PMK) about the child completed a set of questions designed to provide socio-economic and general health information about him/herself and his/her spouse or partner and about the child, including the child's health and social environment.

In 1994/95 (cycle 1), a total of 15,579 households were selected to participate in the NLSCY. Of these, 13,439 responded, yielding an overall household response rate of 86.3%. In these responding households, up to 2 children were selected to follow over time. The response rate for these children was 92% in 1996/97 and 89% in 1998/99. The longitudinal response rates for the 1996/97 and 1998/99 (cycles 2 and 3), based on the respondents in cycle 1, were 92% and 89%, respectively.

This analysis focuses on a subsample of 7,268 children in the 10 provinces, who were aged 4 to 7 in 1994/95. Children who were not living with parents or who were living with foster parents were excluded. Sample sizes for the cross-sectional and longitudinal files can be found in the Appendix (Tables D to G).

### Analytical techniques

The prevalence of witnessing violence was determined based on the 1998/99 NLSCY. Descriptive statistics based on the 1998/99 cross-sectional file were used to determine the prevalence of witnessing violence in relation to selected characteristics of the child,

parent and family.

The 1994/95 cross-sectional file was used to examine concurrent associations between witnessing violence and three outcomes: overt aggression, indirect aggression, and anxiety. Relationships between witnessing violence and these outcomes in 1994/95 were considered in a series of multivariate models that controlled for demographic, socio-economic, family and parenting characteristics believed to play a role in the relationship.

The longitudinal file was used to measure associations between witnessing violence in 1994/95 and high levels of overt aggression, indirect aggression and anxiety two years later (1996/97) and four years later (1998/99). Again, associations were examined in multivariate regression models. In all regression models, the continuous scales used to measure the three outcome variables were dichotomized due to highly skewed distributions.

Because the NLSCY does not measure the three outcomes when the child is older than 11, the analysis was restricted to children aged 4 to 7 in 1994/95 to ensure that they were not older than 11 in 1998/99 at the time of the cycle 3 interviews.

Children who were not living with parents or who were living in a foster home were excluded from the analyses. This amounted to the removal of less than half a percent of child records.

The 1994/95 cross-sectional and longitudinal data were weighted to reflect the population of the 10 provinces in 1994/95. The 1998/99 cross-sectional file was weighted to reflect population levels in 1998/99. The bootstrap technique was used to account for the design effect of the survey in variance estimations and significance tests.<sup>29,30</sup> The significance level was set at  $p < 0.05$ . In September 2003, revisions were made to the NLSCY weights. This analysis was based on the weights prior to those revisions.

This analysis has the advantage of population-based longitudinal data—something not available for most previous research on aggression and anxiety among children in relation to violence at home. As well, the ability to control for the many potentially confounding variables that are included in the National

Longitudinal Survey of Children and Youth enhances the analysis. The results add to the emerging evidence that witnessing violence is associated with aggression and anxiety in young children, and that these problems persist in both the short- and longer-term. ■



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## Appendix

Table A

Adjusted odds ratios relating witnessing violence at home in 1994/95 to overt aggression in 1994/95, 1996/97 and 1998/99, by sex and selected characteristics in 1994/95, household population aged 4 to 7, Canada excluding territories

Characteristics in 1994/95	Boys Overt aggression in:						Girls Overt aggression in:					
	1994/95		1996/97		1998/99		1994/95		1996/97		1998/99	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Witnessed violence at home, 1994/95</b>												
Yes	1.9*	1.2, 2.8	1.7*	1.1, 2.7	2.1*	1.0, 4.0	1.8*	1.1, 2.8	2.3*	1.3, 4.1	2.1*	1.2, 3.9
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Child's age</b>												
4 or 5†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
6 or 7	0.8	0.7, 1.0	1.0	0.7, 1.4	1.0	0.6, 1.4	0.7*	0.6, 1.0	0.6*	0.4, 0.9	1.1	0.8, 1.6
<b>Parent's age</b>												
Younger than 35	1.2	1.0, 1.6	1.3	1.0, 1.9	1.2	0.8, 1.7	1.3	0.9, 1.7	1.1	0.7, 1.6	2.1*	1.4, 3.2
35 or older†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Siblings in household</b>												
None	0.7	0.5, 1.0	0.9	0.5, 1.5	0.8	0.5, 1.4	0.6	0.4, 1.1	0.5*	0.3, 0.8	0.5	0.2, 1.2
One+†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Family type</b>												
Two biological/adoptive parents†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
Two parents (at least one step-parent)	0.8	0.5, 1.3	0.8	0.4, 1.6	0.5	0.2, 1.3	0.7	0.3, 1.3	2.6*	1.2, 5.6	0.7	0.2, 2.7
Lone parent	1.8*	1.3, 2.5	1.2	0.7, 1.9	1.6	1.0, 2.8	1.6	0.9, 2.6	1.9*	1.0, 3.4	1.2	0.6, 2.2
<b>Parent's education</b>												
Less than secondary graduation	1.1	0.7, 1.5	0.9	0.5, 1.4	1.4	0.8, 2.2	0.9	0.6, 1.2	1.2	0.7, 2.0	0.9	0.5, 1.6
Secondary graduation	0.8	0.6, 1.0	1.0	0.7, 1.4	0.7*	0.5, 1.0	0.7	0.5, 1.2	1.1	0.7, 2.0	1.0	0.6, 1.6
At least some postsecondary†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parent employed</b>												
Yes†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
No	1.0	0.7, 1.3	1.1	0.8, 1.5	0.8	0.5, 1.2	1.2	0.9, 1.6	0.9	0.6, 1.3	1.0	0.6, 1.4
<b>Household income</b>												
Lowest/Lower-middle	0.8	0.6, 1.1	1.0	0.6, 1.7	1.3	0.8, 2.0	0.7	0.5, 1.1	0.6	0.4, 1.0	1.2	0.7, 2.1
Middle/Upper-middle/Highest†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parent has low emotional support</b>												
Yes	0.8	0.5, 1.2	1.3	0.8, 2.0	1.4	0.8, 2.4	1.0	0.6, 1.6	1.9*	1.1, 3.3	1.3	0.6, 2.6
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parenting style</b>												
Low positive interaction	1.0	0.8, 1.4	0.8	0.6, 1.2	1.0	0.6, 1.5	1.0	0.7, 1.4	1.7*	1.0, 2.8	1.2	0.7, 1.9
Low consistency	1.2	0.9, 1.5	1.4	0.9, 2.0	1.1	0.8, 1.7	1.0	0.7, 1.4	0.9	0.6, 1.4	0.9	0.6, 1.5
Hostile	3.3*	2.6, 4.3	2.2*	1.6, 3.1	2.1*	1.4, 3.1	3.9*	2.8, 5.3	2.6*	1.6, 4.1	2.3*	1.5, 3.5
Punitive	1.4*	1.1, 2.0	1.3	0.9, 1.8	1.5*	1.0, 2.3	1.4	1.0, 2.0	1.5	1.0, 2.4	1.2	0.7, 1.9
<b>Model information</b>												
Sample size	3,496		2,193		1,899		3,433		2,196		1,901	
Sample with high physical aggression	1,006		505		435		643		314		288	
Records dropped because of missing values	190		114		235		149		93		218	

**Data sources:** 1994/95 National Longitudinal Survey of Children and Youth, cross-sectional file; 1994/95 to 1996/97 National Longitudinal Survey of Children and Youth, longitudinal file; 1994/95 to 1998/99 National Longitudinal Survey of Children and Youth, longitudinal file

**Notes:** When not noted, reference category is absence of characteristic; for example, reference category for "hostile" is "not hostile." Because of rounding, some confidence intervals with 1.0 as lower/upper limit are significant.

† Reference category

\* Significantly different from reference category ( $p < 0.05$ )

... Not applicable

Table B  
Adjusted odds ratios relating witnessing violence at home in 1994/95 to indirect aggression in 1994/95, 1996/97 and 1998/99, by sex and selected characteristics in 1994/95, household population aged 4 to 7, Canada excluding territories

Characteristics in 1994/95	Boys Indirect aggression in:						Girls Indirect aggression in:					
	1994/95		1996/97		1998/99		1994/95		1996/97		1998/99	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Witnessed violence at home, 1994/95</b>												
Yes	1.6*	1.0, 2.4	1.1	0.6, 1.9	1.5	0.8, 2.8	1.4	0.8, 2.2	2.0*	1.2, 3.3	1.5	0.8, 2.5
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Child's age</b>												
4 or 5†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
6 or 7	2.1*	1.5, 2.9	1.4*	1.0, 2.0	1.0	0.6, 1.5	2.3*	1.6, 3.2	1.4*	1.0, 2.0	1.0	0.7, 1.5
<b>Parent's age</b>												
Younger than 35	1.1	0.7, 1.6	1.8*	1.2, 2.7	1.0	0.7, 1.6	1.4	1.0, 1.9	0.8	0.6, 1.2	1.5*	1.0, 2.2
35 or older†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Siblings in household</b>												
None	1.0	0.6, 1.7	1.1	0.6, 2.0	1.0	0.5, 1.7	0.8	0.4, 1.3	1.0	0.6, 1.6	0.7	0.4, 1.1
One+†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Family type</b>												
Two biological/adoptive parents†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
Two parents (at least one step-parent)	1.3	0.6, 2.7	0.9	0.4, 1.8	0.6	0.2, 1.5	1.6	0.8, 3.2	2.5*	1.2, 4.9	0.6	0.2, 1.9
Lone parent	1.3	0.9, 2.0	1.6	0.9, 2.9	1.6	0.9, 2.9	2.3*	1.4, 3.9	2.2*	1.3, 3.8	1.6	0.9, 2.6
<b>Parent's education</b>												
Less than secondary graduation	1.1	0.7, 1.8	1.2	0.7, 2.0	2.4*	1.4, 4.1	1.0	0.7, 1.5	0.8	0.5, 1.2	1.2	0.7, 2.0
Secondary graduation	0.8	0.5, 1.1	1.3	0.8, 2.0	1.2	0.8, 1.9	1.0	0.7, 1.5	0.9	0.5, 1.4	1.2	0.7, 1.9
At least some postsecondary†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parent employed</b>												
Yes†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
No	0.7	0.4, 1.1	1.3	0.9, 2.0	0.7	0.4, 1.1	1.1	0.8, 1.6	1.1	0.8, 1.5	0.6*	0.4, 1.0
<b>Household income</b>												
Lowest/Lower-middle	1.6*	1.0, 2.6	1.1	0.6, 1.9	1.0	0.6, 1.6	0.7	0.5, 1.2	0.8	0.5, 1.4	1.0	0.6, 1.6
Middle/Upper-middle/Highest†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parent has low emotional support</b>												
Yes	1.4	0.8, 2.3	1.1	0.6, 1.9	1.3	0.7, 2.6	1.0	0.6, 1.7	1.1	0.6, 1.8	1.0	0.5, 2.1
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parenting style</b>												
Low positive interaction	1.2	0.9, 1.8	1.1	0.7, 1.7	1.3	0.7, 2.2	1.3	0.9, 1.8	1.5	1.0, 2.3	1.5	1.0, 2.3
Low consistency	1.6*	1.1, 2.2	1.5*	1.0, 2.2	1.6	1.0, 2.6	1.4*	1.0, 2.0	1.3	0.9, 2.0	1.5	1.0, 2.3
Hostile	2.3*	1.7, 3.1	1.5*	1.0, 2.3	2.9*	1.9, 4.4	2.2*	1.5, 3.1	2.1*	1.3, 3.2	1.6	1.0, 2.6
Punitive	1.1	0.8, 1.6	1.2	0.8, 1.9	1.1	0.7, 1.8	1.6*	1.1, 2.3	1.1	0.7, 1.5	1.5	1.0, 2.4
<b>Model information</b>												
Sample size	3,414		2,082		1,788		3,342		2,107		1,809	
Sample with high indirect aggression	498		330		272		543		443		397	
Records dropped because of missing values	272		225		346		240		182		310	

**Data sources:** 1994/95 National Longitudinal Survey of Children and Youth, cross-sectional file; 1994/95 to 1996/97 National Longitudinal Survey of Children and Youth, longitudinal file; 1994/95 to 1998/99 National Longitudinal Survey of Children and Youth, longitudinal file

**Notes:** When not noted, reference category is absence of characteristic; for example, reference category for "hostile" is "not hostile." Because of rounding, some confidence intervals with 1.0 as lower/upper limit are significant.

† Reference category

\* Significantly different from reference category ( $p < 0.05$ )

... Not applicable

Table C

Adjusted odds ratios relating witnessing violence at home in 1994/95 to anxiety in 1994/95, 1996/97 and 1998/99, by sex and selected characteristics in 1994/95, household population aged 4 to 7, Canada excluding territories

Characteristics in 1994/95	Boys Anxiety in:						Girls Anxiety in:					
	1994/95		1996/97		1998/99		1994/95		1996/97		1998/99	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<b>Witnessed violence at home, 1994/95</b>												
Yes	1.4	0.8, 2.6	1.9*	1.0, 3.6	1.0	0.5, 2.0	2.6*	1.4, 4.9	1.4	0.6, 3.1	2.2*	1.0, 4.6
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Child's age</b>												
4 or 5†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
6 or 7	2.4*	1.5, 3.8	1.1	0.7, 1.6	0.8	0.5, 1.3	1.6	1.0, 2.6	1.3	0.8, 2.2	1.0	0.5, 1.8
<b>Parent's age</b>												
Younger than 35	1.3	0.8, 2.2	1.7	1.0, 2.7	1.2	0.7, 1.8	1.5	0.9, 2.3	1.6	1.0, 2.7	2.6*	1.4, 4.7
35 or older†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Siblings in household</b>												
None	0.9	0.4, 1.8	0.6	0.3, 1.1	2.6*	1.4, 4.9	0.6	0.3, 1.3	1.0	0.5, 2.0	0.4*	0.2, 0.9
One+†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Family type</b>												
Two biological/adoptive parents†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
Two parents (at least one step-parent)	1.4	0.6, 3.2	1.7	0.7, 3.9	0.9	0.4, 2.2	0.9	0.4, 2.0	2.2	0.8, 5.9	1.0	0.4, 2.5
Lone parent	2.4*	1.4, 4.1	2.6*	1.6, 4.4	2.1*	1.1, 3.9	1.3	0.6, 2.9	1.5	0.7, 3.2	1.6	0.9, 2.9
<b>Parent's education</b>												
Less than secondary graduation	0.8	0.4, 1.6	0.9	0.5, 1.7	0.7	0.4, 1.5	0.9	0.4, 1.8	1.4	0.8, 2.4	0.9	0.5, 1.7
Secondary graduation	0.9	0.5, 1.5	1.0	0.6, 1.7	0.5*	0.3, 1.0	1.2	0.7, 2.1	0.7	0.3, 1.5	0.5	0.2, 1.1
At least some postsecondary†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parent employed</b>												
Yes†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
No	0.8	0.5, 1.4	1.2	0.8, 2.0	1.1	0.7, 1.8	1.5	1.0, 2.5	0.5*	0.3, 0.8	0.7	0.5, 1.2
<b>Household income</b>												
Lowest/Lower-middle	1.3	0.7, 2.3	0.9	0.6, 1.5	1.4	0.8, 2.3	0.9	0.4, 1.9	0.9	0.5, 1.6	1.3	0.8, 2.1
Middle/Upper-middle/Highest†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parent has low emotional support</b>												
Yes	1.1	0.6, 2.1	0.7	0.3, 1.6	1.1	0.5, 2.6	0.6	0.3, 1.2	1.2	0.6, 2.4	1.1	0.5, 2.5
No†	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...	1.0	...
<b>Parenting style</b>												
Low positive interaction	0.7	0.4, 1.3	1.0	0.5, 1.8	1.1	0.7, 1.7	1.3	0.7, 2.3	1.2	0.7, 2.1	1.4	0.7, 2.7
Low consistency	1.2	0.8, 1.8	0.9	0.5, 1.4	1.2	0.6, 2.1	1.2	0.7, 1.9	0.9	0.5, 1.5	1.1	0.6, 1.8
Hostile	4.3*	2.8, 6.5	3.2*	2.0, 5.2	3.7*	2.4, 5.9	3.7*	2.3, 6.1	1.9*	1.0, 3.6	1.7	0.9, 3.3
Punitive	1.2	0.7, 1.9	0.9	0.5, 1.4	0.8	0.5, 1.3	0.9	0.5, 1.4	1.3	0.7, 2.4	1.2	0.5, 2.8
<b>Model information</b>												
Sample size	3,501		2,196		1,899		3,441		2,198		1,906	
Sample with high anxiety	237		208		215		206		179		161	
Records dropped because of missing values	185		111		235		141		91		213	

**Data sources:** 1994/95 National Longitudinal Survey of Children and Youth, cross-sectional file; 1994/95 to 1996/97 National Longitudinal Survey of Children and Youth, longitudinal file; 1994/95 to 1998/99 National Longitudinal Survey of Children and Youth, longitudinal file

**Notes:** When not noted, reference category is absence of characteristic; for example, reference category for "hostile" is "not hostile." Because of rounding, some confidence intervals with 1.0 as lower/upper limit are significant.

† Reference category

\* Significantly different from reference category ( $p < 0.05$ )

... Not applicable

Table D  
Cross-sectional file sample sizes for witnessing violence at home, by sex, household population aged 4 to 7, Canada excluding territories, 1998/99

	Boys			Girls		
	Sample size	Estimated population		Sample size	Estimated population	
		'000	%	'000	'000	%
<b>Total</b>	<b>5,871</b>	<b>781</b>	<b>100</b>	<b>5,613</b>	<b>744</b>	<b>100</b>
<b>Witnessed violence at home</b>						
Yes	434	61	8	407	56	8
No	5,268	684	88	5,032	649	87
Not stated	169	35	4	174	39 <sup>E1</sup>	5

Data source: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file

Note: Because of rounding, detail may not add to totals.

E1 Coefficient of variation between 16.6% and 25.0%

Table E  
Cross-sectional file sample sizes for witnessing violence at home and for aggression/anxiety outcomes, by sex, household population aged 4 to 7, Canada excluding territories, 1994/95

	Boys			Girls		
	Sample size	Estimated population		Sample size	Estimated population	
		'000	%	'000	'000	%
<b>Total</b>	<b>3,686</b>	<b>800</b>	<b>100</b>	<b>3,582</b>	<b>762</b>	<b>100</b>
<b>Witnessed violence at home</b>						
Yes	303	60	8	307	60	8
No	3,279	721	90	3,201	686	90
Not stated	104	19	2	74	17 <sup>E1</sup>	2
<b>High overt aggression</b>						
Yes	1,023	203	25	649	129	17
No	2,552	575	72	2,851	614	80
Not stated	111	21	3	82	19 <sup>E1</sup>	3
<b>High indirect aggression</b>						
Yes	510	105	13	553	128	17
No	2,970	648	81	2,850	597	78
Not stated	206	47	6	179	38	5
<b>High anxiety</b>						
Yes	243	48	6	209	43	6
No	3,338	732	92	3,303	705	92
Not stated	105	20	2	70	14 <sup>E1</sup>	2

Data source: 1994/95 National Longitudinal Survey of Children and Youth, cross-sectional file

Note: Because of rounding, detail may not add to totals.

E1 Coefficient of variation between 16.6% and 25.0%

Table F  
Longitudinal file sample sizes for witnessing violence at home and for aggression/anxiety outcomes in 1996/97, by sex, household population aged 4 to 7 who witnessed violence in 1994/95, Canada excluding territories

	Boys			Girls		
	Sample size	Estimated population		Sample size	Estimated population	
		'000	%	'000	'000	%
<b>Total</b>	<b>2,307</b>	<b>801</b>	<b>100</b>	<b>2,289</b>	<b>761</b>	<b>100</b>
<b>Witnessed violence at home, 1994/95</b>						
Yes	169	55	7	183	61	8
No	2,109	738	92	2,076	684	90
Not stated	29	9 <sup>E1</sup>	1	30	16 <sup>E2</sup>	2
<b>High overt aggression, 1996/97</b>						
Yes	520	182	23	319	106	14
No	1,759	609	76	1,941	640	84
Not stated	28	10 <sup>E2</sup>	1	29	15 <sup>E2</sup>	2
<b>High indirect aggression, 1996/97</b>						
Yes	341	123	15	460	168	22
No	1,822	632	79	1,710	551	72
Not stated	144	46	6	119	43	6
<b>High anxiety, 1996/97</b>						
Yes	214	74	9	184	75	10
No	2,068	718	90	2,078	673	88
Not stated	25	9 <sup>E2</sup>	1	27	13 <sup>E2</sup>	2

Data source: 1994/95 to 1996/97 National Longitudinal Survey of Children and Youth, longitudinal file

Note: Because of rounding, detail may not add to totals.

E1 Coefficient of variation between 16.6% and 25.0%

E2 Coefficient of variation between 25.1% and 33.3%



Table G  
**Longitudinal file sample sizes for witnessing violence at home and for aggression/anxiety outcomes in 1998/99, by sex, household population aged 4 to 7 who witnessed violence in 1994/95, Canada excluding territories**

	Boys			Girls		
	Sample size	Estimated population		Sample size	Estimated population	
		'000	%		'000	%
<b>Total</b>	<b>2,134</b>	<b>757</b>	<b>100</b>	<b>2,119</b>	<b>708</b>	<b>100</b>
<b>Witnessed violence at home, 1994/95</b>						
Yes	152	58	8	170	62	9
No	1,822	636	84	1,777	589	83
Not stated	160	63	8	172	57	8
<b>High overt aggression, 1998/99</b>						
Yes	454	151	20	291	80	11
No	1,521	541	71	1,666	568	80
Not stated	159	66	9	162	60	9
<b>High indirect aggression, 1998/99</b>						
Yes	278	91	12	411	147	21
No	1,580	553	73	1,451	468	66
Not stated	276	113	15	257	93	13
<b>High anxiety, 1998/99</b>						
Yes	222	79	11	166	58	8
No	1,753	616	81	1,796	597	84
Not stated	159	62	8	157	53	8

**Data source:** 1994/95 to 1998/99 National Longitudinal Survey of Children and Youth, longitudinal file

**Note:** Because of rounding, detail may not add to totals.