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ORIGINAL ARTICLE

Survey evidence of the decline in child abuse in younger Canadian cohorts

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Abstract

Physical and sexual abuse in childhood is a worldwide phenomenon with potentially dramatic consequences of both a psychological and physical nature. Measures of primary prevention have been developed in some countries. In the USA, child protection services reports and research surveys indicate that child sexual abuse has been on the decline in recent decades. Results are less clear for physical and overall abuse. The aim of this study was to describe how childhood abuse has changed over the years in Canada through an analysis of the 2012 Canadian Community Health Survey: Mental Health Edition data. The sample comprised 22,775 respondents ages 20 and over who completed a child abuse questionnaire. Respondents born from 1983 to 1992 reported significantly less overall abuse, physical abuse, and sexual abuse than did older generations, with the exception of people born in 1942 or earlier. The decrease was observed among men and women and across all the regions of Canada.

Conclusion: The results are encouraging in that they may have an impact on life expectancy, severity of various chronic disorders, and suicide in the population. They also support policies that have focused on improving the childhood environment in the 1990s. Results also underline the importance of using different kinds of data sources for evaluating child abuse.

What is Known:
- *Physical and sexual abuse in childhood has been associated with lower life expectancy in connection with an array of chronic diseases, including mental disorders, and with suicide.*
- *Measures of primary prevention have been developed in some countries, such as the USA and Canada.*

What is New:
- *Canadians born from 1983 to 1992 report significantly less overall abuse, physical abuse, and sexual abuse than older generations do.*
- *These encouraging results support policies implemented in the 1990s focused on improving the childhood environment.*

Keywords Child abuse · Epidemiology · Primary prevention · Social policies

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Abbreviations

CCHS-MH	Canadian Community Health Survey-Mental Health
CEVQ	Childhood Experiences of Violence Questionnaire
CIS	Canadian Incidence Study
GENACIS	Gender, Alcohol, and Culture International Study
IPV	Intimate partner violence
NatSCEV	National Survey of Children's Exposure to Violence
NCANDS	National Child Abuse and Neglect Data System
QIS	Québec Incidence Study

Introduction

Child abuse affects 6 to 55% of the population, depending on sex, type of abuse, and country [46]. Rates depend also on how child abuse is defined and measured, which differs within and across countries, as pointed out by Leeb and Fluke [32]. Based on the WHO's definition of child abuse in the report of the consultation on child abuse, 1999, Gilbert et al. defined child abuse as "an act of commission or omission by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child" [21]. It is a worldwide phenomenon with dramatic lifetime consequences for mental and physical health [2, 12, 15, 21, 29, 54], including suicidal behaviors and increased risk for suicide completion [1, 11]. Victims have a lower quality of life and are at higher risk for premature death owing to allostatic overload [6, 15, 34, 53].

Child abuse has heavy personal consequences for victims, but it also has heavy financial consequences for society, which must bear the costs of their behavioral problems, lower productivity, and social and healthcare services [40, 45]. Research on the consequences of child abuse over the lifetime suggests that early childhood programs may be useful in reducing exposure and reaction to abuse and thus contribute to the well-being of individuals and society [45] and that the return on investment for these programs far outweighs the cost of later intervention to address behavioral disorders in childhood, mental disorders in adolescence, and physical disorders in adulthood [26].

Child abuse rates remained stable until 1990 in America and Europe if we consider that the increase observed post-WW2 resulted from a better identification of cases, as pointed out by Feldman et al. [14] and Gorey and Leslie [22, 37]. Since 1990, however, all forms of child abuse have declined in the USA, a phenomenon confirmed through different methods of data collection [16, 18]. For example, child sexual abuse fell 65% based on the National Child Abuse and Neglect Data System (NCANDS), a pool of administrative data from child protection agencies [18]. According to the Minnesota Student Survey, from 1992 to 2010, respondents who reported being sexually abused by non-family persons in their childhood and adolescence dropped 29% [16]. Where physical abuse rates are concerned, change has varied more widely depending on the kind of evaluation performed. According to the NCANDS, physical abuse rates declined 56% from 1990 to 2015 [16]. However, the National Survey of Children's Exposure to Violence (NatSCEV) showed no decrease from 1995 to 2005, and the National Survey on Adolescents and its replication noted a non-significant 6% decline from 2003 to 2008 [19, 24].

In Canada, a similar downtrend was observed in child sexual abuse from 1998 to 2008 in the Canadian Incidence Study (CIS) [8, 44]. The CIS used a contemporary data set that included new investigations conducted by child welfare services on five types of child abuse. Based on CIS 1998, 2003, and 2008 data, the number of investigations per 1000 children nearly doubled from 1998 to 2003 and did not change significantly from 2003 to 2008, but the authors of the CIS 2008 report underlined that it was not possible to compare the data for 1998–2003 with the data for 2008 on account of changes to the measured outcomes [38]. In Québec, the Québec Incidence Study (QIS) revealed a situation of stability regarding "substantiated cases of maltreatment or serious behavioral disturbances in Québec between 1998 and 2003" [27].

General population surveys have reported a drop in child sexual abuse in Canada, especially among women. This is the case for two nationally representative retrospective surveys of adults, namely the 2012 Canadian Community Health Survey: Mental Health (CCHS-MH) and the Canadian component of the Gender, Alcohol, and Culture International Study (GENACIS). Among 18- to 24-year-olds, the prevalence of child sexual abuse fell from 10.0% in 2004–2005 to 6.4% in 2012 [44]. However, this and other results have been challenged on the grounds that rates vary depending on the evaluation tool and the sampling frame used and that the declines reported in child sexual abuse are not always statistically significant. Where neglect and physical abuse are concerned, nothing has been published on any change in rates in Canada over the past 30 years or so, except regarding British Columbia. In this province, from 1992 to 2003, the percentage of students that reported sexual abuse fell from 19 to 15% and the percentage that reported physical abuse fell from 12 to 8%, according to the data from the McCreary Centre Society [48]. Finally, it is also important to underline that the majority of the Canadian provinces and territories consider exposure to intimate partner violence (IPV) as a form of child abuse, a position we share in our study [9].

Since the 1980s, public health and child protection programs have been developed all over the world [39], including in the USA and Canada. Prevention programs have included post-natal home visits by nurses and social skills training in

support of parenting [4, 32]. Courses have also been given in primary schools to help youngsters develop self-esteem and identify, avoid, and report at-risk situations. However, it remains very difficult for primary, secondary, and tertiary prevention measures of any sort to achieve wide distribution across health and social service systems [13]. In Canada, health, social, and educational services fall under provincial jurisdiction and, consequently, vary across the country in terms of planning and delivery. In light of this, did the decline in child abuse operate uniformly or not across the ten provinces? Because recent articles on child abuse in Canada have focused exclusively on sexual abuse and that these articles did not examine the problem on a regional basis, we undertook a study to describe the evolution of sexual and physical child abuse and exposure to IPV in Canada in the past decades. This work is an extension of Shields' study, which used the same data source [44].

Methods

Data were obtained from the 2012 Canadian Community Health Survey: Mental Health Edition (https://www150.statcan.gc.ca/n1/en/surveys/5015). The 2012 CCHS-MH was a cross-sectional study based on a representative sample of respondents from across the ten provinces of Canada, excluding residents in indigenous communities, full-time members of the Canadian armed forces, and people living in institutions (circa 2 to 3% of the population). Participant selection was made using the Statistics Canada Labour Force Survey as the area frame. For the sampling, a two-step strategy was used to allocate the sample to the provinces; the total sample size for any given province was determined by adding the sizes obtained in the two steps. Sample sizes were enlarged before data collection to take into account out-of-scope and vacant dwellings and anticipated non-response. A total raw sample of 43,030 dwellings was ultimately selected. A three-stage design was then used to select the sample of respondents for the 2012 CCHS-MH. First, geographical areas called clusters were selected. Households were then selected within each sampled cluster, and finally, one respondent per household was randomly selected. A detailed account of the procedure used by Statistics Canada is available at http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5015&lang=en&db=imdb&adm=8&dis=2.

At the last level of sampling, family dwellings were selected and a letter was sent to them by Statistics Canada. Professional interviewers then visited these dwellings, and a participant from among the eligible participants was randomly selected to complete the interview. Participants who could not be reached were contacted by phone to plan for an interview, and if they were not available, they were asked to complete the interview over the phone. The utmost resources were employed to reach a maximum of respondents, but unlike the national census survey, this survey was not mandatory. To account for non-response, Statistics Canada provides weights to correct sampling biases. Analyses were restricted to participants ages 20 and over because those under 20 did not complete the child abuse questionnaire owing to legal concerns over how to deal with information from adolescents living with potentially abusive parents.

Child abuse was broken down into physical abuse, sexual abuse, and exposure to IPV, as in Afifi et al. [2]. The child abuse questionnaire used in the study was developed by MacMillan et al. from the Childhood Experiences of Violence Questionnaire (CEVQ) and the Childhood Experience of Victimization [52]. The questionnaire comprised six items geared to ascertaining the presence of physical abuse (three items), sexual abuse (two items), and exposure to IPV (one item) [3]. The CEVQ-SF, a short-form version of the CEVQ with four items similar to those used in this study to assess sexual and physical abuse, had shown good internal consistency (Cronbach's alpha of .85) in the past for physical abuse [47].

The questionnaire was administered by an interviewer and covered events experienced prior to age 16 involving physical abuse, sexual abuse, and exposure to IPV. It was composed of the following six items rated on a five-point Likert scale ranging from "never" to "more than 10 times":

1. How many times did you see or hear one of your parents, step-parents, or guardians hit another adult in your home? By adult, I mean anyone 18 years or over.
2. How many times did an adult slap you on the face, head, or ears or hit or spank you with something hard to hurt you?
3. How many times did an adult push, grab, or shove you or throw something at you to hurt you?
4. How many times did an adult kick, bite, punch, choke, or burn you, or physically attack you in some way?
5. How many times did an adult force you or attempt to force you into any unwanted sexual activity by threatening you, holding you down, or hurting you in some way?
6. How many times did an adult touch you against your will in a sexual way? By this, I mean anything from unwanted touching or grabbing to kissing or fondling.

Respondents were considered to have been physically abused if they experienced the situation described in item 2 three or more times, the situation described in item 3 three or more times, or the situation described in item 4 one or more times [2]. Respondents were considered to have been sexually abused if they experienced the situation described in items 5 or 6 one or more times. Finally, they were considered to have been exposed to IPV if they experienced the situation described in item 1 one or more times.

For purposes of analysis, the data were broken down geographically into five regions: (1) British Columbia, (2) Prairies (Alberta, Manitoba, Saskatchewan), (3) Ontario, (4) Québec, and (5) Maritimes (New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador). Prevalence of abuse was compared by gender and birth cohort using a generalized linear model with a quasi-binomial distribution. A quasi-binomial distribution was used because the number of participants who experienced abuse was not finite after the weighting procedure was applied to the data.

All analyses were carried out using weights adjusted for non-response based on the original sample weights provided by Statistics Canada. Because sampling was based on a list, it was possible to adjust for non-responders in certain groups based on the known characteristics of the sampling population. The full methodology used by Statistics Canada for weighting is described at http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5015&lang=en&db=imdb&adm=8&dis=2. The analyses were performed using the R statistical package version 3.3 and the *survey* package.

Data for the CCHS-MH were collected from January 2 to December 31, 2012. Ethical approval for the survey was provided by the relevant policy committees at Statistics Canada. Respondents provided written informed consent.

Results

The sample comprised 22,775 respondents ages 20 and over who completed the child abuse items. The number and proportion of respondents in each of the five regions and the weighted respondents by gender and birth cohort are shown in Table 1. The response rate for questions on abuse was over 98% for both sexes and 97.1% for men and 97.6% for women born in 1942 or earlier.

Figure 1 shows that men reported more abuse in general than women did (33 to 36% vs. 29 to 32%, respectively). However, men reported more physical abuse than women did (30 to 33% vs. 20 to 23%), whereas women reported more sexual abuse (13 to 16% vs. 5 to 6%).

Figure 2 shows that child abuse in general was significantly less reported in the 1983–1992 birth cohort compared with all the older cohorts, except for the one born in 1942 or earlier. This was true also for physical abuse specifically. Sexual abuse was significantly less reported by the 1983–1992 birth cohort than by any older cohort. Exposure to IPV, too, was significantly lower in the 1983–1992 birth cohort but only when compared against the 1963–1972 cohort and the 1953–1962 cohort. This last cohort tended to be the highest reporter of child abuse in general (35 to 42%).

Figure 3 shows that the national picture of lower reporting of child abuse in the 1983–1992 and the 1942 or earlier birth cohorts compared with other cohorts was mirrored in the Maritimes, Quebec, and the Prairies. The same was true in Ontario and British Columbia, with the exception in both provinces that reporting did not prove significantly higher in the 1973–1982 birth cohort compared with the 1983–1992 cohort. Abuse reporting by the 1983–1992 birth cohort varied across the five regions, going from a low of 19% (95% CI 15 to 23%) in Québec to a high of 28.8% (23 to 35%) in British Columbia. To determine the generational changes that occurred in the various regions of Canada, we compared rates of any child abuse between the 1983–1992 birth cohort and the 1963–1972 cohort (see Table 2). A difference was noted across the board.

Discussion

Our results show a decline in child abuse in Canada as a whole and in each region since the 1990s. The difference is on the order of 30.1 to 39.5% between people born from 1963 to 1972 and people born from 1983 to 1992, that is, between people 40 to 49 years old and people 20 to 29 years old at the time of the 2012 CCHS-MH, depending on the region.

For people born in 1942 or earlier (70+ years old), reporting was lower on a magnitude similar to that of people born from 1963 to 1972 (ages 40–49), whereas reporting for people born from 1943 to 1952 (ages 60–69) was significantly higher compared with people born from 1983 to 1992 (ages 20–29). Lower reporting by the oldest age group may be attributable more to a memory bias and the lower life expectancy of people who experience child abuse than to a social desirability effect given the high rate of reporting in the 1943–1959 birth cohort (60–69 years old).

This encouraging trend common to the five regions of Canada is dampened somewhat by the finding that the rate of abuse nevertheless remained high among those born from 1983 to 1992. British Columbia topped the regions in terms of any child abuse reported in this age group, reaching 28.8% (see Fig. 3). It was also the region with the smallest difference in rates between the 1963–1972 birth cohort and the 1983–1992 cohort (Table 2). These results may be surprising because the percentage of British Columbia students reporting physical abuse has declined between 1992 and 2003, as mentioned earlier in the introduction, even if the periods concerned do not match exactly but merely overlap [48].

More generally, the results may be different from other Canadian studies using substantiated cases. For example, the results of the CIS described by Collin-Vézina et al. show that cases of physical abuse and neglect increased by 107% and 78%, respectively, from 1998 to 2003 [8]. However, commenting these results, Trocmé et al. underlined that "the increase in cases of substantiated maltreatment appears to be partly attributable to a shift in the way investigating workers classify cases, with a much smaller proportion of cases being classified as suspected" [49].

Table 1 Number and proportion of respondents by region and weighted respondents by gender and birth cohort ($N = 22,775$)

Region	Birth cohort	Men (*n* (%))	Women (*n* (%))	Total (*n* (%))
Maritimes, $n = 1575.1$ (6.9%)	1983–1992	99.7 (44.6%)	124.1 (55.4%)	223.9 (14.2%)
	1973–1982	135.2 (54.5%)	112.8 (45.5%)	247.9 (15.7%)
	1963–1972	153.9 (54.3%)	129.7 (45.7%)	283.6 (18.0%)
	1953–1962	176.2 (53.8%)	151.4 (46.2%)	327.6 (20.8%)
	1943–1952	142.8 (49.0%)	148.7 (51.0%)	291.6 (18.5%)
	≤ 1942	113.0 (56.4%)	87.5 (43.6%)	200.6 (12.7%)
	Total	820.9 (52.1%)	754.2 (47.9%)	1575.1 (100.0%)
Québec, $n = 5361.9$ (23.5%)	1983–1992	421.0 (43.4%)	549.4 (56.6%)	970.4 (18.1%)
	1973–1982	461.0 (51.7%)	429.9 (48.3%)	890.9 (16.6%)
	1963–1972	460.5 (52.0%)	425.5 (48.0%)	886.1 (16.5%)
	1953–1962	553.5 (48.9%)	577.8 (51.1%)	1131.3 (21.1%)
	1943–1952	404.4 (53.1%)	357.8 (46.9%)	762.1 (14.2%)
	≤ 1942	398.5 (55.3%)	322.6 (44.7%)	721.1 (13.4%)
	Total	2698.9 (50.3%)	2663.0 (49.7%)	5361.9 (100.0%)
Ontario, $n = 8873.7$ (39.0%)	1983–1992	693.3 (46.5%)	797.4 (53.5%)	1490.7 (16.8%)
	1973–1982	805.4 (53.3%)	705.5 (46.7%)	1510.9 (17.0%)
	1963–1972	940.8 (52.4%)	854.2 (47.6%)	1795.0 (20.2%)
	1953–1962	881.7 (50.9%)	850.4 (49.1%)	1732.2 (19.5%)
	1943–1952	658.3 (49.9%)	660.0 (50.1%)	1318.4 (14.9%)
	≤ 1942	570.5 (55.6%)	456.1 (44.4%)	1026.6 (11.6%)
	Total	4550.1 (51.3%)	4323.7 (48.7%)	8873.7 (100.0%)
Prairies, $n = 3897.2$ (17.1%)	1983–1992	361.7 (49.0%)	376.1 (51.0%)	737.8 (18.9%)
	1973–1982	379.8 (49.7%)	385.1 (50.3%)	764.9 (19.6%)
	1963–1972	363.7 (51.1%)	348.5 (48.9%)	712.1 (18.3%)
	1953–1962	366.7 (46.3%)	426.2 (53.7%)	792.9 (20.3%)
	1943–1952	236.2 (50.7%)	230.1 (49.3%)	466.3 (12.0%)
	≤ 1942	237.9 (56.2%)	185.3 (43.8%)	423.2 (10.9%)
	Total	1945.9 (49.9%)	1951.3 (50.1%)	3897.2 (100.0%)
British Columbia, $n = 3067.1$ (13.5%)	1983–1992	233.1 (47.2%)	260.3 (52.8%)	493.4 (16.1%)
	1973–1982	259.1 (54.1%)	219.5 (45.9%)	478.6 (15.6%)
	1963–1972	341.3 (52.2%)	312.7 (47.8%)	654.0 (21.3%)
	1953–1962	275.2 (46.0%)	322.6 (54.0%)	597.8 (19.5%)
	1943–1952	235.0 (54.6%)	195.5 (45.4%)	430.5 (14.0%)
	≤ 1942	221.7 (53.7%)	191.1 (46.3%)	412.8 (13.5%)
	Total	1565.4 (51.0%)	1501.7 (49.0%)	3067.1 (100.0%)
Canada (total), $N = 22,775$ (100.0%)	1983–1992	1808.7 (15.6%)	2107.4 (18.8%)	3916.1 (17.2%)
	1973–1982	2040.4 (17.6%)	1852.7 (16.6%)	3893.1 (17.1%)
	1963–1972	2260.2 (19.5%)	2070.6 (18.5%)	4330.8 (19.0%)
	1953–1962	2253.4 (19.5%)	2328.4 (20.8%)	4581.8 (20.1%)
	1943–1952	1676.8 (14.5%)	1592.1 (14.2%)	3268.9 (14.4%)
	≤ 1942	1541.6 (13.3%)	1242.7 (11.1%)	2784.2 (12.2%)
	Total	11,581.2 (50.9%)	11,193.8 (49.1%)	22,775.0 (100.0%)

The results of the CIS in Québec (QIS) described by Hélie and al. show a stabilization of physical abuse, which could be explained by a real stabilization but also by a change in how child abuse is assessed [27]. These definitional issues might explain why the results from the CIS and the QIS and the changes reported are not consistent with the decrease observed in our study. However, the decrease in child sexual abuse noted by Shields et al. when comparing two populational surveys with similar methodologies and data sources—GENACIS (2004–2005) and CCHS-MH 2012—is consistent with our study results [44].

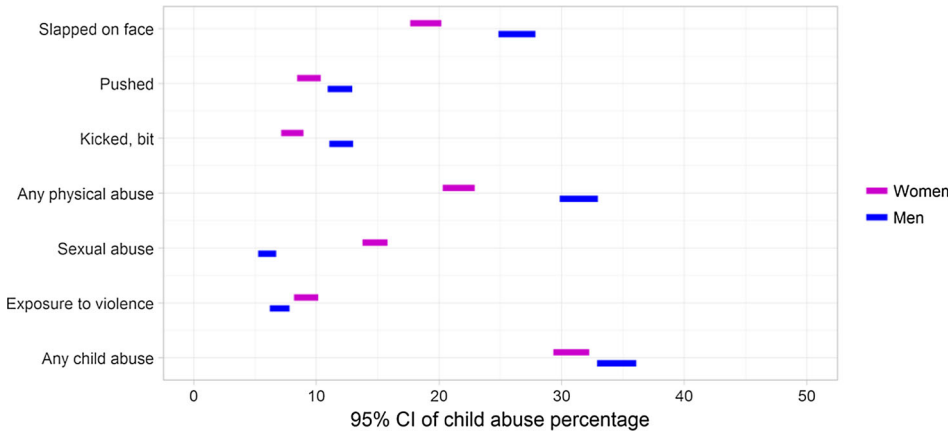

Fig. 1 Different types of child abuse by sex, based on the 2012 CCHS-MH ($N = 22{,}775$)

CI: confidence interval

These differences and this similarity underline how important it is to diversify the data sources for evaluating child abuse at the population level, a matter already discussed by Leeb and Fluke [33], and underscore the need to repeat these studies over time [44].

Comparison with previous results in North America

Our findings are generally consistent with those reported by Finkelhor for the USA [17, 18]. Based on the NCANDS, Finkelhor observed a substantial decline in child abuse from 1990 to 2015, more specifically, of 65% for sexual abuse, 56% for physical abuse, and 11% for neglect [16]. However, results from victim self-report surveys have been mixed regarding child sexual and other abuse. For instance, according to the NatSCEV, there was a significant 39% decline in sexual abuse from 2003 to 2008 but a statistically non-significant decline of 13% for girls, whereas the National Survey on Adolescent found an 8% rise for boys from 1995 to 2005 [19, 24]. For physical abuse, the NatSCEV surveys showed no decline from 1995 to 2005, and the National Survey on Adolescents and its replication noted a non-significant 6% decline from 2003 to 2008 [19, 24].

Some hypotheses to explain the decline in child abuse

To explain the improvement in the USA, various hypothetical factors have been put forth, including better economic conditions, social improvements, an increase in the number of social intervention agents, and a change in norms and practices [17]. Where Canada is concerned, demographics, employment rates, and collective values may also be involved in the decrease of child abuse [35]. A more precise hypothetical explanation for the improvement might be the recent

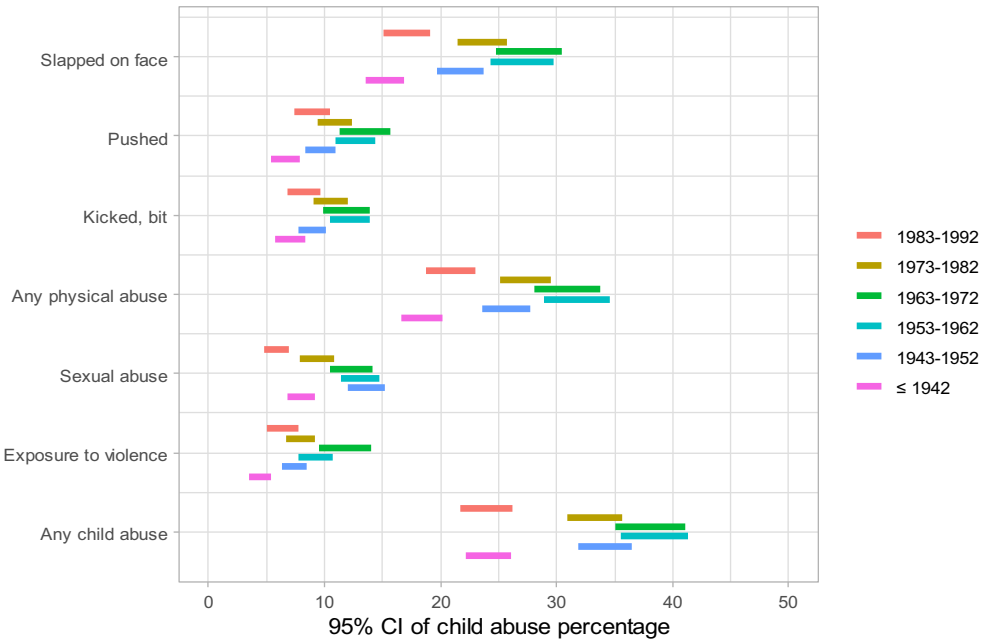

Fig. 2 Different types of child abuse by birth cohort, based on the CCHS-MH ($N = 22{,}775$)

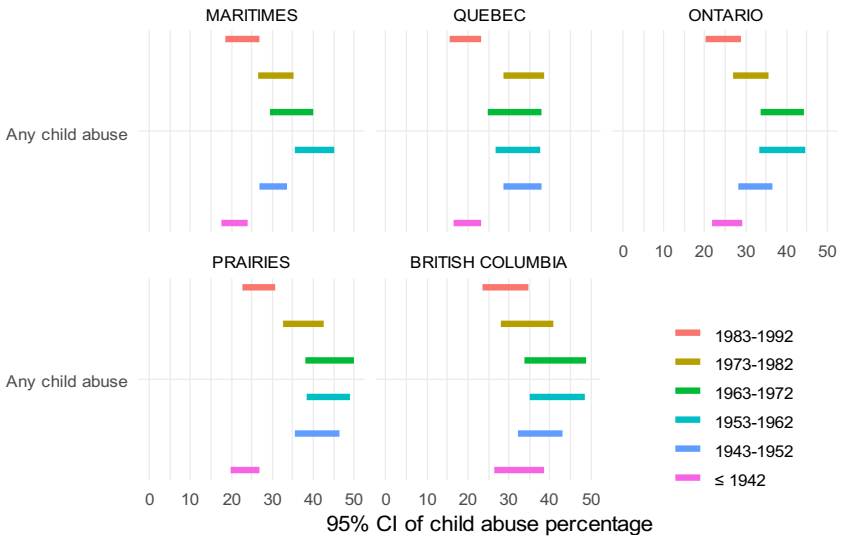

Fig. 3 Child abuse (all types combined) by birth cohort and region, based on the CCHS-MH ($N = 22{,}775$)

implementation of certain universal preventive measures, even though these have not necessarily been applied across all the regions of Canada. If we focus on Québec, where a sharp decline in rates occurred, various prevention programs were developed and implemented after 1992 following the release of a report headed by Camil Bouchard, entitled "Québec, crazy about its children" commissioned by the Québec Ministry of Health and Social Services on the subject of child protection [20]. The report proposed implementing two fundamental measures, namely accessible day care and early literacy programs. A retrospective analysis in a longitudinal study of underprivileged mothers and babies in Québec showed that a moderation of the transmission of anxiety occurred among those exposed to universal professional day care compared with those exposed to other forms of day care or no day care and that the effect was greater if children entered day care as early as 6 months old [28]. In 2011, there were about 340,850 children under 5 years of age in Québec and 232,609 places in day care centers, of which half were in professional day care facilities; 86,770 went to low-income underprivileged parents. We suggest that daily exposure to professional educators for several hours a day might have provided children with protection from abuse and that daily contact with professional educators and with other parents from different social and economic backgrounds when dropping off and picking up their kids might have provided parents with an opportunity to develop their parenting skills. The Canadian government applied an early child development initiative in April 2001 in all the provinces and territories except Québec, where such a measure already existed.

Truth be told, we cannot at this point in time explain the decline in abuse rates since the 1990s or the variation in rates across the Canadian regions. We can only suppose that multiple factors are at play. However, one thing is certain: The decline of this strong negative determinant of health and social functioning is likely to have many considerable consequences in the future. For instance, we can expect physical and mental diseases linked to child abuse to decline as well. We can also expect a drop in premature mortality, antisocial behavior, school dropout, and academic failure [3, 5, 51]. It will be important to take this decline and its consequences into account when assessing the needs for physical and mental health care and planning services. In this regard, recent modeling of the economic impact of mental disorders in the next decade carried out for the benefit of the Mental Health Commission of Canada (https://www.mentalhealthcommission.ca/sites/default/files/MHCC_Report_Base_Case_FINAL_ENG_0_0.pdf) was based on stable incidence and prevalence rates without considering the decline in child abuse and its 25% population attributable risk [1]. At this point in time, it

Table 2 Difference in rate of any child abuse between 1983–1992 and 1963–1972 birth cohorts, by Canadian region ($n = 3934$ and $n = 4327$)

Regions	1983–1992 (95% CI)	1963–1972 (95% CI)	Percentage of difference
Maritimes	22.3 (18.5–26.8)	34.5 (29.3–40.0)	− 35.4
Quebec	19.0 (15.5–23.1)	31.0 (24.7–38.0)	− 38.7
Ontario	24.4 (20.3–29.0)	38.7 (33.5–44.1)	− 36.9
Prairies	26.5 (22.7–30.6)	43.8 (38.0–49.8)	− 39.5
British Columbia	28.8 (23.6–34.7)	41.2 (33.9–48.8)	− 30.1

CI confidence interval

remains crucial to prevent child abuse from occurring at all. Prevention must be implemented as early as possible, as evidenced at the psychophysiological level by the fact that children have a lower allostatic load when exposed very early on to professional day care. Early intervention makes sense from an economic and societal perspective as well. As Heckman put it: "Early environments play a large role in shaping later outcomes" [25]. Investing in effective very early prevention and intervention against adverse childhood experiences should contribute to reduce the long-term cost of intervening on adaptive capacities and physical and mental health.

Limitations

Needless to say that these findings must be interpreted with caution as the methods and sampling frame used present limitations. Above all, the results derive from a single source of volunteered retrospective self-report. Retrospection may be tainted by a memory bias, especially when memory concerns painful events that may have been repressed. However, there is no ideal way of evaluating child abuse rates [7, 10, 23, 36, 43, 50]. There are also limitations in connection with the evaluation. The items on physical and sexual abuse did not differentiate between violence perpetrated by strangers and caregivers, even though these phenomena have different consequences. Assessment should be more precise in this regard [30]. Moreover, there was no evaluation of neglect or emotional abuse. Even if the sampling method was complex, the study population might not be representative of the Canadian population. For example, child abuse may be underestimated because of the non-inclusion of residents in indigenous communities. There is no information on sociostructural factors in the study, which would have helped to better interpret results. We also know nothing about age at time of childhood experiences and chronicity in this regard (cf. methods).

Strengths

On the other hand, the study data we used do have certain merits. For one, the study population seems to be representative based on type of abuse by gender and on abuse rates in general [21]. For another, the fact that the questions were the same for all respondents avoided problems with the definition of child abuse. Finally, it is worth pointing out that interviews requiring recall of the childhood environment have been shown to be valid [41].

Conclusion

We hope that this study will complete previous studies on the topic and contribute to the debate on the decline of child abuse. The results of this study are encouraging in that they may have an impact on life expectancy, severity of various chronic disorders, and suicide in the population. They also support policies that have focused on improving the childhood environment since the 1990s. Though these results are encouraging for future generations, it is crucial to keep implementing child abuse prevention as early as possible, given that rates are still very high and that child abuse continues to result in loss of resilience, loss of health, and loss of life opportunities in what Michael Rutter referred to as the "cycles of disadvantage" [42]. Societies cannot look the other way: stronger policies in support of very early parenting skills acquisition must be enacted and close monitoring is required to measure how they impact the children of today, not only the adults of tomorrow.

Suggestions for future research

Our findings need to be triangulated with other sources of data, such as child protection services records, and other types of research, such as longitudinal cohort studies. Moreover, other explanations for the differences in child abuse by birth cohort or generation need to be tested. In future, data should be collected from multiple and diverse sources in order to monitor the observed downtrend more accurately and effectively and to detect whether policy changes impact the trend in the different parts of the country and in different parts of the population. To this end, it would be worthwhile to measure abuse earlier on by conducting surveys similar to the CCHS-MH with adolescents and putting the same questions to them as are put to adults. It would be innovative also to develop questionnaires in this regard adapted for children ages 6 and up along the lines of what was done with the Dominique Interactive, which is used to screen for mental disorders reliably through tests that resemble computer games [31].

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All authors are responsible for reported research, they have approved the manuscript as submitted, and they have no conflict of interest.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval This article is not based on any studies with human participants or animals performed by any of the authors.

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