Prevalence of Adverse Childhood Experiences among 45 to 85-Year-Old Individuals: Findings from the Canadian Longitudinal Study on Aging (CLSA)

Divya Joshi, PhD[1]; Parminder Raina, PhD[1,2]; Lil Tonymr, PhD[3,4], Harriet L. MacMillan, MD[5,6]; Andrea Gonzalez, PhD[6,7]

[1]Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, ON
[2]McMaster Institute for Research on Aging, Hamilton, ON
[3]Public Health Agency of Canada, Ottawa, ON
[4]Department of Sociology and Anthropology, Carleton University, Ottawa, ON
[5]Department of Pediatrics, McMaster University, Hamilton, ON
[6]Department of Psychiatry & Behavioural Neurosciences, McMaster University, Hamilton, ON
[7]Offord Centre for Child Studies, Hamilton, ON

Correspondence to: Andrea Gonzalez, gonzal@mcmaster.ca

Funding statement: The Canadian Longitudinal Study on Aging is funded by the Canadian Institutes of Health Research (CIHR) and the Canada Foundation for Innovation. This analysis was supported by McMaster Institute for Research in Aging. Andrea Gonzalez holds a Tier 2 Canada Research Chair in Family Health and Preventive Interventions. Parminder Raina holds a Tier 1 Canada Research Chair in Geroscience and the Raymond and Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging. Harriet MacMillan is supported by the Chedoke Health Chair in Child Psychiatry.

Competing interests: None declared

Abstract

Background: Population-level prevalence estimates for a broad range of adverse childhood experiences (ACEs), which are known to affect health across the lifespan, are currently unavailable in Canada. Therefore, the purpose of this study was to estimate the prevalence of individual ACEs by sociodemographic factors among mid to older aged adults surveyed in the Canadian Longitudinal Study on Aging (CLSA).

Methods: We obtained data on 44,817 participants aged 45-85 years from the first follow-up of the CLSA, a longitudinal, population-based study on aging. Exposure to ACEs was assessed using a retrospective self-report questionnaire.

Results: Overall, 60.6% of participants reported exposure to at least one ACE. Exposure to physical abuse (25.7%), intimate partner violence (22.4%), and emotional abuse (21.8%) were the most prevalent types of ACEs. Individuals younger than 65 years (born in 1950-1969), those with no post-secondary education or education below a bachelor's degree, and those with annual household income <$20,000 reported greater exposure to ACEs. Reporting for many of the ACEs was higher among females and those of non-heterosexual orientation. Overall, British Columbia, Alberta, Manitoba, Ontario, and Quebec reported relatively higher prevalence for several examined categories of ACEs.

Interpretation: ACEs were highly prevalent across all demographics with significant heterogeneity in the distribution among the middle and older age population. The high prevalence of ACEs and their potential negative consequences on health and well-being emphasize the need to develop and promote trauma-informed care in order to assist individuals affected by ACEs.

Introduction

Growing evidence suggests that adverse childhood experiences (ACEs), which are stressful and traumatic experiences of childhood that include exposure to maltreatment and other household adversities, not only have developmental impacts but also increase the risk of additional stressors and are associated with impairment in physical, psychological, and social health across the lifespan.[1-7] Studies have shown a negative association between ACEs and various health outcomes, with research suggesting that ACEs may pose a threat to successful aging. In addition to the direct effects on the exposed individual, ACEs have societal effects through lower productivity and increased health and social services utilization.[8-9]

Although studies have examined the impact of ACEs, population-level prevalence estimates for a broad range of ACEs including emotional abuse and neglect in Canada are currently unavailable. Prior to examining associations, it is essential to gain an understanding of the burden and distribution of ACEs in the population. Although some Canadian prevalence estimates are available, many are dated, have been restricted to a few provinces, and/or assess a limited range of ACEs, mainly exposure to physical abuse, sexual abuse, and intimate partner violence.[4,10-13] Therefore, the objective of the current study is to estimate the prevalence of individual ACEs by sociodemographic characteristics among mid to older aged adults in Canada. Addressing this gap in knowledge is important for social and health care providers and policy makers to understand and improve health outcomes in aging populations, to develop and implement policies and programs to lower the prevalence of ACEs and related health outcomes, and to support both the individuals who have experienced ACEs, as well as their families.

Methodology

Study design and population

The Canadian Longitudinal Study on Aging (CLSA) is a national, population-based longitudinal study examining health and aging. A total of 51,338 men and women aged 45 to 85 years residing in the community in 10 Canadian provinces were recruited at baseline between 2011 and 2015. All participants provided information on demographics, lifestyle and behaviour, and social, physical, and psychological health and health services utilization. Details on the study design and methodology have been described previously.[14] Of the total participants recruited at baseline, 44,817 participants (87.3%) completed assessments at follow-up one between 2015-2018, where the ACEs questionnaire was administered. Response rate for individual ACEs questions was 97% or higher. Results of a sensitivity analysis using a 'best-case' and 'worse-case' scenario (all missing participants were grouped with the cases and then with the controls) did not differ from the final results reported in the study.

Measurement of adverse childhood experiences (ACEs)

ACEs were measured using 14 items adapted from the Childhood Experiences of Violence Questionnaire (CEVQ)[15-16] and the National Longitudinal Study of Adolescent to Adult Health Wave III questionnaire.[17] All items referred to exposure before the age of 16. Frequency and severity of exposure to childhood abuse, neglect, and intimate partner violence were assessed on an ordinal scale (never, 1-2 times, 3-5 times, 6-10 times, or more than 10 times) and subsequently dichotomized as presence or absence of exposure based on the CEVQ instructions.[16] Physical abuse was present if the participant reported being slapped on the face, head or ears, or hit or spanked with something hard three or more times; being pushed, grabbed, or shoved, or having something thrown to hurt three or more times; or being kicked, bit, or

punched, or choked, burned, or physically attacked in some other way one or more times.[16] Sexual abuse was present if the participant reported being threatened, touched, or forced into unwanted sexual activity one or more times.[16] Emotional abuse was present if the participant reported parents or guardians swearing, saying hurtful or insulting things that made the participant feel unloved or unwanted three or more times. Participants were classified as being neglected if they reported their parents or guardians not having taken care of their basic needs such as keeping them clean or providing food or clothing. Childhood exposure to intimate partner violence was present if the participant reported seeing or hearing parents or guardians say hurtful things to each other six or more times, or seeing or hearing parents or guardian hit each other three or more times.[16] The two-week test-retest reliability of the CEVQ short form (CEVQ-SF) in measuring physical and sexual abuse were $\kappa = 0.61$ and $\kappa = 0.91$, respectively.[16] Kappa values for other forms of abuse and household adversity ranged between 0.66 and 0.86.[18] The criterion validity of the CEVQ-SF in comparison to the Childhood Trauma Questionnaire was satisfactory.[16] Construct validity was demonstrated by observing a higher odds of clinical traumatic symptoms among physically and sexually abused individuals compared to either type alone.[16] Other forms of ACEs including "parental divorce/separation," "parental death," and/or "living with a family member with mental health problems" were assessed dichotomously. A cumulative ACEs score was created by summing the number of individual ACEs that participants have experienced and ranged from 0 to 8.

Sociodemographic characteristics

Sociodemographic characteristics included the participant's age, sex, country of birth, sexual orientation, educational attainment, annual household income, and province of residence. Age was categorized into 45-54, 55-64, 65-74, and 75-85 years. Country of birth was dichotomized as participants born in Canada and those born outside of Canada. Sexual orientation was categorized as heterosexual and non-heterosexual. Self-reported highest level of education and annual household income were used as indicators of socioeconomic position. Self-reported highest level of education was categorized as no post-secondary education, post-secondary education below bachelor's degree, bachelor's degree, and above post-secondary degree/diploma. Annual household income was categorized as less than $20,000, $20,000-49,999, $50,000-99,999, $100,000-149,999, and $150,000 and above.

Statistical analysis

Association between ACEs and sociodemographic characteristics were assessed using logistic regression. For all sociodemographic variables, prevalence estimates were adjusted for age, sex, ethnicity, country of birth, education, household income, sexual orientation, and province of residence. Prevalence estimates for province were adjusted for age and sex. Direct standardization was performed in order to facilitate comparison of ACEs prevalence across provinces and with the Canadian average. Age- and sex-stratified rates from the study sample were applied to a standard population selected as the 2015 Canadian census population. All analyses were adjusted for the sampling design and performed using inflation and analytical weights provided by the CLSA allowing results to reflect the distribution of ACEs in the population of Canada and were carried out in SAS v.9.4.

Results

Table 1 shows the prevalence of the eight individual categories of ACEs by age group and sex. Childhood exposure to physical abuse, intimate partner violence, and emotional abuse were the most prevalent types of ACEs reported across all participants. Overall, 61.6% of participants reported exposure to at least one ACE and 35.6% reported exposure to two or more ACEs. The results show significant heterogeneity in the distribution of ACEs in the population. Males reported more physical abuse, while females reported greater exposure to sexual and emotional abuse, neglect, intimate partner violence, and living with a family member with mental health problems. A significantly greater proportion of females (13.4%) compared with males (8.2%) reported experiencing four or more ACEs. The results obtained from adjusted analyses examining the association between ACEs and participant characteristics are presented in Table 2. The prevalence of ACEs was negatively associated with increasing age group. Individuals in the oldest age group (1930-1939 birth cohort) reported the least exposure to all ACEs with the exception of experiencing death of a parent compared to the younger age groups. In contrast, individuals younger than 65 years (1950-1969 birth cohort) reported a significantly greater exposure to physical and emotional abuse, intimate partner violence, parental divorce or separation, and living with a family member with mental health problems.

In addition to age and sex, socio-economic factors and sexual orientation also emerged as important factors associated with exposure to ACEs (Table 2). Socio-economic deprivation in adulthood was associated with a higher prevalence of all types of ACEs. Individuals with no post-secondary education or education below a bachelor's degree had a significantly higher prevalence of all ACEs except parental death compared to individuals who had obtained at least a bachelor's degree. Similarly, individuals who had household income less than $20,000 had a significantly higher prevalence of all ACEs except parental death compared to those with an annual income of at least $50,000. With respect to sexual orientation, exposure to sexual and emotional abuse, intimate partner violence, and living with a family member with poor mental health were significantly higher among individuals of non-heterosexual orientation compared to individuals of heterosexual orientation. The difference between groups was more prominent for exposure to sexual abuse, emotional abuse, and intimate partner violence.

Table 3 shows the age and sex-adjusted prevalence of ACEs within each province. Overall, British Columbia reported higher prevalence for several examined categories of ACEs. Reporting for some ACEs were also higher for Alberta, Manitoba, Ontario, and Quebec. Next, we performed direct standardization to eliminate age and sex-related differences in the population in order to facilitate comparison of prevalence estimates between provinces. Although, the estimates changed to some extent, the overall trends after standardization were similar to the values obtained from within sample age and sex adjustment with a few exceptions. After standardization, prevalence of exposure to emotional abuse and intimate partner violence was higher in Alberta and neglect was higher in Prince Edward Island.

Interpretation

To our knowledge, this is the first study to include a diverse range of ACEs and provide an estimation of the ACEs exposure across the 10 provinces in Canada. The results showed that ACEs are highly prevalent across all demographics, although some groups in the population experienced an unequal and greater burden. Our findings are consistent with the prevalence estimates and time trends reported in other Canadian studies. Canadian statistics have estimated the prevalence of exposure to physical abuse to be 26%, sexual abuse between 7-15%, emotional abuse between 14-17%, intimate partner violence between 6-26%, parental divorce/separation

between 11-17.6%, and poor parental mental health to be 20.6%.[4,7,10,19-23] Estimates reported in our study are within the range reported in the literature with the exception of sexual and emotional abuse, which are reported at higher rates here.

Further, we found that people born in 1950-1969 (ages 45-64) reported higher ACEs compared to those born before 1950 (ages 65+), and reporting for ACEs, except parental death was lowest among those born in 1930-1939 (ages 75-85). These results are consistent with other Canadian data. Analysis of the 2012 CCHS data found that reporting of exposure to physical abuse, sexual abuse, and/or intimate partner violence was elevated among respondents from the 1943-1982 birth cohort, especially among individuals born between 1953 and 1972, and lower in those born in or before 1942 when compared to the 1983-1992 birth cohort.[4,22-23] Similarly, results from the Canadian Gender, Alcohol, and Culture: An International Study (GENECIS) and the General Social Survey (GSS) showed that child sexual abuse rates declined after 1993 but were significantly higher between 1946 and 1992 compared to the time period before 1946.[23-24] The reasons for higher reporting of ACEs among the 1950-1969 birth cohort is unclear, but examining the trauma and disruptions post World War II may help to explain these time trends.[23] It is also possible that the reporting of ACEs may be affected by secular trends.[23] Younger individuals may be more likely to acknowledge and report maltreatment as an effect of increased media coverage, while lower reporting among older individuals may be due to their reluctance to disclose experiences, which may be viewed as stigmatizing during the time period in which they were born.[23-25] Additionally, prevalence in the oldest age group may be influenced by premature mortality experienced by individuals exposed to ACEs.[26]

Our findings also showed that exposure to ACEs varied across Canadian provinces. Generally, higher proportions of maltreatment and household adversities were reported for British Columbia, Alberta, Manitoba, Ontario, and Quebec. These findings are consistent with results presented from the CCHS, which reported child abuse rates to be lower in Newfoundland and Labrador and higher in the Prairie region and British Columbia.[4,22] However, further research is required to examine and understand the observed heterogeneity between provinces. Findings also revealed that individuals who have not obtained at least a bachelor's education and those with lower annual household income reported greater exposure to ACEs demonstrating that early life adversity negatively impacts educational attainment and income later in life. Low educational attainment and income are interrelated and in addition to their known impacts on physical and psychological health and well-being, they also impact future generations.[27-28] Further, consistent with the literature, our results showed that sexual minority individuals reported increased exposure to many of the ACEs. Previous research suggested that adolescents who reported non-heterosexual orientation were at a greater risk of being maltreated.[29] In addition, gender nonconforming behaviours, which may be associated with sexual orientation in adulthood, are often recognized by adults much before a child is aware of his or her sexual identity; it is possible that adults may have used maltreatment to repress these behaviours or other indications of sexual minority status.[30-31] Further, in households experiencing dysfunction, a child with atypical gender appearance and behaviour may be at a greater risk of being targeted for abuse.[30,32]

Limitations

This study has limitations that should be considered when interpreting the findings. Exposure to ACEs was reported retrospectively and may be prone to recall bias. However, studies have reported good test-retest reliability for individual questions as well as for the overall ACEs

score.[16,18] Also, emotional abuse and neglect were each assessed using a single question and did not distinguish between subtypes of neglect. It is also possible that the prevalence rates of ACEs were underestimated given that the study sample did not include individuals residing on First Nation reserves, territories, and institutions, and that the CLSA participants, on average, have higher education and household income. Nevertheless, this study included a large, nationally generalizable sample of participants and examined eight different forms of ACEs including emotional abuse and neglect, which were examined for the first time at the national level. Comparisons of the sociodemographic characteristics of the CLSA participants with those of the CCHS Healthy Aging and the Statistics Canada Census 2011 suggest that the results obtained from this study are generalizable to the comparable Canadian population on many key variables including age, sex, marital status, urban-rural dwelling, and working status.

Conclusion

Overall, our results indicate that ACEs are highly prevalent in Canada and pose a serious public health concern. Effective approaches that integrate recognition and prevention are required to reduce the burden of ACEs. Strategies that increase awareness of the ACEs and their long-lasting consequences, support positive parenting, promote healthy child development, and improve the overall quality of household environment are needed to prevent exposure to childhood adversity. In addition, trauma-informed approaches need to be developed and promoted in order to assist individuals affected by ACEs. Clinicians can play an important role by being cognizant about ACEs and implementing trauma-informed care to alleviate the harms caused by ACEs. Future research should examine the association between ACEs and various health outcomes including morbidity and functioning as well as test the pathways that may explain the impact of childhood adversity on long-term health outcomes.

Acknowledgements

This research was made possible using the data/biospecimens collected by the Canadian Longitudinal Study on Aging (CLSA). Funding for the Canadian Longitudinal Study on Aging (CLSA) is provided by the Government of Canada through the Canadian Institutes of Health Research (CIHR) under grant reference: LSA 94473 and the Canada Foundation for Innovation. This research has been conducted using the Baseline Tracking Dataset version 3.4, Comprehensive Dataset version 4.0, Follow-up 1 Tracking Dataset version 1.0, under Application Number 190230. Funding for inclusion of the Child Experiences module was provided by the Public Health Agency of Canada. The CLSA is led by Drs. Parminder Raina, Christina Wolfson and Susan Kirkland

References

1. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Koss MP, Marks JS. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine 2019;56(6):774-86.

2. Hughes K, Bellis MA, Hardcastle KA, Sethi D, Butchart A, Mikton C, Jones L, Dunne MP. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. The Lancet Public Health 2017;2:e356-66.

3. Gonzalez A, Boyle MH, Kyu HH, Georgiades K, Duncan L, MacMillan HL. Childhood and family influences on depression, chronic physical conditions, and their comorbidity: findings from the Ontario Child Health Study. Journal of Psychiatric Research, 2012;46:1475-82.

4. Afifi TO, MacMillan HL, Boyle M, Taillieu T, Cheung K, Sareen J. Child abuse and mental disorders in Canada. CMAJ 2014;186:E324-32.

5. Guedes DT, Vafaei A, Alvarado BE, Curcio CL, Guralnik JM, Zunzunegui MV, Guerra RO. Experiences of violence across life course and its effects on mobility among participants in the International Mobility in Aging Study. BMJ Open 2016;6:e012339.

6. Danese A, McEwen BS. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. Physiology & Behavior 2012;106:29-39.

7. England-Mason G, Casey R, Ferro M, MacMillan HL, Tonmyr L, Gonzalez A. Child maltreatment and adult multimorbidity: results from the Canadian Community Health Survey. Canadian Journal of Public Health 2018;109:561-72.

8. Bellis M, Hughes K, Hardcastle K, Ashton K, Ford K, Quigg Z, Davies A. The impact of adverse childhood experiences on health service use across the life course using a retrospective cohort study. Journal of Health Services Research & Policy 2017;22:168-77

9. Fang X, Brown DS, Florence CS, Mercy JA. The economic burden of child maltreatment in the United States and implications for prevention. Child Abuse Negl 2012;36:156-65.

10. McDonald S, Kingston D, Bayrampour H, Tough S. Adverse childhood experiences in Alberta, Canada: a population based study. Medical Research Archives 2015;1-18.

11. Tourigny M, Hébert M, Joly J, Cyr M, Baril K. Prevalence and co-occurrence of violence against children in the Quebec population. Australian and New Zealand Journal of Public Health 2008;32:331-5.

12. Hébert M, Tourigny M, Cyr M, McDuff P, Joly J. Prevalence of childhood sexual abuse and timing of disclosure in a representative sample of adults from Quebec. The Canadian Journal of Psychiatry 2009;54:631-6.

13. Shields M, Hovdestad W, Tonmyr L. Assessment of the quality of the childhood physical abuse measure in the National Population Health Survey. Health Reports 2015;26:3-10.

14. Raina PS, Wolfson C, Kirkland SA, Griffith LE, Oremus M, Patterson C, Tuokko H, Penning M, Balion CM, Hogan D, Wister A. The Canadian longitudinal study on aging (CLSA). Canadian Journal on Aging 2009;28:221-9.

15. Walsh CA, MacMillan HL, Trocmé N, Jamieson E, Boyle MH. Measurement of victimization in adolescence: Development and validation of the Childhood Experiences of Violence Questionnaire. Child Abuse Negl 2008;32:1037-57.

16. Tanaka M, Wekerle C, Leung E, Waechter R, Gonzalez A, Jamieson E, MacMillan HL. Preliminary evaluation of the Childhood Experiences of Violence Questionnaire short form. Journal of Interpersonal Violence 2012;27:396-407.

17. Harris KM, Udry JR. National Longitudinal Study of Adolescent to Adult Health (Add Health), 1994-2008 [Public Use](ICPSR21600). 2014.

18. Dube SR, Williamson DF, Thompson T, Felitti VJ, Anda RF. Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. Child Abuse Negl 2004;28:729-37.

19. Afifi TO, MacMillan HL, Boyle M, Cheung K, Taillieu T, Turner S, Sareen J. Child abuse and physical health in adulthood. Health Reports 2016;27:10-18.

20. Langlois KA, Garner R. Trajectories of psychological distress among Canadian adults who experienced parental addiction in childhood. Health Reports 2013;24:14-21.

21. Maltreatment in Canada. Ottawa (ON): Statistics Canada, 2011. Available: https://www.canada.ca/en/public-health/services/health-promotion/stop-family-violence/prevention-resource-centre/children/child-maltreatment-canada.html

22. Ligier F, Giguère CÉ, Seguin M, Lesage A. Survey evidence of the decline in child abuse in younger Canadian cohorts. European Journal of Pediatrics 2019;178:1423-32.

23. Shields M, Tonmyr L, Hovdestad W. Is child sexual abuse declining in Canada? Results from nationally representative retrospective surveys. Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice 2016;36:252-60.

24. Shields M, Tonmyr L, Hovdestad WE. The decline of child sexual abuse in Canada: evidence from the 2014 General Social Survey. The Canadian Journal of Psychiatry 2019;64:638-46.

25. Weatherred JL. Child sexual abuse and the media: a literature review. J Child Sex Abus 2015;24:16–34.

26. Brown DW, Anda RF, Tiemeier H, Felitti VJ, Edwards VJ, Croft JB, Giles WH. Adverse childhood experiences and the risk of premature mortality. American Journal of Preventive Medicine 2009;37:389-96.

27. Chevalier A, Harmon C, O'Sullivan V, Walker I. The impact of parental income and education on the schooling of their children. IZA Journal of Labor Economics 2013;2:8-30.

28. Erola J, Jalonen S, Lehti H. Parental education, class and income over early life course and children's achievement. Research in Social Stratification and Mobility 2016;44:33-43.

29. Andersen JP, Blosnich J. Disparities in adverse childhood experiences among sexual minority and heterosexual adults: Results from a multi-state probability-based sample. PloS One 2013;8:e54691- e54691.

30. D'Augelli AR, Grossman AH, Starks MT. Childhood gender atypicality, victimization, and PTSD among lesbian, gay, and bisexual youth. Journal of Interpersonal Violence 2006;21:1462-82.

31. Goodrich KM. Mom and dad come out: The process of identifying as a heterosexual parent with a lesbian, gay, or bisexual child. Journal of LGBT Issues in Counseling 2009;3:37-61.

32. Alvy LM, Hughes TL, Kristjanson AF, Wilsnack SC. Sexual identity group differences in child abuse and neglect. Journal of Interpersonal Violence 2013;28:2088-111.

Table 1: Prevalence estimates of adverse childhood experiences by age groups and sex

	Total Population	Total Population		Ages 45-54 (Birth cohort 1960-1969)		Ages 55-64 (Birth cohort 1950-1959)		Ages 65-74 (Birth cohort 1940-1949)		Ages 75-85 (Birth cohort 1930-1939)	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
n	44817	21873 (48.3)	22944 (51.7)	3201 (49.8)	3397 (50.2)	6984 (48.2)	7766 (51.8)	6643 (49.3)	6660 (50.8)	5045 (44.9)	5121 (55.1)
Age, years, mean (SE)	63.8 (0.05)	63.5 (0.07)	64.1 (0.07)	52.0 (0.03)	51.9 (0.03)	59.0 (0.03)	59.1 (0.03)	68.9 (0.03)	69.0 (0.03)	80.3 (0.05)	80.6 (0.05)
Adverse Childhood Experiences, n (%)											
Physical abuse	11357 (25.7)	6580 (30.0)	4777 (21.7)	1009 (30.5)	841 (26.1)	2313 (31.9)	1914 (24.4)	2058 (29.7)	1378 (20.6)	1200 (25.0)	644 (12.8)
Sexual abuse	7227 (17.3)	1942 (9.1)	5285 (24.9)	301 (8.7)	866 (28.3)	595 (8.8)	2015 (26.5)	633 (10.0)	1562 (24.0)	413 (8.9)	842 (19.0)
Emotional abuse	9242 (21.8)	3960 (19.1)	5282 (24.4)	759 (23.6)	990 (30.7)	1538 (22.0)	2132 (27.3)	1147 (16.4)	1519 (23.5)	516 (10.7)	641 (12.5)
Neglect	1473 (3.1)	582 (2.5)	891 (3.7)	106 (3.2)	171 (5.2)	187 (2.6)	322 (3.8)	163 (1.9)	257 (3.3)	126 (2.3)	141 (2.6)
Exposure to intimate partner violence	9232 (22.4)	3977 (20.1)	5255 (24.6)	814 (26.8)	1033 (31.5)	1506 (21.7)	2065 (27.3)	1126 (17.2)	1483 (22.7)	531 (12.2)	674 (13.7)
Verbal abuse	8631 (20.9)	3665 (18.5)	4966 (23.2)	775 (25.6)	991 (30.0)	1405 (20.2)	1970 (26.0)	1030 (15.4)	1394 (21.0)	455 (10.5)	611 (12.7)
Physical violence	3265 (7.8)	1389 (6.5)	1876 (9.0)	268 (8.0)	337 (10.8)	495 (6.9)	761 (10.1)	427 (6.1)	540 (9.1)	199 (4.3)	238 (4.4)
Death of a parent	7264 (16.3)	3477 (15.6)	3787 (17.0)	385 (11.7)	435 (14.3)	1008 (15.6)	1194 (15.1)	1066 (15.7)	1162 (19.5)	1018 (20.5)	996 (20.3)
Parental divorce/separation	4298 (10.7)	2016 (10.7)	2282 (10.8)	526 (16.1)	592 (17.5)	744 (11.9)	909 (11.6)	432 (7.0)	466 (7.8)	314 (6.9)	315 (6.1)
Living with a family member with mental health problems	9147 (21.3)	3829 (18.0)	5318 (24.4)	755 (22.5)	1019 (30.0)	1438 (19.6)	2134 (27.3)	1100 (15.9)	1445 (22.6)	536 (11.7)	720 (14.6)
ACEs Index, n (%)											
0	16253 (38.4)	8236 (40.6)	8017 (36.3)	1075 (37.1)	1004 (30.6)	2485 (38.8)	2440 (33.7)	2517 (42.6)	2314 (36.9)	2159 (46.5)	2259 (47.3)

1	11455 (26.0)	5842 (26.8)	5613 (25.2)	805 (24.8)	774 (21.8)	1808 (26.1)	1816 (24.5)	1827 (28.4)	1654 (26.4)	1402 (28.5)	1369 (28.4)
2	6289 (15.5)	3078 (15.3)	3211 (15.7)	488 (16.8)	510 (17.6)	1046 (15.5)	1167 (16.0)	918 (14.6)	946 (15.9)	626 (13.8)	588 (12.8)
3	3827 (9.4)	1814 (9.2)	2013 (9.6)	335 (10.4)	368 (11.6)	648 (10.1)	784 (10.6)	546 (8.1)	584 (9.0)	285 (7.0)	277 (6.0)
4	2293 (5.6)	931 (4.6)	1362 (6.6)	188 (5.9)	258 (8.4)	371 (5.3)	583 (7.9)	259 (3.7)	382 (5.9)	113 (2.4)	139 (2.9)
5	1247 (3.0)	452 (2.2)	795 (3.9)	95 (2.8)	166 (5.1)	187 (2.6)	335 (4.2)	122 (1.8)	221 (3.9)	48 (1.0)	73 (1.6)
6	575 (1.5)	190 (1.1)	385 (1.9)	47 (1.7)	94 (3.0)	84 (1.4)	172 (2.2)	38 (0.6)	78 (1.4)	21 (0.6)	41 (0.9)
7	206 (0.5)	51 (0.2)	155 (0.8)	20 (0.5)	42 (1.6)	14 (0.2)	63 (0.8)	12 (0.2)	41 (0.6)	5 (0.1)	9 (0.1)
8	41 (0.1)	11 (0.1)	30 (0.2)	5 (0.1)	8 (0.2)	2 (0.0)	14 (0.2)	3 (0.0)	6 (0.1)	1 (0.0)	2 (0.0)

Prevalence estimates are weighted; n reflects the number of individuals in the sample.
Sum of prevalence of the categories do not add up to 100 since they are not mutually exclusive.

Table 2: Adjusted prevalence for adverse childhood experiences by demographic characteristics

Characteristics	Physical abuse	Sexual abuse	Emotional abuse	Neglect	Exposure to intimate partner violence	Parental death	Parental divorce or separation	Living with a family member with mental health problems
Age Groups (%, 95% CI)								
45-54 yrs (Birth cohort: 1960-1969)	35.1 (32.7, 37.5)	23.1 (21.0, 25.3)	34.8 (32.4, 37.3)	6.3 (5.1, 7.9)	34.0 (31.6, 36.4)	16.1 (14.5, 18.0)	19.1 (17.0, 21.4)	25.1 (23.1, 27.3)
55-64 yrs (Birth cohort: 1950-1959)	35.3 (33.0, 37.7)	22.6 (20.6, 24.7)	32.0 (29.8, 34.4)	4.6 (3.7, 5.7)	29.7 (27.5, 32.0)	18.1 (16.3, 20.0)	12.7 (11.2, 14.3)	22.5 (20.6, 24.5)
65-74 yrs (Birth cohort: 1940-1949)	30.7 (28.4, 33.0)	20.9 (18.9, 23.1)	25.2 (23.1, 27.4)	3.8 (3.0, 4.8)	24.3 (22.3, 26.4)	20.9 (18.8, 23.1)	6.9 (5.9, 8.0)	18.1 (16.4, 19.9)
75-85 yrs (Birth cohort: 1930-1939)	21.9 (19.8, 24.1)	16.4 (14.5, 18.5)	14.0 (12.4, 15.7)	2.8 (2.1, 3.8)	14.4 (12.8, 16.1)	24.5 (21.9, 27.1)	6.0 (5.0, 7.1)	11.9 (10.6, 13.5)
Sex (%, 95% CI)								
Male	36.3 (34.0, 38.6)	12.7 (11.4, 14.1)	23.3 (21.5, 25.3)	3.6 (2.9, 4.5)	22.4 (20.7, 24.3)	19.4 (17.6, 21.4)	9.9 (8.7, 11.2)	16.5 (15.0, 18.1)
Female	25.2 (23.2, 27.2)	31.7 (29.2, 34.3)	27.8 (25.7, 30.0)	4.9 (3.9, 6.1)	27.2 (25.1, 29.4)	20.0 (18.1, 22.0)	10.3 (9.1, 11.8)	21.5 (19.6, 23.4)
Education (%, 95% CI)								
No post-secondary education	35.0 (32.2, 37.9)	22.7 (20.2, 25.3)	29.6 (27.0, 32.4)	5.8 (4.4, 7.5)	28.1 (25.5, 30.8)	20.8 (18.4, 23.4)	12.8 (11.0, 14.9)	19.9 (17.8, 22.1)
Diploma/certificate below bachelor's	32.7 (30.5, 35.1)	21.1 (19.2, 23.2)	26.1 (24.1, 28.3)	5.0 (4.0, 6.3)	23.9 (22.0, 26.0)	20.6 (18.7, 22.8)	11.2 (9.8, 12.7)	17.6 (16.1, 19.4)
Bachelor's degree	27.3 (25.1, 29.3)	18.6 (16.8, 20.5)	23.1 (21.2, 25.1)	3.2 (2.5, 4.0)	23.2 (21.3, 25.3)	18.7 (16.8, 20.7)	8.5 (7.4, 9.7)	17.4 (15.8, 19.1)
Above bachelor's degree	27.1 (25.1, 29.3)	20.3 (18.3, 22.3)	23.6 (21.6, 25.7)	3.4 (2.7, 4.4)	23.9 (22.0, 26.0)	18.8 (16.9, 20.8)	8.5 (7.4, 9.8)	20.7 (18.8, 22.6)
Annual Household Income (%, 95% CI)								
< $20,000	41.3 (37.6, 45.2)	30.4 (26.9, 34.2)	37.7 (34.0, 41.5)	8.4 (6.3, 11.0)	32.0 (28.5, 35.6)	23.3 (20.2, 26.8)	14.8 (12.4, 17.6)	23.8 (20.9, 27.0)

$20,000 - <50,000	31.4 (29.1, 33.8)	21.7 (19.6, 23.9)	27.5 (25.3, 29.8)	5.6 (4.4, 7.0)	25.9 (23.8, 28.2)	20.4 (18.3, 22.5)	10.8 (9.5, 12.4)	19.3 (17.6, 21.3)
$50,000 - <100,000	27.8 (25.8, 29.9)	18.9 (17.1, 20.8)	23.0 (21.1, 25.0)	3.6 (2.9, 4.6)	22.7 (20.9, 24.7)	19.5 (17.7, 21.6)	9.0 (7.9, 10.3)	17.6 (16.0, 19.3)
$100,000 - <150,000	26.9 (24.8, 29.1)	18.1 (16.2, 20.0)	21.5 (19.6, 23.5)	3.0 (2.3, 3.9)	22.7 (20.8, 24.8)	18.4 (16.5, 20.5)	8.7 (7.5, 10.0)	17.7 (16.0, 19.5)
≥ $150,000	25.9 (23.8, 28.2)	16.0 (14.3, 17.9)	20.1 (18.2, 22.0)	2.6 (2.0, 3.3)	21.3 (19.3, 23.3)	17.2 (15.4, 19.3)	8.3 (7.2, 9.6)	16.4 (14.8, 18.2)
Country of Birth (%, 95% CI)								
Canada	27.5 (25.5, 29.6)	21.0 (19.1, 23.0)	24.9 (22.9, 26.9)	4.3 (3.4, 5.4)	24.7 (22.8, 26.7)	19.5 (17.7, 21.5)	9.4 (8.3, 10.7)	21.0 (19.2, 22.9)
Other than Canada	33.5 (31.1, 35.9)	20.2 (18.2, 22.3)	26.2 (24.0, 28.4)	4.1 (3.2, 5.2)	24.8 (22.8, 27.0)	19.9 (17.9, 22.1)	10.9 (9.5, 12.4)	16.9 (15.3, 18.7)
Sexual Orientation (%, 95% CI)								
Heterosexual	28.8 (27.5, 30.2)	15.8 (14.7, 16.9)	21.6 (20.4, 22.8)	3.7 (3.2, 4.2)	21.2 (20.0, 22.5)	18.0 (16.9, 19.2)	9.3 (8.5, 10.1)	17.1 (16.0, 18.2)
Non-heterosexual	32.1 (28.6, 35.8)	26.4 (23.0, 30.2)	29.9 (26.5, 33.6)	4.8 (3.4, 6.9)	28.7 (25.4, 32.2)	21.5 (18.4, 25.1)	11.0 (9.0, 13.5)	20.8 (18.2, 23.8)

Prevalence estimates are weighted and are adjusted for age, sex, race/ethnic background, education, annual household income, country of birth, and sexual orientation.

Table 3: Age and sex adjusted prevalence of adverse childhood experiences by province

Province	Physical abuse	Sexual abuse	Emotional abuse	Neglect	Exposure to intimate partner violence	Parental death	Parental divorce or separation	Living with a family member with mental health problems
Newfoundland & Labrador (n = 2884)	19.2 (17.7, 20.9)	12.7 (11.3, 14.3)	12.5 (11.2, 14.0)	1.8 (1.4, 2.4)	14.1 (12.7, 15.6)	16.5 (15.0, 18.1)	4.0 (3.3, 4.9)	15.1 (13.7. 16.6)
PEI (n = 876)	21.0 (18.0, 24.4)	12.0 (9.6, 14.9)	20.0 (17.2, 23.3)	2.8 (1.8, 4.4)	18.5 (15.7, 21.8)	17.8 (15.1, 20.8)	7.2 (5.5, 9.4)	16.4 (13.7, 19.4)
Nova Scotia (n = 4010)	24.7 (23.2, 26.3)	12.6 (11.4, 13.9)	21.9 (20.4, 23.4)	3.6 (3.0, 4.3)	21.5 (20.1, 23.1)	16.0 (14.8, 17.3)	9.6 (8.6, 10.7)	19.1 (17.7, 20.5)
New Brunswick (n = 1063)	20.5 (17.9, 23.4)	16.4 (13.9, 19.2)	16.7 (14.3, 19.4)	3.0 (2.0, 4.4)	16.2 (13.7, 18.9)	15.7 (13.4, 18.3)	7.6 (6.0, 9.6)	17.7 (15.2, 20.4)
Quebec (n = 8546)	21.6 (20.6, 22.6)	15.5 (14.6, 16.4)	16.0 (15.1, 17.0)	3.5 (3.1, 4.0)	16.7 (15.8, 17.7)	19.3 (18.3, 20.2)	7.6 (7.0, 8.3)	20.6 (19.6, 21.6)
Ontario (n = 9831)	26.1 (25.2, 27.1)	14.4 (13.6, 15.2)	20.7 (19.8, 21.7)	2.8 (2.4, 3.1)	21.8 (20.9, 22.7)	15.3 (14.6, 16.2)	10.0 (9.4, 10.7)	21.7 (20.8, 22.6)
Manitoba (n = 3978)	25.2 (23.7, 26.8)	13.2 (12.0, 14.6)	21.8 (20.4, 23.3)	3.1 (2.6, 3.7)	22.5 (21.0, 24.0)	15.4 (14.2, 16.7)	9.4 (8.4, 10.5)	21.4 (20.0, 22.9)
Saskatchewan (n = 1063)	21.9 (19.2, 24.8)	13.1 (10.7, 15.9)	18.7 (16.1, 21.7)	2.4 (1.6, 3.7)	17.9 (15.3, 20.9)	14.1 (11.8, 16.8)	6.1 (4.7, 8.0)	16.9 (14.5, 19.6)
Alberta (n = 4490)	25.1 (23.7, 26.6)	11.5 (10.3, 12.8)	23.7 (22.2, 25.2)	2.4 (1.9, 3.0)	23.3 (21.9, 24.9)	14.3 (13.1, 15.5)	10.9 (9.8, 12.0)	19.8 (18.4, 21.2)
British Columbia (n = 8073)	31.8 (30.6, 32.9)	16.7 (15.7, 17.7)	23.8 (22.8, 24.9)	4.1 (3.6, 4.6)	24.0 (22.9, 25.1)	13.8 (12.9, 14.7)	13.0 (12.2, 13.8)	21.5 (20.5, 22.5)