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Associations between childhood abuse, intimate partner violence in young adulthood and social welfare receipt by mid-life

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Key Points

Question: Are victims of abuse in childhood and/or young adulthood at higher risk of using social welfare later in adulthood?

Findings: In this population-based cohort study of 1690 adults in Quebec, Canada, a history of childhood physical and sexual abuse was associated with welfare receipt at ages 23-37 years. Recurrence of abuse with intimate partner violence was associated with more than 3-fold elevated risk as compared to never-abused.

Meaning: Chronic victimization across several developmental periods (childhood and young adulthood) has strong negative associations with economic circumstances in adulthood, including non-integration into the workforce (long-term welfare receipt), affecting intergenerational social/economic burden.

Abstract

Importance: People who experienced child abuse are at greater risk for health problems and subsequent victimization, but few studies have examined economic outcomes such as welfare receipt, in victims of abuse.

Objective: To investigate prospective associations between type of child abuse (physical, sexual, both), timing (childhood, young adulthood, both), and welfare receipt into middle-age.

Design: Database linkage study using the Quebec Longitudinal Study of Kindergarten Children (QLSKC) cohort and government administrative databases.

Setting: A representative population-based cohort in Quebec, Canada.

Participants: Children born in 1980/1981 attending Quebec French-language public-school kindergarten in 1986-87, 1987-88 (n=3020).

Exposure: At age 22 years, participants answered retrospective questionnaires on experienced childhood abuse (physical, sexual abuse < age 18 years) and intimate partner violence (ages 18-22). We assessed parental tax returns (1982-1987) and participant tax returns for a 15-year period (2003-2017).

Main outcome and Measures: Main outcome was years on social welfare (social assistance), based on participant tax returns (ages 23 to 37 years). We defined 4 types of child abuse (physical, sexual, both, none) and 4 timings of abuse (childhood only, age <18; young adulthood only (intimate partner violence), ages 18-22; both; never). We used inverse-probability weighting to account for loss-to-follow-up bias for population representativeness.

Results: Of 1690 participants (54.4% females) with available data, 22.4% reported childhood abuse only, 14.5% intimate partner violence only, and 18.5% both. Prevalence of childhood physical, sexual, and both was 20.4%, 12.2%, and 8.3%, respectively. Adjusting for socioeconomic background and individual characteristics, we found that childhood physical abuse alone and physical/sexual abuse combined were associated with a 2-

fold risk of social welfare, as compared to never-abused (adjusted incidence risk ratio ((IRR) 2.43, 95%CI, 1.65-3.58; and 2.04, 95%CI, 1.29-3.23, respectively). Repeated abuse (childhood abuse combined with adult intimate partner violence) had a 3-fold risk (adjusted IRR 3.59, 95%CI, 2.39-5.37).

Conclusions and relevance: Childhood abuse and intimate partner violence in young-adulthood are associated with increased risks of welfare receipt by middle age, independently of socioeconomic background. Results indicate a dose-response association. Early prevention and targeted identification are crucial to preventing economic adversity that may potentially lead to intergenerational poverty.

Introduction

Child abuse, whether physical, sexual or neglect, is a significant social challenge and public health issue, with prevalence estimates of child abuse ranging from 6 to 40% depending on the jurisdiction.[1,2] Despite increasing universal and targeted detection strategies,[3,4] only a minority of cases come to the attention of authorities; most, therefore, do not receive adequate services.[1,5] Victims of child abuse are at higher risk of physical and mental health problems, including stress-related inflammation and depression,[6-11] smoking and substance use,[12,13] and shorter life expectancy.[14,15] The relationship of abuse in childhood with financial hardship in adulthood, however, remains under-investigated. Further, studies suggest that children abused in childhood are more likely to re-experience subsequent chronic abuse, including intimate partner violence in young adulthood,[16-18] which perpetuate the cycle of victimization and increases morbidity. The differential association between re-victimization in adulthood, albeit in a different relational context, and economic outcomes, such as reliance on social welfare, has not been examined.

Welfare receipt is a marker of financial hardship.[19,20] Prior studies have shown correlations of extended welfare receipt with social isolation, psychological distress, poor health outcomes,[19] and intergenerational risk.[21,22] Welfare receipt, therefore becomes an important outcome when examining economic adversity following experiences of abuse.

Of the few published studies examining economic outcomes in victims of child abuse,[23-27] two reported an association with not being in education, employment, or training (NEET) at age 18 or 23 years,[24,25] and several an increased risk of income support,[24,28] and healthcare-based social assistance[26] in mid-adulthood. These studies, however, were limited, mostly relying on self-reported economic circumstances measured at a single time point or short timeframe.[23-27] Administrative data such as government tax returns, if available, could provide more conclusive evidence.[29] Some studies also reported confounders such as family background,[23-25,28] others not.[26] Addressing independent and cumulative contributions of family background, child abuse and

intimate partner violence is relevant to inform policy and practice, and would allow for more effective screening, preventive, and supportive measures promoting health, employment integration and social participation.

We thereby conducted a prospective study linking: 1) self-reported childhood abuse and intimate partner violence by age 22 years; 2) history of early behavioural problems and family socioeconomic status, including parental tax records; and 3) welfare receipt, using tax records at participant ages 23-37 years. We examined three categories of childhood abuse (physical, sexual, and combined) as well as intimate partner violence in young adulthood. We tested for differential associations with welfare receipt, exploring type and timing of abuse: 1) childhood, 2) young adulthood (ages 18-22 years), and 3) both periods.

Methods

Participants

We conducted a database linkage study, with participants in the Quebec Longitudinal Study of Kindergarten Children (QLSKC) cohort and government revenue databases.[29] QLSKC is an ongoing, prospective, population-based study of 3020 children born in 1980/1981, including 1420 girls (47.2%) and 1600 boys (52.8%) from low, middle, and higher-income neighbourhoods, who attended kindergarten in French-language public schools in Quebec, Canada, in 1986-87 and 1987-88.[30] The cohort consists of: 1) a representative population-based sample of 2000 children (1000 girls, 1000 boys) selected by random sampling stratified by administrative region, school board size, and sex; and 2) a similarly selected sample of 1020 "disruptive" children (420 girls, 590 boys) who scored ≥ 80th percentile on the Social Behaviour Questionnaire by parent or kindergarten teacher assessment.[31] Children were followed yearly from age 6-13 years and again at age 22 years. At age 22, participants answered retrospective questionnaires, including whether they had suffered abuse from childhood to young adulthood.

We linked individual QLSKC records to Canadian government administrative databases to obtain annual federal tax returns at ages 23-37 years (2003-2017) and parental tax returns (1982-1987). The study was approved by the University of Montreal Research Ethics Board. Informed written consent was obtained from participants' parents during childhood and from participants at age 22 years.

Measures of childhood abuse

Childhood abuse was defined as physical and/or sexual abuse before age 18 years. Abuse by neglect was not considered. Sexual abuse was measured using 5 items adapted from the Adverse Childhood Experiences Questionnaire (ACE)[32] and the Sexually Victimized Children Questionnaire.[33] Both are reliable and commonly used instruments for retrospective assessment of child sexual abuse,[34,35] with good predictive validity for outcomes such as adult health.[36-38] Participants were asked whether they had experienced unwanted sexual acts, including exhibitionism (viewing/showing genitalia); sexual fondling or touching; and attempted/completed sexual intercourse using bribes, threats, force, or drugs and/or alcohol. Aggressors could be immediate family members, extended family, acquaintances, or unknown. Responses were dichotomized as 1 (any) or 0 (none).

Physical abuse was measured using 20 items from the Conflict Tactics Scales: Parent-child Version (CTSPC-CA).[39] The instrument is adapted for adult reports of childhood trauma, with demonstrated psychometric properties across different samples.[40,41] Participants indicated how often they experienced severe physical abuse (e.g. being hit with an object) by a mother, father figure, or adult caregiver. Responses were dichotomized as 1 (severe/very severe) or 0 (none/minor).

Measures of intimate partner violence

Intimate partner violence was defined as physical and/or sexual abuse at ages 18-22 years by a current or former intimate partner, spouse, or cohabiting intimate partner, regardless of gender. It was measured using the physical assault and unwanted sexual coercion subscales of the Revised Conflict Tactics Scale (CTS2)[42] and items adapted from the Sexual Experiences Survey.[43,44] Both are widely used in the context of intimate relationships, with published psychometric properties.[42-44] Items included: "How often did your partner/ex-partner kick, burn or scald you on purpose?" or "How often did your partner/ex-partner use drugs to incite you into sexual contact or use force on you to have sexual contact?" Responses were dichotomized as 1 (at least once) or 0 (none).

Subgroups

We defined 4 types of child abuse: physical, sexual, both, and none. Timing was defined as: childhood only (< age 18 years), young adulthood only (intimate partner violence, ages 18-22), both childhood and young adulthood, and never abused.

Outcome measure: Social welfare

Social welfare benefits (social assistance) from age 23-37 years were obtained from federal tax returns via data linkage with the QLSKC by Statistics Canada. For each year of follow-up, welfare was dichotomized as 1 (received) or 0 (none). The outcome was a count variable representing total number of years the participant received social welfare, ranging from 0-15 years. In the province of Quebec, social welfare is a "last resort" financial support for people without income who are no longer eligible for unemployment insurance (excluding those with severely limited work capacity).[45]

Confounders

Socioeconomic background, and disruptive behaviour and cognitive abilities in early childhood are known to be linked to abuse and to future economic circumstances.[22,25,46] Accordingly, we included the following covariates in multivariate analyses: a) child sex, child IQ, disruptive behaviour in kindergarten (part of "disruptive sample"), parental education, family structure, parental age at childbirth, and maternal employment status, as measured on family questionnaires at age 6 years; and b) parental income as obtained from tax returns at participant ages 2-7 years **(eMethods**). The correlation between the various covariates and welfare receipt at ages 23-37 is shown in **eTable1**.

To account for potential memory bias or reporting errors (false positive/negative) due to concurrent mental disorders during retrospective assessments of abuse,[47,48] we conducted sensitivity analyses for the presence of mental disorders at time of recall. Mental disorder was assessed using the National Institute of Mental Health Diagnostic Interview Schedule, Version III, Revised (DIS III-R),[49,50] and was dichotomized as 1 (any at age 22 years) or 0 (none).

Statistical analysis

We used descriptive statistics (mean and standard deviation, counts, percentages) for socioeconomic childhood characteristics, chi-squared tests for bivariate comparisons, and one-way analysis of variance (ANOVA), as appropriate. For associations between child abuse and years of social welfare, we used negative binomial regression, with robust standard error estimates to account for over-dispersion of the count outcome. Analyses were performed separately for type (sexual, physical, and both) and timing (childhood, young adulthood, or both) of abuse. We also adjusted for sex and additionally adjusted for child characteristics and family background. Results are presented as incidence risk ratios (IRR) with 95% confidence intervals. We used inverse-probability weighting to control for potential attrition bias from the initial cohort.[51]

Missing data on covariates was managed using multiple imputations by chained equations. The final models were estimated across 50 imputed datasets and the results pooled.

Sensitivity analyses were conducted for potential memory bias or reporting errors due to concurrent mental disorder at time of recall of abuse. All analyses were conducted using Stata16 Statistical Software (StataCorp LLC, StataCorp College Station, TX). Significance was set at $P < 0.05$. All tests were two-tailed.

Results

Of the 3020 participants in the QLSKC cohort, our study included 1690 (54.4% females) with available data on childhood abuse and intimate partner violence (**Table 1**). Participants in our sample were more likely to be females and less likely than non-participants to come from socially disadvantaged backgrounds. To account for this differential attrition, inverse-probability weighting was used.

In total, 380 (22.4%) participants reported abuse in childhood only, 250 (14.5%) in young adulthood only, and 310 (18.5%) in both. Types of childhood abuse were physical only for 360 (20.4%) participants, sexual only for 210 (12.2%), and both for 140 (8.3%). Females experienced significantly higher rates of sexual abuse than males (18.8% vs. 4.3%) and were more likely than males to experience both childhood abuse and intimate partner violence (21.2% vs. 15.3%); $p < .001$. While birth order was not associated with timing, it was associated with type of abuse (**Tables 2, 3**). Compared to firstborns, participants who occupy other birth positions were more likely to report child sexual abuse only or sexual and physical abuse combined. High scores in disruptive behaviours in kindergarten and low IQ scores were associated with both type and timing of abuse. In addition, participants who experienced abuse were more likely to come from a socioeconomically disadvantaged family, in terms of family structure, maternal age at childbirth and level of education, and parental income during childhood ($p < .001$).

Welfare receipt from age 23-37 years was higher for those reporting childhood abuse than no childhood abuse, (**Figure 1A**). Those with both physical and sexual abuse in childhood fared worse than with either type alone: 15.7% (95%CI: 9.1-22.2%) on welfare for 1-2 years and 13.8% (95%CI: 7.8-19.8%) for ≥ 5 years, as compared to 9.1% (95%CI: 5.8-12.3%) and 11% (95% CI: 7.4-14.4%) for physical; and 11% (95% CI: 6.4-15.3%) and 10% (95%CI: 5.7-14.7%) for sexual abuse, respectively. Similarly for timing, those experiencing both childhood abuse and young adulthood intimate partner violence fared the worst, with 14.6% (95%CI: 10.4-18.8%) on welfare for 1-2 years and 16.5% (95%CI: 12.1-21.0%) for ≥ 5 years vs. 5.8% (95%CI: 4.1-7.6%) and 4.8% (95%CI: 2.0-7.6%) for those never abused, respectively (**Figure 1B**).

Types and timing of abuse

Accounting for confounders, childhood physical abuse alone or in combination with childhood sexual abuse increased the risk of welfare receipt two-fold, as compared to no abuse (adjusted IRR 2.43, 95%CI: 1.65-3.58 and 2.04, 95%CI: 1.29-3.23, respectively; $P < .001$) (**Table 4).** Estimates involving childhood sexual abuse were particularly affected by confounders. Childhood sexual abuse alone also increased the risk, but not to statistical significance after adjustment (adjusted IRR 1.60, 95%CI: 1.01-2.52; $P < .08$).

Chronic abuse, namely young adulthood intimate partner violence in combination with childhood abuse, increased the risk of welfare receipt 3-fold, as compared to never abused (adjusted IRR 3.30, 95%CI: 2.17-5.02), $P < .001$). A smaller risk was observed for participants who experienced abuse in childhood or young adulthood only (**Table 4**). Inclusion of confounders in the model did not fully explain the associations, suggesting that the contribution of chronic abuse to later welfare participation in adulthood was independent of background factors**.**

Results of the various covariates and the fully adjusted model are shown in **Figures 2A**, **2B.** The associations reported above were partly explained by concurrent mental health, low maternal education, low parental income and low child IQ scores.

Sensitivity analysis

Concurrent mental disorders at age 22 were significantly associated with retrospective reports of abuse (**eTable-2).** This additional adjustment yielded slightly lower estimates across all abuse categories but did not alter overall significance of the models (**Table 4**).

Discussion

Using longitudinal data from a population-based birth cohort that we linked to government tax records, we investigated the relationship between abuse in childhood and/or young adulthood and the later dependence on social welfare from early-to-mid adulthood (ages 23-37 years). After adjusting for potential confounders, we found a 2-3-fold increase in social welfare receipt at anytime in that 15-year period, depending on type and timing of abuse, as compared to never-abused. Physical abuse alone or in combination with sexual abuse conferred risk for welfare support needs in adulthood. The highest incidence risk ratio (3-fold) was observed for participants reporting both childhood abuse and intimate partner violence by age 22 years. Almost 40% of these participants collected welfare for at least 1 year, at some point between ages 23 to 37 years. Nearly half of these, over 16 %, remained on social welfare for 5 years or more, as compared to 4% for participants never abused. This is the largest study of its kind to date.

The prevalence of abuse in our sample seemed high: 22% in childhood only, 14% in intimate partner violence during young adulthood only and 18% in both (only 45% of our sample never experienced abused). Yet it is in line with national statistics, that 1 out of 3 children before age 15 suffer abuse,[52,53] and that approximately 4 in 10 women and one-third of men experience some form of intimate partner victimization in young adulthood.[54-56] The high prevalence of abuse in Canada and elsewhere[57-59] underscores the importance of assessing nefarious effects thereof, including reliance on social welfare support, which signals negative income outcomes, negative societal outcomes, and intergenerational transmission of poverty.

Our results confirm the handful of prior studies that provided evidence of income-related support and early status of not being in education, employment or training (NEET) among victims of childhood abuse.[23-25] Our results also support the differential impact of the type of abuse on unemployment status.[26] Our estimates involving sexual abuse were particularly reduced after adjusting for confounders, suggesting that the association between child sexual abuse and later welfare assistance is substantially explained by family background characteristics. Likewise, in the U.S. National Comorbidity Survey,[26] participants who self-

reported childhood physical abuse or multiple types of abuse before age 18 were more likely than never-abused to be unemployed. Victims of sexual abuse only and neglect, however, showed no such differences.

The present study extends the research to victimization in young adulthood occurring in the context of intimate partner violence, advancing knowledge of outcomes specifically related to social welfare. We showed that, above and beyond key characteristics known to influence the likelihood of social welfare [21,60,61] – namely, parental household income, maternal education, family structure, and child IQ – experiences of repeated abuse, in and of themselves, represented an additional and independent risk factor for social welfare in adulthood. That finding alone, even after adjustment for contemporaneous mental health issues, suggests that young adults with a history of abuse warrant additional attention beyond what their psychiatric history may or may not indicate.

Several mechanisms may account for associations observed in the present study. In previous work, child abuse has been associated with poor academic achievement, school dropout, as well as emotional dysregulation.[15,62,63] They represent a potentially robust mediational pathway between experiences of abuse and social welfare participation in adulthood. Besides, individuals who suffered re-victimization in young adulthood, in the form of intimate partner violence, may differ in terms of the characteristics of the abuse they experienced (e.g. serious forms of IPV involving physical injury).[64] Repeated abuse may set patterns of poor physical health and impaired social functioning that aggravate learning losses and behavioral problems, weakening job prospects, creating welfare assistance needs.

Physical abuse in childhood, combined physical/sexual abuse in childhood, and re-victimization in young adulthood, are red flags for early intervention. Prevention of initial and further abuse, along with support programs, have the potential to improve economic outcomes (with all the associated benefits thereof), and reduce societal costs of welfare support.

Limitations

Our study had several limitations. First, the design was observational, allowing for associations but not causation. Second, longitudinal loss to follow-up may reduce the strength of inferences and generalizability of findings. Inverse probability weighting, however, controlled for potential bias by increasing population representativeness. Third, retrospective self-reporting of abuse may be subject to recall bias, including under-reporting of severe undisclosed events and repression of traumatic memories. Adjusting for concurrent mental health status at time of recall, as we did, would lessen the impact.[48] Despite of limitations of retrospective self-report, it provides access to representative sample of abuse survivors in the population, by capturing victims that may have not been identified by child protective services or the criminal justice system.[48,65] Fourth, we explored the presence of abuse, but not characteristics thereof, such as severity, frequency, or perpetrator identity (intra-familial vs. extra-familial) as the latter were not available in our study. Nor did we include forms of abuse other than physical or sexual (e.g. neglect, psychological abuse). Replication with additional analyses is needed. Finally, the topic needs to be explored for sexual minorities.

Conclusion

As the generation born in 1980 approaches middle age, our population-based prospective study found that those with a history of childhood abuse and intimate partner violence were at increased risk of welfare dependence, a marker of non-integration into the workforce and socioeconomic disadvantage. We observed a dose-response relationship, chronic abuse across developmental periods (childhood and young adulthood) having up to a 3-fold effect. Associations were independent of mental health status at age 22 or background family socioeconomic and child characteristics. Early abuse may thus represent an independent pathway to economic adversity and potential intergenerational transmission of poverty. Early support and intervention services for victims of abuse could reduce economic burden at governmental and individuals levels, with societal/economic benefits for current and future generations.

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References

1. Gilbert R, Widom CS, Browne K, Fergusson D, Webb E, Janson S. Burden and consequences of child maltreatment in high-income countries. *Lancet.* 2009;373(9657):68-81.
2. World Health O. *Global status report on preventing violence against children 2020.* Geneva: World Health Organization; 2020.
3. Canada PHAo. A pathfinding country: Canada's road map to end violence against children. *HP35-118/2019E.* 2019
4. World Health O. Preventing child maltreatment : a guide to taking action and generating evidence. In. Geneva: World Health Organization; 2006.
5. Radford L, Corral S, Bradley C, Fisher HL. The prevalence and impact of child maltreatment and other types of victimization in the UK: findings from a population survey of caregivers, children and young people and young adults. *Child Abuse Negl.* 2013;37(10):801-813.
6. Rasmussen LJH, Moffitt TE, Arseneault L, et al. Association of Adverse Experiences and Exposure to Violence in Childhood and Adolescence With Inflammatory Burden in Young People. *JAMA Pediatrics.* 2020;174(1):38-47.
7. Danese A, McEwen BS. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiol Behav.* 2012;106(1):29-39.
8. Chartier MJ, Walker JR, Naimark B. Childhood abuse, adult health, and health care utilization: results from a representative community sample. *Am J Epidemiol.* 2007;165(9):1031-1038.
9. Wegman HL, Stetler C. A meta-analytic review of the effects of childhood abuse on medical outcomes in adulthood. *Psychosom Med.* 2009;71(8):805-812.
10. Lindert J, von Ehrenstein OS, Grashow R, Gal G, Braehler E, Weisskopf MG. Sexual and physical abuse in childhood is associated with depression and anxiety over the life course: systematic review and meta-analysis. *Int J Public Health.* 2014;59(2):359-372.
11. Springer KW, Sheridan J, Kuo D, Carnes M. Long-term physical and mental health consequences of childhood physical abuse: results from a large population-based sample of men and women. *Child abuse & neglect.* 2007;31(5):517-530.
12. Afifi TO, Henriksen CA, Asmundson GJ, Sareen J. Childhood maltreatment and substance use disorders among men and women in a nationally representative sample. *Can J Psychiatry.* 2012;57(11):677-686.
13. Hughes K, Bellis MA, Hardcastle KA, et al. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health.* 2017;2(8):e356-e366.
14. Brezo J, Paris J, Vitaro F, Hébert M, Tremblay RE, Turecki G. Predicting suicide attempts in young adults with histories of childhood abuse. *Br J Psychiatry.* 2008;193(2):134-139.
15. Angelakis I, Austin JL, Gooding P. Association of Childhood Maltreatment With Suicide Behaviors Among Young People: A Systematic Review and Meta-analysis. *JAMA Network Open.* 2020;3(8):e2012563-e2012563.
16. Classen CC, Palesh OG, Aggarwal R. Sexual revictimization: a review of the empirical literature. *Trauma Violence Abuse.* 2005;6(2):103-129.
17. Coid J, Petruckevitch A, Feder G, Chung W, Richardson J, Moorey S. Relation between childhood sexual and physical abuse and risk of revictimisation in women: a cross-sectional survey. *Lancet.* 2001;358(9280):450-454.
18. Barnes JE, Noll JG, Putnam FW, Trickett PK. Sexual and physical revictimization among victims of severe childhood sexual abuse. *Child abuse & neglect.* 2009;33(7):412-420.
19. Shahidi FV, Ramraj C, Sod-Erdene O, Hildebrand V, Siddiqi A. The impact of social assistance programs on population health: a systematic review of research in high-income countries. *BMC Public Health.* 2019;19(1):2.
20. Bahle T PM, Wendt C. *Social assistance. In: Castles FG, Leibfried S, Lewis J, et al., editors. The Oxford handbook of the welfare state.*: Oxford: Oxford University Press.; 2010.
21. Pepper JV. The Intergenerational Transmission of Welfare Receipt: A Nonparametric Bounds Analysis. *The Review of Economics and Statistics.* 2000;82(3):472-488.
22. Vergunst F, Tremblay RE, Nagin D, et al. Inattention in boys from low-income backgrounds predicts welfare receipt: a 30-year prospective study. *Psychological Medicine.* 2020;50(12):2001-2009.

23. Currie J, Widom CS. Long-term consequences of child abuse and neglect on adult economic well-being. *Child Maltreat.* 2010;15(2):111-120.
24. Pinto Pereira SM, Li L, Power C. Child Maltreatment and Adult Living Standards at 50 Years. *Pediatrics.* 2017;139(1):e20161595.
25. Jaffee SR, Ambler A, Merrick M, et al. Childhood Maltreatment Predicts Poor Economic and Educational Outcomes in the Transition to Adulthood. *Am J Public Health.* 2018;108(9):1142-1147.
26. Zielinski DS. Child maltreatment and adult socioeconomic well-being. *Child Abuse Negl.* 2009;33(10):666-678.
27. Liu Y, Croft JB, Chapman DP, et al. Relationship between adverse childhood experiences and unemployment among adults from five U.S. states. *Soc Psychiatry Psychiatr Epidemiol.* 2013;48(3):357-369.
28. Fergusson DM, McLeod GF, Horwood LJ. Childhood sexual abuse and adult developmental outcomes: findings from a 30-year longitudinal study in New Zealand. *Child Abuse Negl.* 2013;37(9):664-674.
29. Findlay LC, Beasley E, Park J, et al. Longitudinal child data: What can be gained by linking administrative data and cohort data? *Int J Popul Data Sci.* 2018;3(1):451.
30. Rouquette A, Cote SM, Pryor LE, Carbonneau R, Vitaro F, Tremblay RE. Cohort profile: the Quebec Longitudinal Study of Kindergarten Children (QLSKC). *Int J Epidemiol.* 2014;43(1):23-33.
31. Tremblay RE, Desmarais-Gervais L, Gagnon C, Charlebois P. The Preschool Behaviour Questionnaire: Stability of its Factor Structure Between Cultures, Sexes, Ages and Socioeconomic Classes. *International Journal of Behavioral Development.* 1987;10(4):467-484.
32. Felitti VJ, Anda RF, Nordenberg D, et al. 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.* 1998;14(4):245-258.
33. Finkelhor D. *Sexually victimized children. New York. Free Press; 1979:xii, 288p.*
34. Meinck F, Cosma AP, Mikton C, Baban A. Psychometric properties of the Adverse Childhood Experiences Abuse Short Form (ACE-ASF) among Romanian high school students. *Child Abuse & Neglect.* 2017;72:326-337.
35. Goldman RJ, Goldman JD. The prevalence and nature of child sexual abuse in Australia. *Australian Journal of Sex, Marriage & Family.* 1988;9(2):94-106.
36. Zarse EM, Neff MR, Yoder R, Hulvershorn L, Chambers JE, Chambers RA. The adverse childhood experiences questionnaire: Two decades of research on childhood trauma as a primary cause of adult mental illness, addiction, and medical diseases. *Cogent Medicine.* 2019;6(1):1581447.
37. Finkelhor D, Hotaling GT, Lewis IA, Smith C. Sexual Abuse and Its Relationship to Later Sexual Satisfaction, Marital Status, Religion, and Attitudes. *Journal of Interpersonal Violence.* 1989;4(4):379-399.
38. Lacelle C, Hébert M, Lavoie F, Vitaro F, Tremblay RE. Child sexual abuse and women's sexual health: the contribution of CSA severity and exposure to multiple forms of childhood victimization. *J Child Sex Abus.* 2012;21(5):571-592.
39. Straus MA, Hamby SL, Finkelhor D, Moore DW, Runyan D. Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: development and psychometric data for a national sample of American parents. *Child Abuse Negl.* 1998;22(4):249-270.
40. Cui N, Xue J, Connolly CA, Liu J. Does the gender of parent or child matter in child maltreatment in China? *Child Abuse Negl.* 2016;54:1-9.
41. Cotter A, Proctor KB, Brestan-Knight E. Assessing child physical abuse: An examination of the factor structure and validity of the Parent-Child Conflict Tactics Scale (CTSPC). *Children and Youth Services Review.* 2018;88:467-475.
42. Straus MA, Hamby SL, Boney-McCoy SUE, Sugarman DB. The Revised Conflict Tactics Scales (CTS2): Development and Preliminary Psychometric Data. *Journal of Family Issues.* 1996;17(3):283-316.
43. Koss MP, Gidycz CA. Sexual experiences survey: reliability and validity. *J Consult Clin Psychol.* 1985;53(3):422-423.
44. Cecil H, Matson SC. Sexual victimization among African American adolescent females: examination of the reliability and validity of the Sexual Experiences Survey. *J Interpers Violence.* 2006;21(1):89-104.
45. Quebec Governement. Social Assistance and Social Solidarity. In. Quebec2021.
46. Power C, Matthews S. Origins of health inequalities in a national population sample. *Lancet.* 1997;350(9091):1584-1589.

47. Dalgleish T, Werner-Seidler A. Disruptions in autobiographical memory processing in depression and the emergence of memory therapeutics. *Trends Cogn Sci.* 2014;18(11):596-604.
48. Danese A, Widom CS. Objective and subjective experiences of child maltreatment and their relationships with psychopathology. *Nature Human Behaviour.* 2020;4(8):811-818.
49. Robins LN, Helzer JE, Croughan J, Ratcliff KS. National Institute of Mental Health Diagnostic Interview Schedule. Its history, characteristics, and validity. *Arch Gen Psychiatry.* 1981;38(4):381-389.
50. Von Korff MR, Anthony JC. The NIMH diagnostic interview schedule modified to record current mental status. *J Affect Disord.* 1982;4(4):365-371.
51. Schmidt SCE, Woll A. Longitudinal drop-out and weighting against its bias. *BMC Medical Research Methodology.* 2017;17(1):164.
52. Burczycka M. Profile of Canadian adults who experienced childhood maltreatment. In Family violence in Canada: A statistical profile, 2015. *Juristat Statistics Canada Catalogue no 85-002-X* 2017.
53. Conroy S. Family violence in Canada: A statistical profile. 2019.
54. Cotter A. Intimate partner violence in Canada, 2018. Juristat. Statistics Canada Catalogue no. 85-002-X. 2021a.
55. Cotter A. Childhood maltreatment and the link with victimization in adulthood: Findings from the 2019 General Social Survey. *Juristat Statistics Canada Catalogue no 11-627-M.* 2021.
56. Savage L. Intimate partner violence: Experiences of young women in Canada, 2018. Juristat. Statistics Canada Catalogue no. 85-002-X. 2021.
57. O. WH. Violence against children, Key facts. . *Geneva: World Health Organization* June, 2020.
58. Hillis S, Mercy J, Amobi A, Kress H. Global Prevalence of Past-year Violence Against Children: A Systematic Review and Minimum Estimates. *Pediatrics.* 2016;137(3):e20154079.
59. Smith SG ZX, Basile KC, et al. . Atlanta: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. The National Intimate Partner and Sexual Violence Survey (NISVS): 2015 data brief — updated release. *Atlanta: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention,.* 2018.
60. Dahl GB, Kostøl AR, Mogstad M. Family Welfare Cultures *. *The Quarterly Journal of Economics.* 2014;129(4):1711-1752.
61. Currie J. Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development. *Journal of Economic Literature.* 2009;47(1):87-122.
62. Diette TM, Goldsmith AH, Hamilton D, Darity Jr WA. Child Abuse, Sexual Assault, Community Violence and High School Graduation. *Review of Behavioral Economics.* 2017;4(3):215-240.
63. Silva TC, Larm P, Vitaro F, Tremblay RE, Hodgins S. The association between maltreatment in childhood and criminal convictions to age 24: a prospective study of a community sample of males from disadvantaged neighbourhoods. *Eur Child Adolesc Psychiatry.* 2012;21(7):403-413.
64. Widom CS, Czaja S, Dutton MA. Child abuse and neglect and intimate partner violence victimization and perpetration: A prospective investigation. *Child Abuse & Neglect.* 2014;38(4):650-663.
65. Kendall-Tackett K, Becker-Blease K. The importance of retrospective findings in child maltreatment research. *Child Abuse Negl.* 2004;28(7):723-727.

Table 1. Prevalence of abuse in the study participants by sex, specific type and timing of abuse.

	Study sample (n= 1690)	Male (n=770)	Female (n = 920)	*P*
Type of child abuse				
No abuse	1,000 (59.1)	500 (64.9)	500 (54.1)	
Sexual	210 (12.2)	30 (4.3)	170 (18.8)	
Physical	350 (20.4)	210 (26.7)	140 (15.1)	**.001**
Both sexual and physical	140 (8.3)	30 (4.0)	110 (11.9)	
Timing of abuse				
Never	760 (44.6)	390 (50.1)	370 (40.0)	
Childhood only[a]	380 (22.4)	150 (19.7)	230 (24.7)	
Young adulthood only (IPV)[b]	250 (14.5)	120 (14.9)	130 (14.1)	**.001**
Childhood + young adulthood IPV	310 (18.5)	120 (15.3)	200 (21.2)	

Note. In accordance with Statistics Canada data protection regulations, percentages are rounded to 1 decimal point, and displayed counts are rounded to base 10. Numbers may not sum to group totals and percentages may not add to 100%.

[a]Child abuse included physical/sexual abuse before age 18 years.

[b]Abuse in young adulthood (ages 18-22 years) included physical and/or sexual victimization in the context of intimate partner violence (IPV).

P values are based on a between-group comparison using Pearson χ b2 tests for the categorical variables. Statistical significance $p < .05$.

Table 2. Child and family background characteristics by type of abuse.

Child characteristics	Specific type of abuse				
	No abuse (n= 1000)	Physical (n=350)	Sexual (n= 210)	Physical and Sexual (n= 140)	*P*
Sex, No. (%)					
Female	500 (49.8)	140 (40.3)	170 (84.0)	110 (78.0)	**.001**
Male	500 (50.2)	210 (59.7)	30 (16.0)	30 (22.0)	
Birth order, No. (%)					
First-born	490 (48.9)	170 (49.5)	70 (35.4)	70 (46.8)	
Second-born	370 (37.1)	130 (38.3)	90 (42.7)	40 (29.5)	**.000**
Third-born or later	140 (13.9)	40 (12.2)	50 (21.8)	30 (23.7)	
Birth weight, mean (SD) in grams	3299.04 (553.91)	3287.90 (529.45)	3226.71 (552.31)	3182.41 (556.10)	.15
Early disruptive behavior[a], No. (%),	290 (28.5)	140 (40.0)	60 (28.2)	60 (43.3)	.**001**
Child IQ, mean SD	9.97 (1.42)	9.73 (1.70)	9.84 (1.35)	9.55 (1.47)	**.01**

Note. In accordance with Statistics Canada data protection regulations, percentages are rounded to 1 decimal point and displayed counts are rounded to base 10. Numbers may not sum to group totals, and percentages may not add to 100%.

[a] Scored ≥ 80th percentile on the Social behavior questionnaire,[31] as per kindergarten teacher or parent assessment at age 5/6 years. Behaviors included inattention, hyperactivity, aggression, and opposition. *P* values based on between-group comparisons using one-way ANOVA for continuous variables and Pearson $\chi 2$ tests for categorical variables. Up to 1.1% missing data in child characteristics variables, except for birth weight and child IQ, which had 25.9% and 24.8% missing, respectively.

Table 2. Child and family background characteristics by type of abuse (Continued).

	Specific type of abuse				
Family characteristics	No abuse (n= 1000)	Physical (n=350)	Sexual (n= 210)	Physical and Sexual (n= 140)	*P*
Maternal age at childbirth, years, mean (SD)	26.98 (4.50)	26.39 (4.19)	27.16 (4.20)	25.97 (4.69)	**.01**
Paternal age at childbirth, years, mean (SD)	29.15 (4.66)	29.06 (4.63)	29.62 (5.05)	29.03 (4.92)	.55
Family Structure					
Intact family unit	720 (88.9)	210 (82.0)	130 (84.3)	80 (75.7)	
Non –intact (single/blended family)	90 (11.1)	45 (18.0)	30 (15.7)	30 (24.3)	**.001**
Maternal education[b], mean (SD)	12.23 (2.64)	11.96 (2.56)	12.03 (2.47)	11.38 (2.39)	**.003**
Paternal education[b], mean (SD)	12.39 (3.31)	12.02 (3.29)	12.50 (3.39)	11.79 (3.44)	.10
Parental income in US dollars[c] mean (SD)	27900 (14300)	24600 (12600)	23900 (13500)	22000 (15600)	**.001**
Mother employed during child's preschool years, No. (%)	550 (54.9)	170 (50.0)	100 (48.3)	60 (43.9)	**.03**

Note. In accordance with Statistics Canada data protection regulations, percentages are rounded to 1 decimal point, and displayed counts are rounded to base 10.

[b]Total number of years of education (mean).

[c]Rounded to the nearest 100 according to Statistics Canada data protection regulations.

Up to 1.9% missing data in family characteristics variables, except for family structure and paternal education, which had 11.1% and 21.2% missing, respectively.

Table 3. Child and family background characteristics according to the timing of abuse.

Child characteristics	Timing of abuse[a]				
	Never (*n* = 760)	**Childhood** (*n* = 380)	**Young adulthood (IPV)** (*n* = 250)	**Childhood + Young Adulthood (IPV)** (n = 310)	*P*
Sex, No. (%)					
Female	370 (48.7)	230 (59.9)	130 (53.1)	200 (62.3)	**.001**
Male	390 (51.3)	150 (40.1)	120 (46.9)	120 (37.7)	__
Birth order, No (%)					
First-born	370 (49.5)	160 (42.3)	120 (47.1)	150 (47.7)	__
Second-born	270 (36.4)	150 (40.9)	100 (39.3)	110 (34.0)	.18
Third-born or later	110 (14.1)	60 (16.8)	30 (13.5)	60 (18.2)	__
Birth weight, grams[b], mean (SD)	3307.95 (565.95)	3224.69 (561.88)	3272.55 (516.90)	3280.95 (513.24)	.22
Early disruptive behavior[c], No. (%)	210 (27.7)	130 (34.8)	80 (31.0)	130 (40.0)	**.001**
Child IQ, mean (SD)	10.05 (1.30)	9.82 (1.46)	9.73 (1.74)	9.61 (1.66)	**.001**

Note. In accordance with Statistics Canada data protection regulations, percentages are rounded to 1 decimal point, and displayed counts are rounded to base 10.

Abbreviations: IPV, intimate partner violence; SD, standard deviation

[a]Abuse in childhood (age < 18) was defined as physical and/or sexual abuse. Abuse in young adulthood (ages 18-22 years) was defined as physical and/or sexual victimization in the context of intimate partner violence (IPV).

[b]Low birth weight is generally defined as < 2500 grams.

[c]Scored ≥ 80th percentile on the Social behavior questionnaire[31], as per kindergarten teacher or parent assessment at age 5/6 years. Behaviors included inattention, hyperactivity, aggression, and opposition. *P* values based on between-group comparisons using one-way ANOVA for continuous variables and Pearson $\chi 2$ tests for categorical variables. Up to 1.1% missing data in child characteristics variables, except for birth weight and child IQ, which had 25.9% and 24.8% missing respectively.

Table 3.Child and family background characteristics according to the timing of abuse (Continued).

Family characteristics	Timing of abuse[a]				
	Never (*n* = 760)	**Childhood** (*n* = 380)	**Young Adulthood (IPV)** (*n* = 250)	**Childhood + Young Adulthood (IPV)** (*n* = 310)	*P*
Maternal age at childbirth, years, mean (SD)	27.07 (4.50)	26.84 (4.25)	26.71 (4.50)	26.17 (4.37)	**.02**
Paternal age at childbirth, years, mean (SD)	29.14 (4.60)	29.25 (4.81)	29.20 (4.86)	29.18 (4.82)	.98
Family structure, No. (%)					
Intact family unit	550 (89.3)	250 (84.1)	170 (87.8)	180 (77.8)	
Non-Intact family unit (single/blended)	70 (10.7)	50 (15.9)	20 (12.2)	50 (22.2)	**.001**
Maternal education[d], mean (SD)	12.30 (2.64)	11.96 (2.48)	12.01 (2.66)	11.75 (2.54)	**.01**
Paternal education[d], mean (SD)	12.48 (3.33)	12.24 (3.51)	12.11 (3.23)	11.95 (3.15)	.13
Parental income in US dollars[e] mean (SD)	28200 (14300)	24600 (13300)	27000 (14400)	23000 (13800)	**.001**
Mother employed during Child's preschool years, No. (%)	420 (55.9)	190 (49.5)	130 (52.1)	140 (46.8)	**.03**

Note. In accordance with Statistics Canada data protection regulations, percentages are rounded to 1 decimal point, and displayed counts are rounded to base 10.

[a]Abuse in childhood (age < 18) was defined as physical and/or sexual abuse. Abuse in young adulthood (ages 18-22 years) was defined as physical and/or sexual victimization in the context of intimate partner violence (IPV).

[d]Total number of years of education (mean).

[e]Rounded to the nearest 100 according to Statistics Canada data protection regulations.

Up to 1.9% missing data in background family characteristics variables, except for family structure and paternal education, which had 11.1% and 21.2% missing respectively.

Table 4. Association between childhood abuse, intimate partner violence (IPV) and being on social welfare between ages 23-37 years.

	Model 1 Unadjusted		Model 2 Adjusted for sex		Model 3 Adjusted for all baseline risk factors[b]		Model 4 Adjusted for concurrent mental health[c]	
	IRR	95% CI	IRR	95% CI	IRR	95% CI	IRR	95% CI
Types of child abuse								
No abuse		[reference]		[reference]		[reference]		[reference]
Physical	2.68	1.86 - 3.86	2.66	1.85 - 3.83	2.43	1.65 - 3.58	2.27	1.51 - 3.39
Sexual	2.33	1.53 - 3.54	2.43	1.57 - 3.76	1.60	1.01 - 2.52	1.51	0.95 - 2.42
Both sexual and physical	3.60	2.33 - 5.55	3.72	2.39 - 5.82	2.04	1.29 - 3.23	1.97	1.23 - 3.15
Timing of abuse								
Never		[reference]		[reference]		[reference]		[reference]
Childhood only	1.90	1.24 - 2.91	1.96	1.29 - 2.97	1.39	0.91 - 2.14	1.36	0.88 - 2.12
Young adulthood (IPV)[a]	1.59	0.96 - 2.62	1.67	1.03 - 2.74	1.20	0.69 - 2.07	1.16	0.66 - 2.05
Childhood + Young adulthood (IPV)	4.74	3.30 - 6.90	5.09	3.55 - 7.30	3.59	2.39 - 5.37	3.30	2.17 - 5.02

Note. Estimates are incidence risk ratios (IRR) from negative binomial regressions, with 95% confidence intervals (CI), and indicate risk of welfare receipt from ages 23 to 37 years.

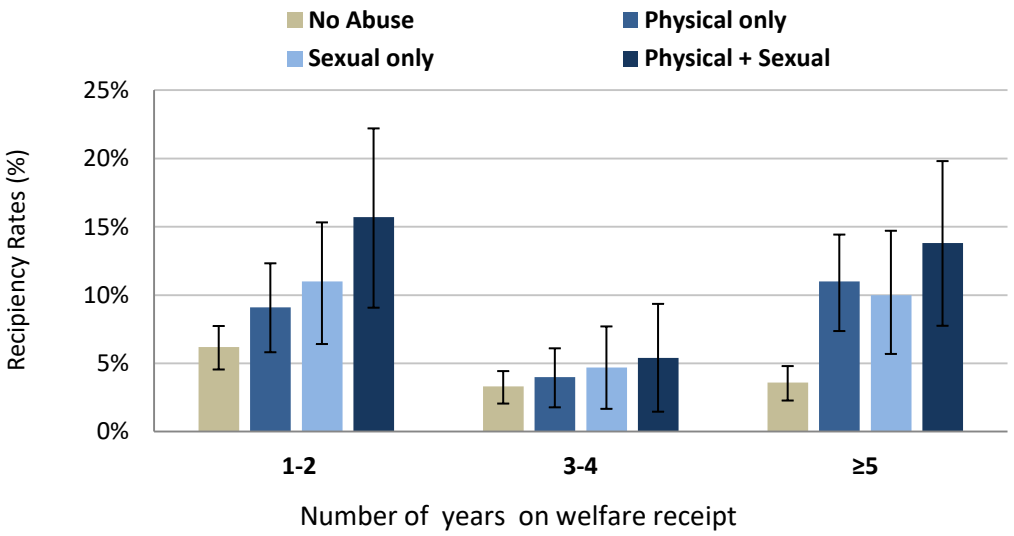
All three models are adjusted for attrition bias, using Inverse Probability Weighting.

[a]Included physical and/or sexual victimization (ages 18-22 years) in the context of intimate partner violence (IPV).

[b]Baseline risk factors included : Child sex, child IQ, disruptive behaviors sample membership, maternal age at childbirth, paternal age at childbirth, family structure, maternal and paternal education, parental income and mother's employment status during the child's preschool years.

[c]Additionally adjusted for any concurrent mental health problems (e.g. depression, anxiety, panic disorder, psychosomatic problems, antisocial behaviors) at the time of retrospective reporting of abuse (at age 22 years).

A. Specific type of abuse



B. Timing of abuse

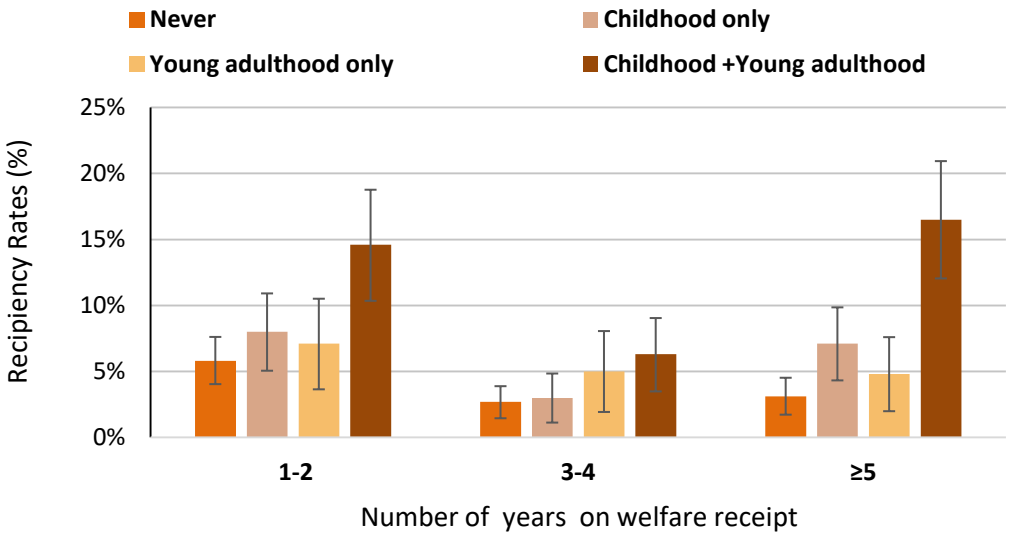
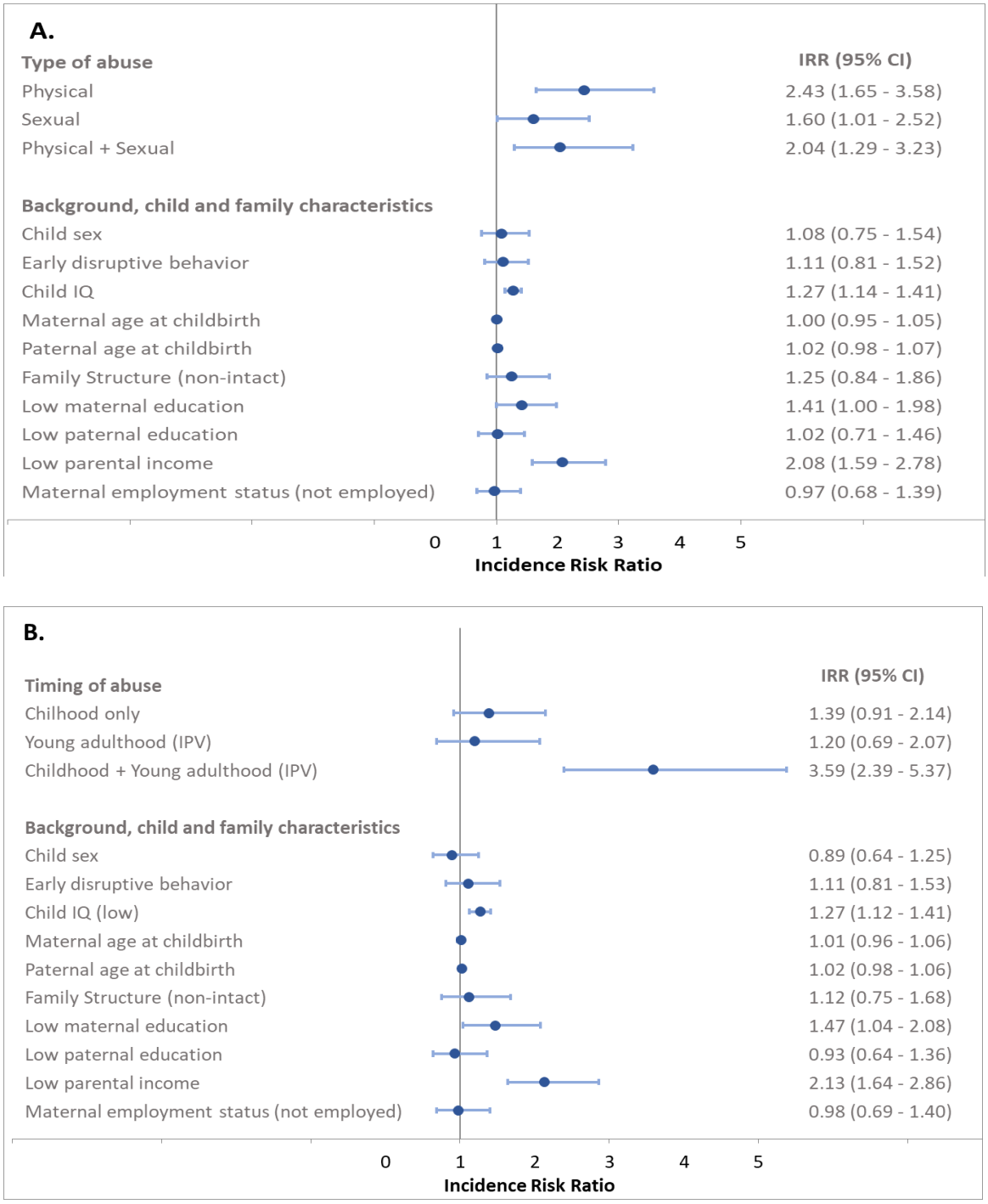


Figure 1. Rates of social welfare recipients from age ages 23 to 37 years split by subgroups. Duration categories for years of welfare receipt are mutually exclusive. Subgroups are based on non-overlapping categories of abuse. Rates (%) presented in the figure are weighted using Inverse Probability Weighting for population representativeness. Error bars display 95% Confidence intervals. In accordance with Statistics Canada data protection requirements, displayed percentages are rounded to 1 decimal point.

Figure 2. Forest plot depicting incidence risk ratios (IRRs) of being on social welfare between ages 23-37 years, according to type and timing of abuse and childhood/family background characteristics.



Note. Dots represent incidence risk ratios (IRRs). Lines and bars represent 95% confidence intervals (CI). Vertical line: IRR = 1, no differences; IRR > 1, increased risk; IRR < 1, reduced risk.