Canadian Psychiatric Association
Association des psychiatres du Canada

Original Research

The Canadian Journal of Psychiatry / La Revue Canadienne de Psychiatrie
2016, Vol. 61(12) 776-788

DOI: 10.1177/0706743716651832
TheCJP.ca | LaRCP.ca


Individual- and Relationship-Level Factors Related to Better Mental Health Outcomes following Child Abuse: Results from a Nationally Representative Canadian Sample

Facteurs individuels et relationnels liés à de meilleurs résultats de santé mentale suite à la violence faite aux enfants : résultats d'un échantillon national canadien représentatif

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Abstract

Objective: Child abuse can have devastating mental health consequences. Fortunately, not all individuals exposed to child abuse will suffer from poor mental health. Understanding what factors are related to good mental health following child abuse can provide evidence to inform prevention of impairment. Our objectives were to 1) describe the prevalence of good, moderate, and poor mental health among respondents with and without a child abuse history; 2) examine the relationships between child abuse and good, moderate, and poor mental health outcomes; 3) examine the relationships between individual- and relationship-level factors and better mental health outcomes; and 4) determine if individual- and relationship-level factors moderate the relationship between child abuse and mental health.

Method: Data were from the nationally representative 2012 Canadian Community Health Survey: Mental Health ($n = 23,395$; household response rate = 79.8%; 18 years and older). Good, moderate, and poor mental health was assessed using current functioning and well-being, past-year mental disorders, and past-year suicidal ideation.

Results: Only 56.3% of respondents with a child abuse history report good mental health compared to 72.4% of those without a child abuse history. Individual- and relationship-level factors associated with better mental health included higher education and income, physical activity, good coping skills to handle problems and daily demands, and supportive relationships that foster attachment, guidance, reliable alliance, social integration, and reassurance of worth.

Conclusions: This study identifies several individual- and relationship-level factors that could be targeted for intervention strategies aimed at improving mental health outcomes following child abuse.

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Abrégé

Objectif : La violence faite aux enfants peut avoir des conséquences désastreuses sur la santé mentale. Heureusement, les personnes exposées à la violence dans l'enfance ne souffriront pas toutes d'une mauvaise santé mentale. Connaître quels sont les facteurs liés à une bonne santé mentale suite à la violence faite aux enfants peut procurer des données probantes pour éclairer la prévention de déficiences. Nos objectifs étaient de: 1) décrire la prévalence de santé mentale bonne, modérée et mauvaise chez les répondants ayant ou non des antécédents de violence faite aux enfants; 2) examiner les relations entre la violence faite aux enfants et les résultats de santé mentale bonne, modérée et mauvaise; 3) examiner les relations entre les facteurs individuels et relationnels et les meilleurs résultats de santé mentale; et 4) déterminer si les facteurs individuels et relationnels modèrent la relation entre la violence faite aux enfants et la santé mentale.

Méthode : Les données nationalement représentatives provenaient de l'Enquête sur la santé dans les collectivités canadiennes - Santé mentale de 2012 (n = 23 395; taux de réponse des ménages = 79,8%; 18 ans et plus). La santé mentale bonne, modérée et mauvaise a été évaluée par le fonctionnement et le bien-être actuels, les troubles mentaux de l'année précédente, et l'idéation suicidaire de l'année précédente.

Résultats : Seulement 56,3% des répondants ayant des antécédents de violence faite aux enfants déclarent une bonne santé mentale comparativement à 72,4% de ceux n'ayant pas ces antécédents. Les facteurs individuels et relationnels associés à une meilleure santé mentale étaient notamment: un niveau élevé d'instruction et de revenu, l'activité physique, de bonnes stratégies d'adaptation pour traiter les problèmes et les exigences de la vie quotidienne, et des relations de soutien qui favorisent l'attachement, l'encadrement, une alliance fiable, l'intégration sociale, et la réaffirmation de la valeur.

Conclusions : Cette étude identifie plusieurs facteurs individuels et relationnels qui pourraient être ciblés pour des stratégies d'intervention visant à améliorer les résultats de santé mentale suite à la violence faite aux enfants.

Keywords

child abuse, mental health, mental disorders, well-being, functioning, suicidal ideation, resilience, intervention, coping, physical activity

Approximately 32% of Canadian adults indicate that they have experienced physical abuse, sexual abuse, and/or exposure to intimate partner violence (IPV) in childhood.[1] A large proportion of child maltreatment research, including abuse and neglect, has focused on risk factors and associated maladaptive outcomes. Being maltreated as a child can have devastating consequences and is linked to poor academic performance,[2] mental disorders,[1,3-11] poor psychological well-being,[12,13] physical health problems,[2,14-17] aggression,[2] crime,[2] violence,[2,18] suicidal behaviour,[1,19] and decreased quality of life.[2,20] Collectively, this literature indicates that child maltreatment is associated with significant impairment. Fortunately, not all children exposed to maltreatment experience poor health and developmental outcomes; some children appear to be more resilient.

Mental health is defined by the World Health Organization (WHO) as not just the absence of mental disorders, but also the presence of well-being.[21] This perspective on mental health has been further developed in the work of Corey Keyes and the complete state mental health model.[22-24] Keyes states that the absence of mental disorders does not equal mental health, well-being, or happiness, but rather mental health is best understood as complete mental health, including the absence of mental disorders and the presence of mental well-being and functioning.[22,25] According to Keyes,[26] well-being and functioning include constructs such as happiness, interest and satisfaction with life, being embedded in a community, and confidence in managing daily responsibilities, expressing ideas, and making worthwhile contributions to society. Similarly, it may be important to expand our thinking beyond mental disorders and also include suicidal thoughts. Thinking about suicide is an important indicator of distress. Having a mental disorder increases the odds of suicidal ideation, but it is also possible to have such thoughts without meeting criteria for a mental disorder.[27] Importantly, some individuals may not have mental disorders or suicidal thoughts but still report poor mental well-being and functioning, while others may have mental disorders or suicidal thoughts but report good mental well-being and functioning. Positive mental health has been conceptualized as a state of well-being that can be improved even if an individual experiences a mental disorder.[28,29] This illustrates the importance of expanding our understanding of mental health beyond the presence or absence of mental disorders and acknowledges that mental health can change over time. The concepts of mental disorder, suicidal ideation, and well-being can be combined to create a spectrum ranging from good mental health (the presence of positive well-being without mental disorder or suicidal ideation) to poor mental health (the absence of well-being and the presence of mental disorder and/or suicidal ideation). Previous research has shown that most Canadians have flourishing well-being, and of those individuals, relatively few experience a mental disorder.[30] Presently, gaps in knowledge exist in our understanding of which factors are associated with better mental health outcomes among individuals exposed to child maltreatment.

Only a small literature has focused on better mental health outcomes following child maltreatment. Studies have found that individual-level personality factors and family-level factors such as locus of control,[31,32] self-esteem,[33,34] and stable family environment or parental support[35-39] are related to better mental health outcomes. Numerous other factors that are amendable have not received sufficient attention in the current literature. Understanding what factors are related to good mental health following child maltreatment may help inform intervention strategies.

To date, research examining factors related to better mental health outcomes among child maltreatment survivors is limited by narrow measurements of both mental health and child maltreatment, the inclusion of only a few potential protective factors, the use of nonrepresentative clinical or at-risk samples, small sample sizes, and the absence of a nonmaltreated comparison group.[40] The current study addresses many of these limitations. The individual- and relationship-level factors included in this article have not been adequately examined in earlier work and were selected based on knowledge of the literature and factors that are amenable to change.

The overall objectives of the current study are to 1) describe the prevalence of good, moderate, and poor mental health among respondents with and without a child abuse history; 2) examine the relationships between child abuse and good, moderate, and poor mental health outcomes; 3) examine the relationships between individual- and relationship-level factors and better mental health outcomes among respondents with and without a child abuse history; and 4) determine if sociodemographic characteristics and individual- and relationship-level factors moderate the relationship between child abuse and mental health.

Methods

Data and Sample

Data were from the Canadian Community Health Survey–Mental Health (CCHS-2012) collected by Statistics Canada in 2012. The CCHS-2012 is a cross-sectional representative sample of Canadians aged 15 years and older living in the 10 provinces ($N = 25{,}113$). The CCHS-2012 sampling frame excluded the following: residents in the 3 territories, members of Indigenous communities, full-time members of the Canadian Armed Forces, and institutionalized persons (collectively less than 3% of the Canadian population in 2013).[41] The CCHS-2012 was implemented using a multistage, stratified cluster design. Trained lay interviewers conducted the interviews using computer-assisted interviewing. The overall household-level response rate was 79.8%. The combined individual- and household-level response rate was 68.9%.[41] Only survey participants 18 years and older were asked the child abuse questions, resulting in a final sample size of 23,395. The survey was voluntary, and participants' privacy and confidentiality were ensured under the Statistics Act.[42]

Measurements

Child abuse. Physical abuse and exposure to IPV (perpetrated by an adult) that occurred in the home before the age of 16 years were assessed in the survey based on items from the Childhood Experiences of Violence Questionnaire.[43] Dichotomous coding (yes/no) was used based on empirically derived cut-offs. Physical abuse was defined as present if the respondent reported 1) being slapped on the face, head, or ears or hit or spanked with something hard (3 times or more); 2) being pushed, grabbed, shoved, or having something thrown at the respondent to hurt them (3 times or more); and/or 3) being kicked, bit, punched, choked, burned, or physically attacked (1 time or more). Exposure to IPV was defined as present if the respondent reported having seen or heard parents, stepparents, or guardians hitting each other or another adult in the home (3 times or more). Sexual abuse was defined as present if the respondent reported 1) being attempted or forced into unwanted sexual activity by being threatened, held down, or hurt in some way (1 time or more) and/or 2) was sexually touched, including unwanted touching or grabbing, kissing, or fondling against the respondent's will (1 time or more). A dichotomous any child abuse variable (yes/no) was also computed based on whether the respondent reported experiencing 1 or more of the 3 types of child abuse assessed in the survey. A count variable was also computed to indicate experiencing 0, 1, 2, or 3 types of child abuse.

Mental health indicators

Positive functioning and emotional well-being. The 14-item Mental Health Continuum–Short Form (MHC-SF) based on the work of Keyes was used to assess psychological, social, and emotional functioning and well-being.[25,44-46] We applied the algorithms developed by Keyes for use with this measure to place participants into 1 of 3 mental health status categories: flourishing mental health (high positive functioning and high emotional well-being), moderate mental health (high positive functioning and low emotional well-being or low positive functioning and high emotional well-being), and languishing mental health (low positive functioning and low emotional well-being).

Mental disorders and conditions. Several past-year mental disorders were assessed using the World Health Organization version of the Composite International Diagnostic Interview (WHO-CIDI) and based on fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*) criteria.[47,48] The specific mental disorders included depression, bipolar disorder, generalized anxiety disorder, alcohol abuse or dependence, and drug abuse or dependence. Additional mental conditions were assessed using self-reports by asking the respondents if they have a long-term health condition diagnosed by a health professional that had lasted or was expected to last 6 months or more. Self-reported mental conditions included obsessive-compulsive disorder, posttraumatic stress disorder, panic

Table 1. Three-Factor Model for Computing Mental Health.

Scores on MHC-SF[22-25]	No Past-Year Suicidal Ideation		Past-Year Suicidal Ideation	
	No Past-Year Mental Disorder	Past-Year Mental Disorder	No Past-Year Mental Disorder	Past-Year Mental Disorder
Flourishing	Good Mental Health	Moderate Mental Health	Poor Mental Health	Poor Mental Health
Moderate	Moderate Mental Health	Moderate Mental Health	Poor Mental Health	Poor Mental Health
Languishing	Poor Mental Health	Poor Mental Health	Poor Mental Health	Poor Mental Health

disorder, phobia, learning disability, attention-deficit disorder, and eating disorder. Participants were coded as having a past-year mental condition if they met CIDI diagnostic criteria for a mental disorder and/or reported any one of the self-reported mental health conditions.

Suicidal ideation. Suicidal ideation was assessed with a question asking respondents if in the past 12 months they had ever seriously thought about committing suicide or taking their own life (yes or no).

Overall mental health. Three categories of good, moderate, and poor mental health were computed using current positive functioning and emotional well-being, past-year mental disorders, and past-year suicide ideation: good mental health (flourishing mental health, no mental disorder, and no suicide ideation), moderate mental health (flourishing mental health, past-year mental disorder, and no suicide ideation or moderate mental health with or without a past-year mental disorder but no suicide ideation), or poor mental health (any participant reporting languishing mental health or past-year suicide ideation) (see Table 1). This 3-factor model has been empirically supported.[46,49-52]

Individual- and relationship-level factors. Individual- and relationship-level factors included physical health conditions, physical activity, coping skills, and relationships with friends and family. Respondents were asked if they have a long-term health condition diagnosed by a health professional that had lasted, or was expected to last, 6 months or more, including asthma; arthritis; back problems; high blood pressure; migraine headaches; chronic bronchitis, emphysema, or chronic obstructive pulmonary disease; diabetes; epilepsy; heart disease; cancer; stroke; bowel disease; or chronic fatigue syndrome. Level of physical activity was based on the respondents' response to a question asking whether they had engaged in moderate to vigorous physical activity in the past 7 days (yes/no). Positive coping skills were assessed using 2 items rated on a 5-point scale ranging from excellent to poor: 1) their ability to handle unexpected and difficult problems (e.g., a family or personal crisis) and 2) their ability to handle the day-to-day demands of their life (e.g., handling work, family, and volunteer responsibilities). Dichotomous coding was used to categorize participants on these 2 items (poor/fair ability or good/very good/excellent ability). Relationship-level factors included assessments of the respondents' quality of relationships with family and friends based on the 10-item Social Provisions Scale,[48,53-55] which was designed to assess the degree to which participants' social relationships provide various dimensions of support. The following subscales were included in the analyses: attachment, guidance, social integration, reliable alliance, and reassurance of worth, with higher scores indicating greater support.

Sociodemographic characteristics. Sex and age were included as sociodemographic covariates in multivariable models. Education, income, and marital status were included as important sociodemographic characteristics that may be related to mental health outcomes and in some cases are amendable to change.

Statistical Analysis

Statistical weights were applied to ensure that the data were representative of the Canadian general population. To address the complex survey design, bootstrapping was performed as a variance estimation technique. First, the prevalence or mean scores of sociodemographic covariates and individual- and relationship-level factors by the different mental health status indicators (i.e., well-being and functioning, past-year mental conditions, and past-year suicide ideation) were computed. Second, the distribution of child abuse by well-being and functioning, mental conditions, and suicidal ideation were examined using cross-tabulations and logistic regression models. Third, multinomial regression models were used to examine the association between individual- and relationship-level factors on better overall mental health outcomes stratified by those with and without a child abuse history. Multinomial models adjusted for sex and age. Finally, interaction terms were examined to determine whether the associations between sociodemographic characteristics (i.e., education, income, and marital status) and individual- and relationship-level factors moderated the relationship between child abuse and overall mental health outcomes.

Results

For past-month well-being and functioning, 76.8% of the sample reported flourishing, 21.6% reported were moderate, and 1.5% were languishing. Sixteen percent reported

Table 2. Sociodemographic Covariates and Individual- and Relationship-Level Factors by Mental Health Indicators of Past 12-Month Well-Being and Functioning, Past-Year Mental Conditions, and Past-Year Suicidal Ideation in the General Canadian Population.

	Mental Health Indicators						
	Keyes's Well-Being and Functioning			Mental Condition		Suicidal Ideation	
Covariates	Flourishing	Moderate	Languishing	No	Yes	No	Yes
Sociodemographic variables							
Sex							
Male	76.87 (75.57, 78.11)	21.55 (20.33, 22.83)	1.58 (1.31, 1.91)	83.11 (81.92, 84.23)	16.89 (15.77, 18.08)	96.89 (96.38, 97.33)	3.11 (2.67, 3.62)
Female	76.74 (75.51, 77.93)	21.79 (20.64, 22.98)	1.47 (1.18, 1.83)	84.80 (83.74, 85.81)	15.20 (14.19, 16.26)	96.78 (96.24, 97.25)	3.22 (2.75, 3.76)
Age, y							
18-34	73.76 (71.92, 75.52)	24.92 (23.20, 26.72)	1.32 (0.99, 1.76)	75.42 (73.55, 77.20)	24.58 (22.80, 26.45)	95.63 (94.68, 96.41)	4.37 (3.59, 5.32)
35-49	76.24 (74.39, 77.99)	22.17 (20.46, 23.98)	1.59 (1.14, 2.21)	83.47 (81.85, 84.97)	16.53 (15.03, 18.15)	96.59 (95.73, 97.29)	3.41 (2.71, 4.27)
50-64	78.27 (76.46, 79.99)	20.02 (18.39, 21.76)	1.70 (1.30, 2.23)	87.49 (86.21, 88.66)	12.51 (11.34, 13.79)	97.11 (96.50, 97.62)	2.89 (2.38, 3.50)
65 and older	80.21 (78.78, 81.58)	18.31 (16.94, 19.75)	1.48 (1.12, 1.96)	93.12 (92.19, 93.94)	6.88 (6.06, 7.81)	98.66 (98.24, 98.98)	1.34 (1.02, 1.76)
Education							
Less than high school	74.05 (71.68, 76.29)	23.65 (21.48, 25.97)	2.29 (1.75, 3.00)	81.53 (79.25, 83.62)	18.47 (16.38, 20.75)	95.63 (94.40, 96.60)	4.37 (3.40, 5.60)
High school	75.54 (73.39, 77.57)	22.83 (20.82, 24.98)	1.63 (1.17, 2.25)	82.17 (80.30, 83.90)	17.83 (16.10, 19.70)	96.83 (95.98, 97.51)	3.17 (2.49, 4.02)
Some postsecondary	73.74 (70.09, 77.08)	24.55 (21.32, 28.10)	1.71 (1.06, 2.76)	76.58 (72.88, 79.92)	23.42 (20.08, 27.12)	96.24 (94.89, 97.24)	3.76 (2.76, 5.11)
Trade/college/university certificate/diploma	77.39 (75.97, 78.74)	20.93 (19.60, 22.32)	1.68 (1.32, 2.15)	83.92 (82.66, 85.11)	16.08 (14.89, 17.34)	96.79 (96.26, 97.25)	3.21 (2.75, 3.74)
University degree	79.36 (77.48, 81.12)	20.03 (18.25, 21.93)	0.61 (0.41, 0.91)	88.86 (87.40, 90.17)	11.14 (9.83, 12.60)	97.84 (96.79, 98.55)	2.16 (1.45, 3.21)
Income							
Less than $30,000	70.40 (68.33, 72.39)	26.11 (24.26, 28.05)	3.49 (2.84, 4.28)	76.87 (75.04, 78.61)	23.13 (21.39, 24.96)	94.34 (93.38, 95.17)	5.66 (4.83, 6.62)
$30,000-$49,999	74.66 (72.55, 76.67)	23.60 (21.60, 25.72)	1.74 (1.24, 2.43)	82.70 (80.82, 84.43)	17.30 (15.57, 19.18)	96.28 (94.95, 97.28)	3.72 (2.72, 5.05)
$50,000-$79,999	76.76 (74.93, 78.50)	21.86 (20.16, 23.65)	1.38 (0.98, 1.95)	85.09 (83.50, 86.55)	14.91 (13.45, 16.50)	97.02 (96.25, 97.64)	2.98 (2.36, 3.75)
$80,000 or more	80.53 (79.07, 81.91)	18.79 (17.43, 20.22)	0.68 (0.47, 0.99)	86.81 (85.57, 87.96)	13.19 (12.04, 14.43)	98.03 (97.55, 98.42)	1.97 (1.58, 2.45)
Marital status							
Separated/divorced/widowed	74.41 (72.07, 76.62)	23.19 (21.05, 25.48)	2.40 (1.85, 3.10)	84.91 (82.98, 86.66)	15.09 (13.34, 17.02)	96.16 (94.65, 97.25)	3.84 (2.75, 5.35)
Never married	70.57 (68.70, 72.37)	27.03 (25.27, 28.87)	2.40 (1.95, 2.95)	72.41 (70.19, 74.52)	27.59 (25.48, 29.81)	94.76 (93.93, 95.49)	5.24 (4.51, 6.07)
Married/common-law	79.62 (78.48, 80.70)	19.37 (18.32, 20.47)	1.01 (0.79, 1.30)	88.09 (87.13, 88.98)	11.91 (11.02, 12.87)	97.74 (97.31, 98.10)	2.26 (1.90, 2.69)
Physical health							
Any physical health condition							
Yes	75.49 (74.28, 76.66)	22.56 (21.46, 23.70)	1.95 (1.66, 2.29)	81.47 (80.42, 82.47)	18.53 (17.53, 19.58)	95.96 (95.38, 96.46)	4.04 (3.54, 4.62)
No	78.45 (77.08, 79.75)	20.54 (19.24, 21.90)	1.01 (0.76, 1.35)	87.00 (85.84, 88.07)	13.00 (11.93, 14.16)	97.89 (97.45, 98.26)	2.11 (1.74, 2.55)
Moderate/vigorous physical activity (past week)							
No	72.47 (70.71, 74.16)	24.44 (22.86, 26.09)	3.09 (2.53, 3.77)	83.77 (82.38, 85.08)	16.23 (14.92, 17.62)	96.37 (95.72, 96.92)	3.63 (3.08, 4.28)
Yes	78.43 (77.34, 79.49)	20.64 (19.61, 21.70)	0.93 (0.75, 1.15)	84.05 (83.11, 84.95)	15.95 (15.05, 16.89)	97.01 (96.56, 97.40)	2.99 (2.60, 3.44)

(continued)

Table 2. (continued)

	Mental Health Indicators						
	Keyes's Well-Being and Functioning			Mental Condition		Suicidal Ideation	
Covariates	Flourishing	Moderate	Languishing	No	Yes	No	Yes
Positive coping skills							
Handle unexpected problems							
Poor/fair	44.91 (41.76, 48.09)	47.38 (44.15, 50.64)	7.71 (6.44, 9.21)	59.64 (56.34, 62.85)	40.36 (37.15, 43.66)	89.77 (87.92, 91.37)	10.23 (8.63, 12.08)
Good/very good/excellent	80.47 (79.60, 81.31)	18.71 (17.89, 19.56)	0.82 (0.66, 1.02)	86.74 (85.96, 87.49)	13.26 (12.51, 14.04)	97.64 (97.28, 97.95)	2.36 (2.05, 2.72)
Handle day-to-day demands							
Poor/fair	33.58 (30.15, 37.18)	52.19 (48.27, 56.07)	14.24 (11.78, 17.12)	51.94 (48.06, 55.79)	48.06 (44.21, 51.94)	86.12 (83.55, 88.35)	13.88 (11.65, 16.45)
Good/very good/excellent	79.33 (78.48, 80.21)	19.88 (19.03, 20.77)	0.79 (0.64, 0.97)	85.82 (85.02, 86.57)	14.18 (13.43, 14.98)	97.45 (97.09, 97.76)	2.55 (2.24, 2.91)
Quality of relationships with family and friends, mean (SE)							
Attachment (2-8)	7.40 (.012)	6.88 (.019)	5.60 (.119)	7.31 (.012)	7.02 (.027)	7.29 (.011)	6.56 (.076)
Guidance (2-8)	7.45 (.012)	6.91 (.023)	5.65 (.123)	7.36 (.012)	7.08 (.028)	7.33 (.011)	6.55 (.080)
Reliable alliance (2-8)	7.47 (.012)	7.04 (.021)	6.08 (.105)	7.40 (.011)	7.16 (.025)	7.38 (.010)	6.70 (.072)
Social integration (2-8)	7.18 (.012)	6.45 (.023)	4.97 (.130)	7.07 (.013)	6.62 (.032)	7.02 (.012)	6.15 (.070)
Reassurance of worth (2-8)	7.19 (.012)	6.51 (.022)	5.38 (.110)	7.08 (.013)	6.75 (.029)	7.05 (.012)	6.28 (.074)

Notes. Values are presented as % (95% confidence interval) unless otherwise indicated. Percentages and means are based on weighted *N*. Mental health indicators are not mutually exclusive.

a past-year mental health condition and 3.2% reported past-year suicidal ideation. Based on the mutually exclusive overall mental health categories (Table 1), 67.1% of the sample had good mental health, 28.6% had moderate mental health, and 4.3% had poor mental health. When examining overall mental health stratified by child abuse history, only 56% of respondents with a child abuse history reported good mental health compared to 72.4% of those without a child abuse history. As well, among respondents with a child abuse history, 35.6% and 8.1% reported moderate and poor mental health, respectively. Table 2 summarizes the distribution of the sociodemographic characteristics and individual- and relationship-level factors by the 3 individual mental health indicators.

Table 3 reports the distribution and associations of child abuse types and each of the 3 mental health indicators. The findings indicate that physical abuse, sexual abuse, exposure to IPV, and any child abuse were associated with increased odds of poorer past-month well-being and functioning (odds ratios [ORs] ranging from 1.6-3.7 at $P < 0.05$), increased odds of past-year mental conditions (ORs ranging from 2.3-2.9 at $P < 0.05$), and suicidal ideation (ORs ranging from 2.9-4.5 at $P < 0.05$). A dose-response type relationship was also noted with increasing number of child abuse types experienced corresponding to increased odds of poorer mental health outcomes. The associations between child abuse and overall mental health (see Table 1) based on the composite mental health measure are reported in Table 4. All child abuse experiences were associated with increased odds of poorer mental health, including moderate mental health (ORs ranging from 1.8-2.0 at $P < 0.05$) and poor mental health (ORs ranging from 3.4-5.4 at $P < 0.05$) relative to the best mental health category. In addition, a dose-response type relationship was also noted with increasing number of child abuse types experienced corresponding to higher odds of moderate and poor mental health outcomes.

Table 5 summarizes the results for the associations between individual- and relationship-level factors with overall mental health among respondents with and without a child abuse history. Higher education; higher income; being married or common-law compared to being separated, widowed, or divorced; having no physical health conditions; having moderate to vigorous levels of physical activity; having good to excellent coping skills for handling unexpected problems and day-to-day demands; and having high-quality relationships with friends and family, including aspects of attachment, guidance, reliable alliance, social integration, and reassurance of worth, were associated with increased odds of better mental health outcomes among respondents with and without a child abuse history. Sociodemographic characteristics and individual-level factors moderated the relationship between child abuse and overall mental health. Specifically, the impact of higher income, being married, and having good to excellent ability to handle unexpected problems on better mental health was significantly larger among respondents with a child abuse history compared to those who were not abused.

Discussion

The study advances our current state of knowledge with the following novel findings. First, when using a more comprehensive assessment of overall mental health and a nationally representative sample, we found that only 56.3% of respondents with a child abuse history report good overall mental health compared to 72.4% of those without a child abuse history. Importantly, among respondents with a child abuse history, 35.6% and 8.1% reported moderate and poor mental health, respectively. Second, this study identified a wide range of individual- and relationship-level factors associated with better overall mental health among those with and without child abuse histories. These individual- and relationship-level factors may be useful targets for child maltreatment intervention strategies. They include higher education and income, moderate to vigorous physical activity, good coping skills to handle unexpected problems and day-to-day demands, and good-quality relationships with friends and family that focus on aspects of attachment, guidance, reliable alliance, social integration, and reassurance of worth.

Agreement on a common way to define and measure good overall mental health does not currently exist other than the recommendation of using a more comprehensive assessment, which includes several indicators of competence, well-being, functioning, and lack of disorders.[40,56,57] The current study has created a more comprehensive assessment of overall mental health, including the absence of mental disorders and past-year suicidal thoughts, as well as the presence of current good well-being and functioning. Of note, more than half (56.3%) of respondents who experienced child abuse are considered to have good overall mental health according to our definition.

According to our findings, better mental health outcomes following child abuse may be more likely if the individual is able to stay in school for longer, obtain a well-paying job, be physically active, have the ability to handle unexpected problems and day-to-day demands, and have good quality relationships with friends and family. Our findings indicate that higher educational attainment and larger household income are associated with increased likelihood of better mental health for all respondents, including those with and without a child abuse history. However, the effect for income was significantly stronger among respondents with a child abuse history compared to those without. It is well known that lower income is associated with an increased likelihood of mental disorders.[58] The current study suggests that higher levels of income may be especially protective among individuals who experienced child abuse. However, children who experience both child abuse and lower household income may be less able to stay in school and obtain a well-paying job compared to those who experience child abuse and grow up in a family with more economic resources. Childhood family poverty was not assessed in these data; therefore, this interpretation of the findings cannot be formally tested. Our findings also indicate that individuals reporting current moderate to vigorous physical activity have increased odds of better mental

Table 3. Prevalence of Child Abuse by Mental Health Indicators of Past 12-Month Well-Being and Functioning, Past-Year Mental Conditions, and Past-Year Suicidal Ideation in the Canadian General Population.

	Mental Health Indicators						
	Keyes's Well-Being and Functioning			Mental Condition		Suicidal Ideation	
Child abuse history	Flourishing	Moderate	Languishing	No	Yes	No	Yes
Physical abuse							
Yes, % (95% CI)	69.37 (67.32, 71.35)	27.71 (25.76, 29.76)	2.91 (2.41, 3.52)	74.93 (73.19, 76.59)	25.07 (23.41, 26.81)	94.02 (93.14, 94.79)	5.98 (5.21, 6.86)
No, % (95% CI)	79.47 (78.45, 80.45)	19.50 (18.55, 20.49)	1.03 (0.83, 1.28)	87.18 (86.31, 88.01)	12.82 (11.99, 13.69)	97.83 (97.42, 98.17)	2.17 (1.83, 2.58)
OR (95% CI)	1.00	1.62 (1.44, 1.84)***	3.24 (2.40, 4.37)***	1.00	2.28 (2.02, 2.57)***	1.00	2.87 (2.27, 3.63)***
Sexual abuse							
Yes, % (95% CI)	66.33 (63.38, 69.15)	30.15 (27.45, 32.98)	3.53 (2.58, 4.81)	67.68 (64.72, 70.51)	32.32 (29.49, 35.28)	90.62 (88.26, 92.54)	9.38 (7.46, 11.74)
No, % (95% CI)	78.05 (77.11, 78.95)	20.68 (19.80, 21.59)	1.27 (1.08, 1.51)	85.89 (85.09, 86.65)	14.11 (13.35, 14.91)	97.57 (97.27, 97.85)	2.43 (2.15, 2.73)
OR (95% CI)	1.00	1.72 (1.49, 1.98)***	3.26 (2.23, 4.76)***	1.00	2.91 (2.50, 3.38)***	1.00	4.17 (3.14, 5.53)***
Exposure to IPV							
Yes, % (95% CI)	63.47 (59.65, 67.13)	32.57 (28.99, 36.36)	3.96 (2.80, 5.58)	68.88 (65.20, 72.33)	31.12 (27.67, 34.80)	89.58 (86.89, 91.77)	10.42 (8.23, 13.11)
No, % (95% CI)	77.97 (77.06, 78.85)	20.71 (19.86, 21.59)	1.32 (1.12, 1.55)	85.26 (84.47, 86.02)	14.74 (13.98, 15.53)	97.45 (97.13, 97.74)	2.55 (2.26, 2.87)
OR (95% CI)	1.00	1.93 (1.62, 2.30)***	3.69 (2.47, 5.52)***	1.00	2.61 (2.19, 3.12)***	1.00	4.45 (3.33, 5.95)***
Any child abuse							
Yes, % (95% CI)	69.34 (67.57, 71.06)	27.84 (26.16, 29.59)	2.81 (2.35, 3.36)	75.60 (74.09, 77.05)	24.40 (22.95, 25.91)	93.97 (93.02, 94.81)	6.03 (5.19, 6.98)
No, % (95% CI)	80.37 (79.35, 81.35)	18.72 (17.75, 19.73)	0.91 (0.72, 1.15)	87.93 (87.02, 88.78)	12.07 (11.22, 12.98)	98.19 (97.89, 98.45)	1.81 (1.55, 2.11)
OR (95% CI)	1.00	1.72 (1.55, 1.92)***	3.58 (2.66, 4.82)***	1.00	2.35 (2.09, 2.64)***	1.00	3.49 (2.78, 4.37)***
Number of child abuse types							
Zero, % (95% CI)	80.37 (79.35, 81.35)	18.72 (17.75, 19.73)	0.91 (0.72, 1.15)	87.93 (87.02, 88.78)	12.07 (11.22, 12.98)	98.19 (97.89, 98.45)	1.81 (1.55, 2.11)
OR (95% CI)	1.00	1.00	1.00		1.00		1.00
One, % (95% CI)	71.49 (69.50, 73.39)	26.45 (24.55, 28.44)	2.06 (1.62, 2.63)	79.89 (78.12, 81.54)	20.11 (18.46, 21.88)	95.66 (94.49, 96.58)	4.34 (3.42, 5.51)
OR (95% CI)	1.00	1.59 (1.41, 1.79)***	2.55 (1.82, 3.56)***		1.83 (1.60, 2.11)***		2.47 (1.82, 3.34)***
Two, % (95% CI)	67.46 (63.80, 70.92)	28.32 (25.05, 31.83)	4.23 (2.99, 5.93)	71.81 (68.43, 74.95)	28.19 (25.05, 31.57)	93.33 (91.76, 94.61)	6.67 (5.39, 8.24)
OR (95% CI)	1.00	1.80 (1.51, 2.15)***	5.53 (3.61, 8.46)***		2.86 (2.39, 3.42)***		3.89 (2.95, 5.13)***
Three, % (95% CI)	55.92 (49.38, 62.27)	39.38 (32.85, 46.31)	4.70 (3.00, 7.30)	49.96 (42.96, 56.96)	50.04 (43.04, 57.04)	80.82 (74.93, 85.60)	19.18 (14.40, 25.07)
OR (95% CI)	1.00	3.02 (2.25, 4.06)***	7.42 (4.34, 12.67)***		7.30 (5.45, 9.76)***		12.90 (8.84, 18.80)***

Notes. Percentages are based on weighted *N*. Mental health indicators are not mutually exclusive. CI, confidence interval; IPV, intimate partner violence; OR, odds ratio.
***$p < .001$.

Table 4. Associations between Child Abuse and Overall Measure of Mental Health Based on All 3 Mental Health Indicators in the Canadian General Population.

	Mental Health Based on All 3 Mental Health Indicators		
Child Abuse History	Good Mental Health	Moderate Mental Health	Poor Mental Health
Physical abuse			
Yes, % (95% CI)	56.02 (53.88, 58.14)	35.93 (33.89, 38.01)	8.06 (7.16, 9.06)
No, % (95% CI)	71.16 (69.97, 72.33)	25.85 (24.75, 26.99)	2.98 (2.57, 3.46)
OR (95% CI)	1.00	1.77 (1.59, 1.97)***	3.43 (2.79, 4.22)***
Sexual abuse			
Yes, % (95% CI)	50.59 (47.59, 53.58)	37.55 (34.77, 40.42)	11.86 (9.71, 14.41)
No, % (95% CI)	69.14 (68.04, 70.23)	27.47 (26.42, 28.54)	3.39 (3.05, 3.76)
OR (95% CI)	1.00	1.87 (1.64, 2.13)***	4.78 (3.71, 6.17)***
Exposure to IPV			
Yes, % (95% CI)	47.84 (43.88, 51.83)	38.82 (35.03, 42.74)	13.34 (10.87, 16.27)
No, % (95% CI)	68.85 (67.78, 69.89)	27.62 (26.61, 28.65)	3.54 (3.19, 3.91)
OR (95% CI)	1.00	2.02 (1.70, 2.41)***	5.43 (4.19, 7.03)***
Any child abuse			
Yes, % (95% CI)	56.28 (54.40, 58.14)	35.63 (33.87, 37.42)	8.10 (7.14, 9.18)
No, % (95% CI)	72.36 (71.14, 73.54)	25.14 (24.00, 26.32)	2.50 (2.19, 2.87)
OR (95% CI)	1.00	1.82 (1.65, 2.01)***	4.16 (3.42, 5.07)***
Number of types of child abuse			
Zero, % (95% CI)	72.36 (71.14, 73.54)	25.14 (24.00, 26.32)	2.50 (2.19, 2.87)
OR (95% CI)	1.00	1.00	1.00
One, % (95% CI)	59.93 (57.73, 62.10)	34.17 (32.09, 36.32)	5.89 (4.84, 7.16)
OR (95% CI)	1.00	1.64 (1.47, 1.84)***	2.84 (2.20, 3.67)***
Two, % (95% CI)	53.68 (49.65, 57.67)	36.51 (32.84, 40.33)	9.81 (8.03, 11.93)
OR (95% CI)	1.00	1.96 (1.64, 2.34)***	5.28 (4.04, 6.90)***
Three, % (95% CI)	32.71 (27.32, 38.60)	45.35 (38.85, 52.01)	21.94 (16.96, 27.88)
OR (95% CI)	1.00	3.99 (2.99, 5.33)***	19.38 (13.46, 27.90)***

Notes. Percentages are based on weighted *N*. Good mental health indicates flourishing well-being and functioning, no mental conditions, and no suicidal ideation; moderate mental health indicates moderate well-being and functioning, with or without mental conditions, and no suicidal ideation; and poor mental health indicates languishing well-being and functioning, with or without mental conditions, and with or without suicidal ideation. CI, confidence interval; IPV, intimate partner violence; OR, odds ratio.
***$P < .001$.

health outcomes. Although there has not been a large literature on child abuse and exercise, it is well established that exercise is associated with better mental health.[59-64] Including exercise programs in child abuse intervention strategies may prove effective in increasing better mental health outcomes across various levels of socioeconomic status. Previous studies have examined how coping strategies and supportive relationships are related to better outcomes following child abuse.[36,39,65,66] Notably, positive coping and well-being are not alternative measures of the same underlying construct. Rather, it has been found that positive emotions or outlook after adversity or chronic stress may facilitate adaptive coping and allow for better psychological well-being.[67,68] What this study adds is the identification of specific coping intervention strategies and supportive relationships that may increase good mental health outcomes. Targeting the ability to effectively handle unexpected problems and day-to-day demands as well as supportive relationships that foster attachment, guidance, reliable alliance, social integration, and reassurance of self-worth may be important in increasing the likelihood of better mental health outcomes following child abuse.

The limitations of the current study should be considered when interpreting the findings. Because the data are cross-sectional and retrospective in nature, it is not possible to make any causal inferences. Although there is evidence for the validity and reliability of retrospective recall of adverse childhood events,[69-71] there is no information available on the individual- and relationship-level factors present at the time of child abuse. Second, 3 major types of child abuse were included in the study, but measures of emotional abuse, physical or emotional neglect, exposure to other types of IPV such as emotional abuse, and other childhood adversities (e.g., childhood poverty) were not assessed in the survey. It is important for future studies to include these other adverse child experiences. Third, although several individual- and relationship-level factors were included in the current research, the list is not complete and further research is necessary to examine some protective factors in more detail (e.g., positive coping) and to include other factors related to better overall mental health outcomes. Notably, it will not be possible to ever develop one study that will include all potentially important factors.

Many of the individual-level factors associated with better mental health outcomes in this study are social

Table 5. Results from the Multinomial Multivariable Analyses Examining the Relationship between Individual- and Relationship-Level Factors and Overall Measure of Mental Health Based on All 3 Mental Health Indicators among Individuals with and without a Child Abuse History in the Canadian General Population.

	No Child Abuse History, AOR (95% CI)[a]		Child Abuse History, AOR (95% CI)[a]	
Individual- and Relationship-Level Factors	Moderate Mental Health	Good Mental Health	Moderate Mental Health	Good Mental Health
Sociodemographic variables				
Education				
Less than high school	1.00	1.00	1.00	1.00
High school	0.95 (0.60, 1.51)	1.20 (0.76, 1.90)	1.57 (0.98, 2.52)	1.94 (1.24, 3.04)**
Some postsecondary	1.12 (0.57, 2.19)	1.46 (0.76, 2.83)	2.05 (1.21, 3.46)**	1.98 (1.16, 3.38)*
Trade/college/university certificate/diploma	0.78 (0.51, 1.20)	1.14 (0.76, 1.72)	1.72 (1.16, 2.53)**	2.33 (1.61, 3.37)***
University degree	1.53 (0.90, 2.61)	2.50 (1.49, 4.18)***	2.01 (1.10, 3.68)*	4.08 (2.27, 7.33)***
Income				
Less than $30,000	1.00	1.00	1.00	1.00
$30,000-$49,999	1.46 (0.99, 2.17)	1.75 (1.19, 2.58)**	1.50 (0.94, 2.40)	1.83 (1.17, 2.85)**
$50,000-$79,99	1.61 (1.09, 2.37)*	2.20 (1.50, 3.23)***	1.71 (1.18, 2.50)**	3.02 (2.11, 4.33)***
$80,000 or more	2.07 (1.36, 3.17)***	3.28 (2.19, 4.90)***	3.36 (2.30, 4.92)***	7.79 (5.39, 11.25)***
Marital status				
Separated/divorced/widowed	1.00	1.00	1.00	1.00
Never married	0.92 (0.60, 1.41)	0.77 (0.50, 1.17)	1.24 (0.70, 2.19)	0.69 (0.39, 1.20)
Married/common-law	1.40 (0.96, 2.03)	1.97 (1.38, 2.82)***	2.02 (1.27, 3.20)**	2.34 (1.47, 3.72)***
Physical health				
Any physical health condition				
Yes	1.00	1.00	1.00	1.00
No	1.37 (0.98, 1.92)	2.05 (1.50, 2.81)***	2.27 (1.62, 3.18)***	3.23 (2.32, 4.50)***
Moderate/vigorous physical activity (past week)				
No	1.00	1.00	1.00	1.00
Yes	1.67 (1.24, 2.26)***	2.07 (1.53, 2.80)***	1.47 (1.11, 1.95)**	1.93 (1.43, 2.59)***
Positive coping skills				
Handle unexpected problems				
Poor/fair	1.00	1.00	1.00	1.00
Good/very good/excellent	1.84 (1.33, 2.54)***	7.94 (5.75, 10.98)***	2.42 (1.78, 3.29)***	16.06 (11.10, 23.23)***
Handle day-to-day demands				
Poor/fair	1.00	1.00	1.00	1.00
Good/very good/excellent	3.04 (2.07, 4.47)***	25.17 (16.98, 37.33)***	3.67 (2.70, 4.97)***	22.59 (15.88, 32.14)***
Neuroticism/distress				
Neuroticism (0-30)	1.23 (1.19, 1.28)***	1.65 (1.58, 1.72)***	1.23 (1.19, 1.27)***	1.63 (1.56, 1.71)***
Quality of relationships with family and friends				
Attachment (2-8)	1.59 (1.38, 1.83)***	2.47 (2.14, 2.86)***	1.66 (1.47, 1.86)***	2.73 (2.40, 3.10)***
Guidance (2-8)	1.56 (1.38, 1.77)***	2.43 (2.12, 2.77)***	1.61 (1.45, 1.80)***	2.56 (2.27, 2.88)***
Reliable alliance (2-8)	1.58 (1.38, 1.81)***	2.37 (2.05, 2.74)***	1.58 (1.41, 1.77)***	2.44 (2.15, 2.78)***
Social integration (2-8)	1.50 (1.32, 1.70)***	2.60 (2.29, 2.95)***	1.70 (1.51, 1.92)***	2.86 (2.52, 3.24)***
Reassurance of worth (2-8)	1.60 (1.37, 1.86)***	2.85 (2.45, 3.33)***	1.74 (1.54, 1.98)***	2.86 (2.49, 3.28)***

Notes. Good mental health indicates flourishing well-being and functioning, no mental conditions, and no suicidal ideation; moderate mental health indicates moderate well-being and functioning, with or without mental conditions, and no suicidal ideation; and poor mental health indicates languishing well-being and functioning, with or without mental conditions, and with or without suicidal ideation. AOR, odds ratios adjusted for age and sex; CI, confidence interval.
[a]Poor well-being and functioning is the reference category with an odds of 1.00.
*$P < .05$; **$P < .01$; ***$P < .001$.

determinants of health and should be priorities for improving mental health generally at the population level (e.g., higher education and income, as well as good coping skills[72]). Other factors, such as relationships that emphasize self-worth, are elements of some existing therapeutic interventions (e.g., treatments such as cognitive-behavioural therapy or interpersonal psychotherapy[73]) and can also be emphasized in the development of new approaches. Some factors, such as low household income and poor relationships, may be modifiable during childhood through programs that offer family income support, household budgeting seminars, and social skills, relationship, and parent training. When successful interventions are offered to families at risk, the result may be a reduction in child abuse and an increase in better mental health outcomes. The next steps would be to develop and measure the effectiveness of specific intervention strategies for individuals and families to determine if they reduce the prevalence of child abuse and subsequent impairment. Prevention of child abuse remains a priority. However, developing and testing evidence-based intervention strategies that are effective in improving overall mental health following child abuse is also imperative.

Acknowledgments

Statistics Canada collected and provided the data for academic purposes, but the analyses are the sole responsibility of the authors. The opinions expressed do not represent the views of Statistics Canada.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Preparation of this article was supported by a Canadian Institutes of Health Research (CIHR) operating grant (Afifi, MacMillan, Boyle, and Sareen), a CIHR New Investigator Award (Afifi), a Research Manitoba (formerly Manitoba Health Research Council) establishment award (Afifi), and a Research Manitoba Chair Award (Sareen). Dr. MacMillan is supported by the Chedoke Health Chair in Child Psychiatry. Dr. Boyle has a Canada Research Chair in the Social Determinants of Child Health.

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