

BMJ Open Examining the impacts of the COVID-19 pandemic on family mental health in Canada: findings from a national cross-sectional study

Anne C Gadermann ^{1,2}, Kimberly C Thomson ^{1,2}, Chris G Richardson ^{2,3},
Monique Gagné ^{1,2}, Corey McAuliffe ⁴, Saima Hirani ⁴, Emily Jenkins ⁴

To cite: Gadermann AC, Thomson KC, Richardson CG, *et al.* Examining the impacts of the COVID-19 pandemic on family mental health in Canada: findings from a national cross-sectional study. *BMJ Open* 2021;**11**:e042871. doi:10.1136/bmjopen-2020-042871

► Prepublication history and additional material for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2020-042871>).

Received 21 July 2020

Revised 21 November 2020

Accepted 14 December 2020



© Author(s) (or their employer(s)) 2021. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to

Dr Anne C Gadermann;
anne.gadermann@ubc.ca

ABSTRACT

Objectives In the first wave of the COVID-19 pandemic, social isolation, school/child care closures and employment instability have created unprecedented conditions for families raising children at home. This study describes the mental health impacts of the COVID-19 pandemic on families with children in Canada.

Design, setting and participants This descriptive study used a nationally representative, cross-sectional survey of adults living in Canada (n=3000) to examine the mental health impacts of the COVID-19 pandemic. Outcomes among parents with children <18 years old living at home (n=618) were compared with the rest of the sample. Data were collected via an online survey between 14 May to 29 May 2020.

Outcome measures Participants reported on changes to their mental health since the onset of the pandemic and sources of stress, emotional responses, substance use patterns and suicidality/self-harm. Additionally, parents identified changes in their interactions with their children, impacts on their children's mental health and sources of support accessed.

Results 44.3% of parents with children <18 years living at home reported worse mental health as a result of the COVID-19 pandemic compared with 35.6% of respondents without children <18 living at home, $\chi^2(1, n=3000)=16.2$, $p<0.001$. More parents compared with the rest of the sample reported increased alcohol consumption (27.7% vs 16.1%, $\chi^2(1, n=3000)=43.8$, $p<0.001$), suicidal thoughts/feelings (8.3% vs 5.2%, $\chi^2(1, n=3000)=8.0$, $p=0.005$) and stress about being safe from physical/emotional domestic violence (11.5% vs 7.9%, $\chi^2(1, n=3000)=8.1$, $p=0.005$). 24.8% (95% CI 21.4 to 28.4) of parents reported their children's mental health had worsened since the pandemic. Parents also reported more frequent negative as well as positive interactions with their children due to the pandemic (eg, more conflicts, 22.2% (95% CI 19.0 to 25.7); increased feelings of closeness, 49.7% (95% CI 45.7 to 53.7)).

Conclusions This study identifies that families with children <18 at home have experienced deteriorated mental health due to the pandemic. Population-level responses are required to adequately respond to families' diverse needs and mitigate the potential for widening health and social inequities for parents and children.

Strengths and limitations of this study

- Survey items were informed by a longitudinal COVID-19 mental health survey, first commissioned by the UK Mental Health Foundation and developed in consultation with people with lived experience of mental health conditions; adaptations were made for the Canadian context and to support analyses focussed on issues of equity.
- The large sample size enabled subgroup analyses in mental health according to gender, age, pre-existing mental health conditions, disabilities and household demographics.
- Targeted sampling supported participation from families of diverse backgrounds.
- Cross-sectional observational design and lack of adjustment for potential confounding prohibits causal inference.

INTRODUCTION

The COVID-19 pandemic has led to unprecedented global morbidity and mortality, with population mental health impacts recognised as a growing concern,¹ and particular risks identified within the family context.²⁻⁴ Specifically, the COVID-19 pandemic has posed new threats to families through social isolation due to physical distancing measures, school/child care closures, financial and employment insecurity, housing instability and changes to health and social care access.³⁻⁵ These shifts have profoundly interrupted the systems and structures that previously operated to both support the mental health and well-being of families and mitigate the risks that contribute to health and social inequities.

During the pandemic, many parents have experienced increased pressures and erosions to social supports, with implications for their mental health. In a US survey, the majority of parents expressed that during the pandemic, concerns about finances, social isolation,



criticism from others, as well as emotional experiences of sadness and loneliness were affecting their parenting.⁶ Globally, school and child care closures and the hiatus of after-school activities has added to parental pressure to balance responsibilities, including becoming the sole providers of supervision and education for their children—all while experiencing heightened financial and emotional stress.⁷ Families, generally, are affected by the disruptions of the pandemic. However, these pressures disproportionately affect families who experience health and social inequities, including fewer financial and social resources, crowded homes and limited technology and Internet access.⁷⁻⁹ The collision of these stressors has contributed to increases in domestic violence,^{10 11} and emerging studies have shown increased frequency of shouting and physical punishment of children since the pandemic began.⁶

In Canada, federal and provincial governments began implementing lockdown measures mid-March 2020 including border closures and restricted travel, restrictions on group gatherings, school/child care closures, mandatory working from home and temporary suspension of non-essential health and public services.¹² National COVID-19 incidence rates first peaked in April 2020 with nearly 3000 new cases confirmed daily.¹³ By early May 2020, incidence rates were decreasing and provinces began easing lockdown measures including re-opening businesses and encouraging rehiring of employees.¹² However, there were indications that the pandemic was already impacting the mental health and well-being of Canadian children.¹ For example, by April 2020, reports showed a dramatic surge in calls documented by Kids Help Phone, a national helpline for young people, with a 48% increase in calls about social isolation, a 42% increase in calls about anxiety and stress and a 28% increase in calls about physical abuse.¹⁴ Experts raised alarms that disruptions to routines and services, combined with increased family stressors, social isolation and domestic violence, were creating conditions that risked increasing child mental health problems on an unprecedented scale, with children from marginalised and socioeconomically disadvantaged backgrounds likely to be disproportionately affected.^{15 16} Thus, while young people initially appear to be less susceptible to the physical effects of the virus, they are experiencing significant challenges, likely resulting from the social and economic impacts of the pandemic within their family contexts.^{4 17} This is particularly concerning as research consistently demonstrates that children's early exposures to stress can have lasting effects.¹⁸⁻²¹

Families and children are furthermore supported by a social ecological system that has been forced to adapt quickly to support families' needs, often with limited information or evaluation. School and child care closures due to the pandemic are concerning not only for the

disruption to typical classroom learning, but also for the loss of systems-level safeguards such as nutrition programmes, after-school care, school health and counselling services and vaccination clinics^{22 23} that seek to mitigate some consequences of health and social inequities among structurally vulnerable children and families. And yet, even as schools and workplaces started to re-open, concerns were raised about the health risks of returning to populated spaces (including public transit) disproportionately affecting families with lower incomes, fewer resources and with limited options for returning to work.²⁴ Furthermore, families, child care settings and schools are nested within health authorities and government structures that determine many of the policies, services and financial and employment supports available to parents as well as the availability of these supports beyond the pandemic.

This paper presents findings on the impact of the COVID-19 pandemic on families from the first wave of a nationally representative cross-sectional survey monitoring the mental health of people living in Canada. The study aimed to answer three questions: (1) How is the COVID-19 pandemic affecting the mental health of parents and children and what subgroups are most impacted by the pandemic? (2) How have parent-child interactions changed due to the pandemic? and (3) What are the factors that support mental health in the family context? The findings provide critical evidence to inform rapid, data-driven public health responses to meet the mental health needs of families and children in the context of the COVID-19 pandemic and beyond.

METHODS

Survey development and approach

This investigation focusses on data from the initial wave of our cross-sectional survey, 'Assessing the Impacts of COVID-19 on Mental Health'. The study represents a unique collaboration between academic researchers from the University of British Columbia, the Canadian Mental Health Association (Canada) and by an international research partnership with the Mental Health Foundation (UK).

Patient and public involvement

Survey items were informed by a longitudinal survey first commissioned by the Mental Health Foundation in March 2020 and developed in consultation with people with lived experience of mental health conditions via a citizen's jury participatory methodology process. The citizen's jury was a collaborative process that engaged people with diverse experiences and backgrounds in the development and interpretation of the research to enhance its relevance and impact, including insights on stressors, coping strategies and mental health.^{25 26} Items on family mental health were adapted from previously developed community survey items related to the COVID-19 pandemic from the University of Michigan.⁶ Modifications were made

¹For the context of this study, children are defined as children and youth below the age of 18.

Table 1 Sociodemographic characteristics of the parent subsample (n=618)

	Sample distribution	
	n	%
Parent demographics		
Gender*		
Men	294	47.6%
Women	324	52.4%
Age		
18–34	130	21.1%
35–44	214	34.6%
45–54	235	38.0%
55+	39	6.3%
Province of residence		
Alberta	86	13.9%
British Columbia/Territories	81	13.1%
Manitoba/Saskatchewan	49	7.9%
Ontario	243	39.3%
Atlantic provinces	43	7.0%
Quebec	116	18.8%
Rural vs urban		
Urban	531	85.9%
Rural	87	14.1%
Education		
High school or less	62	10.0%
Some college/university	226	36.6%
University+	330	53.4%
Marital status		
Single, never married	39	6.3%
Married or partnered	517	83.7%
Separated, divorced, widowed	62	10.0%
Household Income		
<\$50K	108	17.5%
\$50K to <\$100K	197	31.9%
\$100K+	313	50.6%
Employment status		
Unemployed (due to COVID-19)	86	13.9%
Unemployed (prior to COVID-19)	21	3.4%
Lesbian, gay, bisexual, transgender, two-Spirit and queer or questioning		
Yes	24	3.9%
Pre-existing mental health condition		
Yes	111	18.0%
Disability		
Yes	45	7.3%
Ethnicity		
Indigenous origins (eg, First Nations, Inuit, Métis)	17	2.8%

Continued

Table 1 Continued

	Sample distribution	
	n	%
Visible minority (eg, Asian, Latin American, Middle Eastern, African)	122	19.7%
European origins (eg, British, German, Russian)	394	63.8%
Household Living		
Living with a spouse or partner	500	80.9%
Living with other adult family members (eg, parents, grandparents)	26	4.2%
Living with grandchildren	11	1.8%
Child demographics		
Child age (check all that apply)		
4 years and under	183	29.6%
5 to 11 years	292	47.2%
12 to 17 years	309	50.0%
18 years and over	70	11.3%
Child siblings at home		
Yes	325	52.6%

*Other gender identity options were available but not endorsed in this sample

by the research team in consultation with collaborators from the Canadian Mental Health Association to reflect the Canadian context, aimed at examining indicators of mental health, stress and coping related to the COVID-19 pandemic among the Canadian population. Modifications included adding items on the impacts on young people's mental health, potential sources of support, family dynamics, financial interventions introduced by the Government of Canada in response to the pandemic (eg, Canada Emergency Response Benefit) and food security systems. Survey items are provided in online supplemental file 1.

Procedure

Data were collected between 14 May to 29 May 2020, via a rapid online survey distributed by polling vendor Maru/Matchbox. Maru/Matchbox maintains the Maru Voice Canada panel consisting of approximately 125 000 adults. Panel participants were recruited through direct email, with targeted sampling through affiliate community partners to increase inclusion of populations that may be difficult to reach via the Internet (eg, older adults, racialized populations).²⁷ Surveys were distributed to 3558 panel members to reach a total of 3000 respondents, yielding an invitation-to-response rate of 84%. Members of the panel were randomly invited by Maru/Matchbox to participate in the survey using Canadian national census informed stratifications defined by sociodemographic characteristics (age, gender, household income and region) with

Table 2 Changes in parent self-reported mental health since the onset of the COVID-19 pandemic

Total	Gender		Age		Pre-existing mental health condition			Disability		Unemployed due to COVID-19		Parent to a child <4 years old		Parent to a child 5–11 years old		Parent to a child 12–17 years old		Parent with multiple children at home		Financial concerns	
	Women	Men	<35 years	35+ years	Yes	Not yes	(n=111)	Yes	Not yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Not yes
(n=618)	(n=324)	(n=294)	(n=130)	(n=488)	(n=507)	(n=573)	(n=86)	(n=532)	(n=183)	(n=435)	(n=292)	(n=326)	(n=309)	(n=309)	(n=309)	(n=309)	(n=309)	(n=325)	(n=293)	(n=282)	(n=336)
274	158	116	70	204	74	200	44	230	101	173	124	150	121	121	121	121	121	138	136	147	127
44.3%	48.8%*	39.5%	53.8%*	41.8%	66.7%†	39.4%	51.2%	43.2%	55.2%†	39.8%	42.5%	46.0%	39.2%*	39.2%*	49.5%	49.5%	42.5%	46.4%	46.4%	52.1%†	37.8%

Worse mental health combines slightly and significantly worse mental health. Differences in proportions within groups were tested with χ^2 tests. Due to small sample sizes, Indigenous origins and sexuality (lesbian, gay, bisexual, transgender, two-spirit and queer or questioning) are not reported. * $p < .05$ † $p < 0.001$.

adjustments for response propensity to generate a representative sample by age, gender, income and region.²⁷ The data collection period captured the first phases of ‘re-opening’ across many Canadian provinces and territories, emerging from approximately 2 months of mandated physical distancing, school/child care and work closures and related disruptions.

All participants completed an online consent process prior to beginning the survey and were provided with a small honorarium through Maru/Matchbox to compensate for their time.

Measures and analyses

This investigation focusses on a subsample of participants who identified as parents with children <18 years old currently living at home (n=618). Changes in mental health due to the pandemic were compared between this parent subsample and the rest of the sample (ie, respondents who were not parents with children <18 living at home). Comparisons were also conducted within the subsample of parents. Participants completed sociodemographic questions as well as questions about their mental health, emotional responses to the pandemic, changes in substance use, experiences of suicidal thoughts and self-harm. Parents also completed questions on changes to parent–child interactions, impacts of the pandemic on their children’s mental health and were asked to identify sources of stress and support for themselves and their children.

Descriptive and bivariate analyses (frequencies, χ^2 tests) were used to examine self-reported changes in mental health since the onset of the pandemic across groups defined by gender, age, disability and pre-existing mental health conditions, as well as frequently identified stressors, supports and changes in parent–child interactions. Data were analysed using SPSS V.26.²⁸ The maximum margin of error for proportions derived from the parent subsample was $\pm 3.9\%$ at a 95% level of confidence. This was a complete case analysis. In χ^2 analyses, ‘don’t know’, ‘not applicable’ and ‘prefer not to answer’ responses were treated as ‘not yes’.

RESULTS

Sample description

Of the 3000 respondents, 618 identified as parents to a child <18 living at home.ⁱⁱ The average age of the parent subsample was 43.0 years (SD=9.0 years) and 52.4% identified as women. Further sample characteristics are presented in [table 1](#).

Pandemic-related changes in parent mental health

Parents identified more pandemic-related risks and vulnerabilities compared with respondents without children <18

ⁱⁱIn the following when we refer to parents, these are parents living with children <18 years old unless otherwise specified.



Figure 1 Parent stressors in the past 2 weeks as a result of the COVID-19 pandemic. Note: Maximum margin of error for proportions was $\pm 3.9\%$ at a 95% level of confidence.

years living at home across a number of mental health constructs. Since the onset of the COVID-19 pandemic, a significantly higher proportion of parents reported deteriorated mental health (44.3%) compared with 35.6% among their counterparts without children <18 years at home, $\chi^2(1, n=3000)=16.2, p<0.001$. Changes to mental health furthermore varied across sociodemographic characteristics within the parent subsample. **Table 2** presents the proportions of parents reporting deteriorated mental health since the pandemic according to parent gender, age, pre-existing mental health conditions, disabilities, child age and employment and financial circumstances. Among parents with children at home, deteriorated mental health was significantly more prevalent among women, parents under age 35, parents with a pre-existing mental health condition, parents with a disability, parents of younger children (≤ 4 years) and parents reporting financial stress. When asked about their emotions in

the past 2 weeks as a result of the COVID-19 pandemic, the most frequent response from parents was anxious and worried (51.9%; 95% CI 47.9 to 55.9), followed by stressed (46.1%; 95% CI 42.1 to 50.1) and bored (39.5%; 95% CI 35.6 to 43.5).

Overall, 8.3% of parents reported experiencing suicidal thoughts/feelings as a result of the COVID-19 pandemic in the past 2 weeks compared with 5.2% among their counterparts without children at home, $\chi^2(1, n=3000)=8.0, p=0.005$. Furthermore, 2.6% of parents reported deliberately hurting themselves as a result of the pandemic in the past 2 weeks compared with 1.3% among their counterparts, $\chi^2(1, n=3000)=4.8, p=0.028$.

As a means of coping with deteriorations in mental health and stressors of the pandemic, many parents identified an increase in alcohol use. Specifically, 27.7% of parents reported increased alcohol consumption compared with 16.1% among those without children at

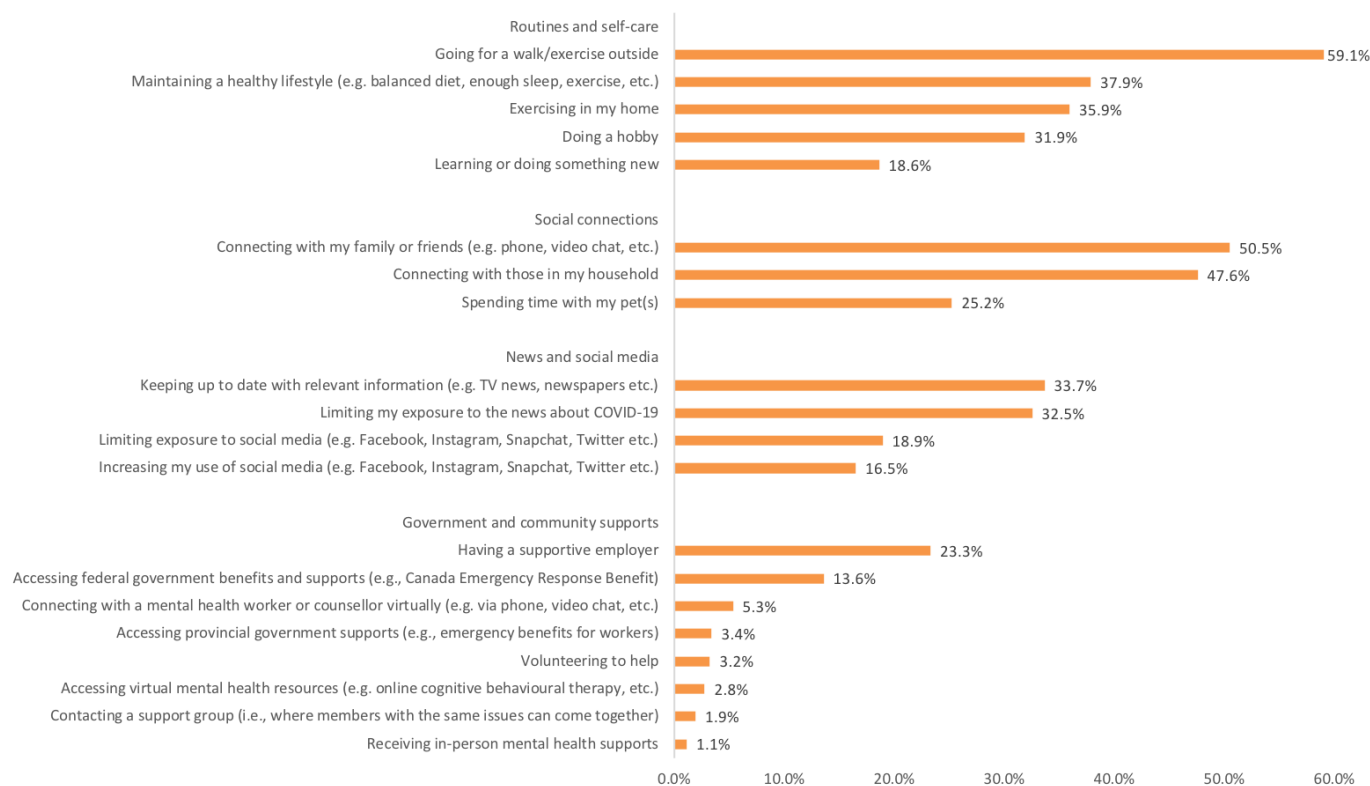


Figure 2 Parent-identified supports for coping with stress related to the COVID-19 pandemic in the past 2 weeks. Note: Maximum margin of error for proportions was $\pm 3.9\%$ at a 95% level of confidence.

home, χ^2 (1, n=3000)=43.8, $p < 0.001$. Within the parent subsample, increased alcohol consumption was more prevalent among men (32.3%) compared with women (23.5%), χ^2 (1, n=618)=6.0, $p = 0.014$.

Pandemic-related stressors

As shown in figure 1, when asked about stressors and worries resulting from the COVID-19 pandemic in the past 2 weeks, parents frequently reported mental health impacts, physical health threats related to the pandemic and relational and financial concerns. Being able to cope with uncertainty (59.2%; 95% CI 55.2 to 63.1), fear of a family member getting sick or dying (58.9%; 95% CI 54.9 to 62.8) and being separated from friends and family (58.7%; 95% CI 54.7 to 62.7) were the most frequent responses. A large proportion also reported being stressed about financial concerns (45.6%; 95% CI 41.2 to 49.7), losing/loss of job (31.4%; 95% CI 27.8 to 35.2) and having enough food to meet their household's basic needs (20.4%; 95% CI 17.3 to 23.8). Further, 36.9% (95% CI 33.1 to 40.8) of parents reported being stressed about looking after children while continuing to work and 27.8% (95% CI 24.3 to 31.6) were stressed that the pandemic would make their existing mental health problems worse.

Relationship challenges were also a prominent concern among parents. For example, 28.3% (95% CI 24.8 to 32.1) of parents reported being stressed about experiencing relationship challenges with their partner and 11.5%

(95% CI 9.1 to 14.3) reported being stressed about being safe from physical or emotional domestic violence during the 2 weeks prior. This proportion identifying concern about being safe from domestic violence was significantly higher among parents compared with the rest of the sample (7.9%), χ^2 (1, n=3000)=8.1, $p = 0.005$. Within the parent subsample, a higher proportion of men (14.6%) reported being stressed about being safe from physical or emotional domestic violence compared with women (8.6%), χ^2 (1, n=618)=5.4, $p = 0.020$.

Child mental health and parent-child interactions

The majority of parents (59.7%; 95% CI 55.7 to 63.6) reported their children's mental health had stayed the same since the onset of the COVID-19 pandemic; however, 24.8% (95% CI 21.4 to 28.4) indicated that their children's mental health had worsened.

Overall, due to the COVID-19 pandemic, parents reported more negative interactions with their children, including more conflicts (22.2%; 95% CI 19.0 to 25.7), yelling/shouting (16.7%; 95% CI 13.8 to 19.8), disciplining (16.0%; 95% CI 13.2 to 19.2) and using harsh words (10.7%; 95% CI 8.4 to 13.4). However, overall, parents also reported that they experienced increased positive interactions with their children, including having more quality time (65.4%; 95% CI 61.5 to 69.1), feeling closeness (49.7%; 95% CI 45.7 to 53.7), showing love or affection to their children (44.5%; 95% CI 40.5 to 48.5) and observing increased resilience (strength

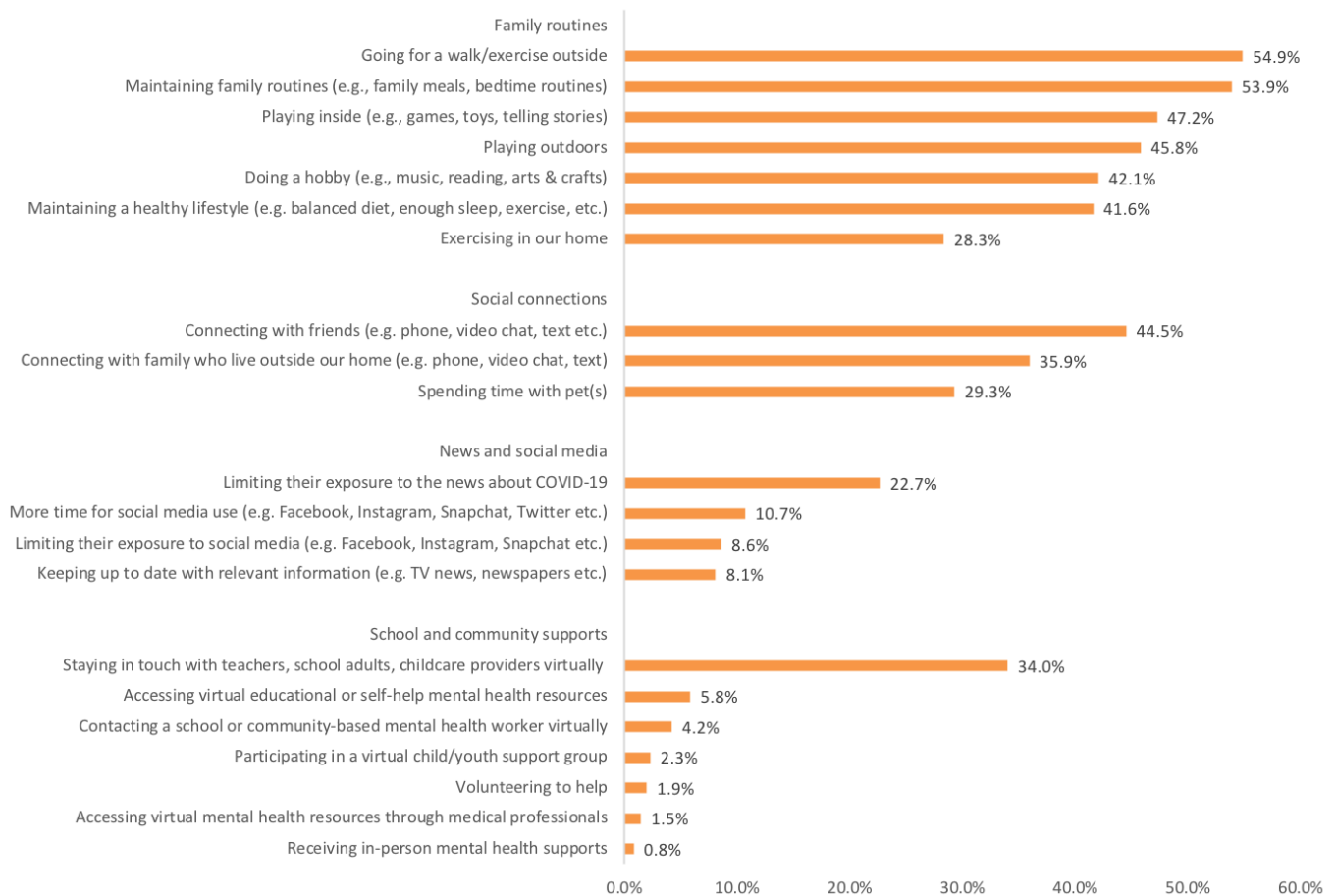


Figure 3 Parent-identified supports for helping their children cope with stress related to the COVID-19 pandemic in the past 2 weeks. Note: Maximum margin of error for proportions was $\pm 3.9\%$ at a 95% level of confidence.

and perseverance) in their children (38.2%; 95% CI 34.3 to 42.2). Parents often reported increases in both negative and positive interactions due to the COVID-19 pandemic. For example, a higher proportion of parents who reported more conflicts with children also reported increased feelings of closeness (59.1%) compared with parents who did not report more conflicts with children (47.0%), $\chi^2(1, n=618)=6.3, p=0.012$.

Changes in parent-child interactions also varied according to salient sources of stress (ie, financial concerns and worries that the pandemic would make existing mental health problems worse). A higher proportion of parents reported increased harsh words with children when they were stressed about finances (13.8%) compared with parents who did not report this stressor (8.0%), $\chi^2(1, n=618)=5.4, p=0.020$. Parents who reported stress that the pandemic would make an existing mental health problem worse, compared with parents without this stressor, also more frequently reported increased harsh words with children since the pandemic (20.9% vs 6.7%), as well as increased discipline (23.8% vs 13.0%), conflicts (33.1% vs 17.9%) and yelling/shouting (31.4% vs 11.0%), $\chi^2(1, n=618)=10.8$ to $37.2, p's \leq 0.001$.

Interestingly, a higher proportion of parents stressed about financial concerns, compared with parents who did

not report this stressor, also reported increased quality time with children (71.6% vs 60.1%), showing more love and affection to their children (49.3% vs 40.5%) and observing resilience in their children (43.3% vs 33.9%), $\chi^2(1, n=618)=4.82$ to $8.98, p's < 0.028$. A higher proportion of parents stressed about an existing mental health problem also reported showing more love and affection to children as a result of the pandemic (53.5%) compared with parents without this stressor (41.0%), $\chi^2(1, n=618)=7.8, p < 0.005$.

Sources of support

Figure 2 presents sources of support identified by parents that had helped them cope with stress related to the COVID-19 pandemic in the past 2 weeks. Parents most frequently identified going for a walk/exercise (59.1%; 95% CI 55.1 to 63.0), connecting with family and friends via phone and video chat (50.5%; 95% CI 46.5 to 54.5), connecting with those in their household (47.6%; 95% CI 43.6 to 51.6) and maintaining a healthy lifestyle (37.9%; 95% CI 34.0 to 41.8) as strategies that had helped them.

Figure 3 presents sources of support identified by parents that had helped their children cope with stress related to the pandemic in the past 2 weeks. Parents most frequently identified these same strategies, as well as maintaining

family routines (53.9%; 95% CI 49.9 to 57.9), playing inside (47.2%; 95% CI 43.2 to 51.3) and playing outdoors (45.8%; 95% CI 41.8 to 49.8) as having helped their children. Furthermore, 34.0% (95% CI 30.3 to 37.9) of parents identified staying in touch with teachers, school adults and child care workers as a source of support during the pandemic, and 5.8% (95% CI 4.1 to 8.0) identified accessing virtual educational or self-help mental health resources (eg, websites, applications) as a strategy that had helped their children. Additionally, 4.2% (95% CI 2.8 to 6.1) of parents had contacted a school or community-based mental health worker or counsellor virtually (eg, via phone or video chat).

Regarding structural supports, a significantly higher proportion of parents (23.3%) identified having a supportive employer as a factor that helped their stress related to the pandemic in the past 2 weeks, compared with respondents without children at home (14.1%), χ^2 (1, n=3000)=30.9, $p<0.001$. Although overall access of structural supports was low, a significantly higher proportion of parents reported accessing federal financial benefits to help cope with stress in the past 2 weeks (13.6%) compared with the rest of the sample (9.2%), χ^2 (1, n=3000)=10.2, $p=0.001$. When restricted to parents stressed about financial concerns due to the COVID-19 pandemic (n=282), this proportion increased to 19.1% (95% CI 14.7 to 24.2). Finally, a significantly higher proportion of parents (7.9%) reported that they or a member of their household had accessed a food-based community programme since the onset of the pandemic such as the Food Bank, free meal programmes, community kitchens or food vouchers from a charity, compared with the rest of the sample (4.4%), χ^2 (1, n=3000)=12.5, $p<0.001$. When restricted to parents stressed about having enough food to meet household needs due to the COVID-19 pandemic (n=126), this proportion increased to 17.5% (95% CI 11.3 to 25.2).

DISCUSSION

This study identifies that following the first lockdown phase in Canada, 44.3% of parents of children <18 living at home reported worse mental health as a result of the pandemic. This aligns with research in the US identifying similar deteriorations in family mental health due to the COVID-19 pandemic.²⁹ International studies monitoring mental health trends in the general population throughout the first 5 months of the pandemic estimated prevalence rates of up to 51% for anxiety symptoms, up to 48% for depressive symptoms and up to 54% for symptoms of psychological distress.³⁰ Within parts of Canada during the same period, the prevalence of depressive symptoms in the general population had more than doubled compared with previous national estimates,³¹ with experts projecting national increases in suicide based on trends in unemployment.³² To our knowledge, the current study is the first national Canadian survey to identify that parents of children <18 living at home are a group at disproportionate risk of worsened mental health due to

the COVID-19 pandemic. Compared with the rest of the population, a larger proportion of parents with children <18 at home reported increased alcohol consumption as a result of the pandemic, and suicidal thoughts or feelings, self-harm and stress about being safe from physical or emotional domestic violence in the past 2 weeks. These data validate early public health concerns regarding these mental health consequences of the pandemic.^{2 10 33}

Within our parent subsample, women, younger parents, parents of small children, those living with a disability and those with a pre-existing mental health condition reported worsened mental health since the start of the pandemic compared with other parents.

Within the subsample of parents with children living at home, more men reported increased alcohol use and being stressed about domestic violence compared with women. This gender difference in alcohol use aligns with pre-pandemic research findings that men generally consume more alcohol than women and are more likely than women to externalise distress through increased alcohol consumption.^{34 35} However, the finding that men reported greater worry and stress from domestic violence than women is contrary to pre-pandemic studies showing that women are disproportionately affected by domestic violence.^{36 37} Our survey question specifically asked about stress/worries about being safe from physical or emotional domestic violence as a result of the COVID-19 pandemic, which may not be comparable to the examination of this experience in other studies. This necessitates further research to unpack this association in the context of social isolation, financial stress and parenting responsibilities.

Parents with children <18 at home reported unique pressures, including worrying about their children's health, mental health, education and being stressed about looking after children while continuing to work. A high proportion of parents reported being stressed about financial concerns (45.6%), about the pandemic making their existing mental health problems worse (27.8%) and about having enough food to meet their household's basic needs (20.4%). A larger proportion of parents indicating stress about financial concerns or worsening of existing mental health problems due to the pandemic reported increased negative interactions with their children, including increased conflicts, discipline, use of harsh words and yelling/shouting compared with parents without these stressors. This aligns with other research showing that children have been relatively overlooked as a population vulnerable to the impacts of the COVID-19 virus, but are particularly vulnerable to stressful conditions exacerbated by the pandemic including financial stress, food insecurity, domestic violence and disrupted systems of care and education.^{38 39}

However, the majority of parents also reported increased positive interactions at home, including having more quality time together, feeling closeness, showing love and affection and observing resilience in their children. Parents often reported increases in both negative and

positive interactions with children due to the COVID-19 pandemic, possibly due to increased opportunities for family interactions overall. Furthermore, a larger proportion of parents stressed about financial concerns due to the pandemic reported having more quality time, showing more love and affection and observing resilience in their children. A larger proportion of parents stressed about worsening mental health problems reported showing more love and affection with their children. Increased time and flexibility at home has created conditions for families to engage in more conversations and activities together.^{40 41} Previous research has found that while parenting pressures during the pandemic have increased, so have opportunities to strengthen family connectedness.⁷ Our results indicate that strengthened connectedness may be particularly salient for families experiencing heightened stress due to the pandemic, although the specific mechanisms underlying these associations are unclear.

Free digital technologies have furthermore facilitated connecting with others outside the home, as well as tools for managing parenting stress and enabling children to participate in school and child-friendly activities online.^{7 8 41} However, digital technologies and online learning are not easily accessible for everyone, particularly for families with limited Internet or digital device access and language barriers, and for children with learning difficulties and special needs. In the current study, fewer than 6% of families reported accessing virtual mental health supports as strategies for addressing children's stress related to the pandemic. Although online mental health services have been found to be effective, feasible and acceptable among adults and youth,⁴² real-world uptake and retention has generally been found to be low.^{43 44} Early COVID-specific research from China has found that uptake of any mental health services since the start of the pandemic has been as low as 3.7%, with concerns raised that online mental health services may still not address present needs due to existing digital divides, appropriateness for all populations and quality assurance.⁴⁵

Considering the needs of diverse families, as well as issues of health equity, early examinations of the COVID-19 pandemic have also emphasised the importance of community organisations and governments in providing access to economic and social supports.^{46 47} In the current study, a significantly greater proportion of parents with children <18 living at home compared with the rest of the population had relied on supportive employers and government financial supports in the past 2 weeks, and had accessed food programmes since the start of the pandemic. Parents also frequently identified school, community and government supports that had helped them and their children cope with stress related to the COVID-19 pandemic. Other studies have also identified supports such as paid emergency leave, unemployment insurance, rent protection and access to safe and secure housing and outdoor spaces as critical in

supporting parents to have the time and resources necessary to care for their children.^{46 47} Although these policies and relief systems may not have been designed specifically for families and children, they hold the potential to help address some of the underlying causes⁴⁸ of compromised parent and child mental health at the population level, including family financial stress, employment and food insecurity, stigma, overcrowding and violence. The effectiveness of these policies, however, will depend on the human resources to organise, distribute and implement services when workforces are already overloaded. For example, in the current study, fewer than one in five families with financial stress or concerns about having enough food to meet their household basic needs had recently accessed federal benefits or food programmes, respectively, warranting further investigation into the ease of access to these services.⁴⁹ Furthermore, many of these underlying causes of health inequities will remain after the COVID-19 crisis has subsided,⁵⁰ suggesting that many of these interventions should be sustained irrespective of the pandemic.

Strengths and limitations

A notable strength of this study was the large, nationally representative sample that enabled population subgroup analyses to examine disparities in mental health for parents and across parent subgroups. The study was designed to include participation from families of diverse backgrounds, although small numbers of parents identifying as Indigenous or LGBT2Q+ (lesbian, gay, bisexual, transgender, two-spirit and queer) prohibited us from examining these populations of interest. We also did not have a reliable measure of single parent status to investigate mental health trends among this group. Although strategies including oversampling and community partnerships were used to minimise selection bias and reduce possible technology barriers, it is possible that survey respondents differed from survey non-respondents on key measures of interest including mental health, financial security or family conflict, which may have affected our estimates. The study design was cross-sectional, therefore we cannot determine if outcomes such as parent-child interactions and parent stressors were causally related, only that they were associated. We also did not control for potential confounding variables that might have introduced bias; further in-depth investigations would complement this study by providing more understanding of these associations. This study did not measure the prevalence of specific mental health outcomes or include clinical assessments of mental illness which may limit comparability with other research. This study also did not take into account baseline measures of mental health or multiple comorbidities and was specific to the Canadian context during the first re-opening phase of the COVID-19 pandemic. It will be important to monitor the impact of the pandemic on family mental health over time and in different contexts. We were also unable to assess the impact of the pandemic from the perspectives



of children and youth themselves, including children's reactions to parents' stress during the pandemic and children's reported supports including use of mental health services. This is a critical knowledge gap for future research to address. The purpose of the current study was to assess preliminary impacts of the COVID-19 pandemic on families' general mental health at a community level and to provide early data to inform relevant policy and programming actions. Examining specific impacts on the prevalence of mental health disorders and effective clinical responses is an important focus for future research.

CONCLUSIONS AND IMPLICATIONS

In response to the COVID-19 pandemic, policymakers and service providers globally have been faced with the challenge of having to make rapid decisions that will have immediate and long-term effects on the mental health and well-being of families and children. In the early days of the first 're-opening' phase in Canada, nearly two in every five people reported worse mental health since the pandemic began, with this proportion increasing to nearly one in every two people for parents with children <18 living at home. Schools/child care, communities and government systems play an essential role in protecting and supporting parents and children, particularly for families without reliable access to the Internet or virtual technologies. While pressure is put on parents, it is important to remember that families exist within a social ecosystem with opportunities to promote child and youth mental health. Supports such as affordable child care, low barrier Internet access, publicly-funded stepped care and psychotherapy and easily available financial supports are interventions that can directly benefit families.^{41 51} Continuations of financial interventions beyond the pandemic have also been suggested, including the idea of a universal basic income.⁵² The effectiveness of these systems further depends on intersectoral communication, collaboration and action, and therefore seeking feedback and advice from community stakeholders will be critical for monitoring whether these systems are working for families and children during the remainder of the pandemic and beyond.

Author affiliations

¹Human Early Learning Partnership, School of Population and Public Health, University of British Columbia, Vancouver, British Columbia, Canada

²Centre for Health Evaluation and Outcome Sciences, Providence Health Care Research Institute, Vancouver, British Columbia, Canada

³School of Population and Public Health, University of British Columbia, Vancouver, British Columbia, Canada

⁴School of Nursing, University of British Columbia, Vancouver, British Columbia, Canada

Correction notice This article has been corrected since it first published. The provenance and peer review statement has been included.

Acknowledgements We are appreciative of the support and partnership we received in mobilising this project from the Canadian Mental Health Association (CMHA) and Mental Health Foundation. We are grateful for the financial support provided by CMHA to fund Maru/Matchbox to deploy the survey. AG and EJ would

also like to thank the Michael Smith Foundation for Health Research for financial support (Scholar Awards) and KT would like to thank the Canadian Institutes of Health Research and Michael Smith Foundation for Health Research for financial support (Fellowship Awards). Special thanks to Katherine Janson, Margaret Eaton and Jonathan Morris (CMHA) for facilitating study communications and government relations outreach and to Jacqueline Campbell, Neesha Mathew and Stacey Kinley (Maru/Matchbox) for supporting survey deployment and data preparation. We also thank Dr Antonis Kousoulis for his role in the early conceptualisations of the study, including survey design.

Contributors AG, KT, MG, EJ and CM co-led the conceptualisation of this investigation. AG directed the data analyses, interpretation and writing of this manuscript. KT conducted the data analyses and contributed to data interpretation and writing of this manuscript. EJ, CGR, MG, CM and SH contributed to the interpretation and writing of this manuscript.

Funding The Canadian Mental Health Association (CMHA) funded survey data collection through national polling vendor, Maru/Matchbox. Collaborators from CMHA also contributed to the survey development. CMHA had no further role in the study design, data collection, data analysis or interpretation.

Conflict of Interest Declaration CGR reports receiving personal fees from the University of British Columbia during the conduct of this study. All other authors report no competing interests.

Patient consent for publication Not required.

Ethics approval Ethics approval was provided by the Behavioural Research Ethics Board at the University of British Columbia (H20-01273).

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Anne C Gadermann <http://orcid.org/0000-0001-6947-1052>

Kimberly C Thomson <http://orcid.org/0000-0002-4508-2463>

Chris G Richardson <http://orcid.org/0000-0002-7641-7027>

Monique Gagné <http://orcid.org/0000-0002-3220-7351>

Corey McAuliffe <http://orcid.org/0000-0002-7868-564X>

Saima Hirani <http://orcid.org/0000-0003-1084-3039>

Emily Jenkins <http://orcid.org/0000-0003-4649-2904>

REFERENCES

- Jenkins E, McAuliffe C, Hirani S, *et al*. A portrait of the early and differential mental health impacts of the COVID-19 pandemic in Canada: findings from the first wave of a nationally representative cross-sectional survey. *Prev Med* 2020; Accepted.
- Holmes EA, O'Connor RC, Perry VH, *et al*. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry* 2020;7:547–60.
- Coller RJ, Webber S. COVID-19 and the well-being of children and families. *Pediatrics* 2020;146:e2020022079.
- Gassman-Pines A, Ananat EO, Fitz-Henley J. COVID-19 and parent-child psychological well-being. *Pediatrics* 2020;146:e2020007294.
- Canadian Human Rights Commission. Statement - Inequality amplified by COVID-19 crisis, 2020. Available: <https://www.chrc-ccdp.gc.ca/eng/content/statement-inequality-amplified-covid-19-crisis>

- 6 Lee SJ, Ward KP. Research brief: stress and parenting during the coronavirus pandemic. Ann Arbor, MI:University of Michigan Parenting in Context Research Lab; 2020.
- 7 Cluver L, Lachman JM, Sherr L, et al. Parenting in a time of COVID-19. *Lancet* 2020;395:e64.
- 8 Smith EE. 5 ways to keep human connections when moving learning online due to coronavirus, 2020;The Conversation. Available: <https://theconversation.com/5-ways-to-keep-human-connections-when-moving-learning-online-due-to-coronavirus-134351>
- 9 Shim RS, Compton MT. The social determinants of mental health: psychiatrists' roles in addressing discrimination and food insecurity. *Focus* 2020;18:25–30.
- 10 Pfefferbaum B, North CS. Mental health and the COVID-19 pandemic. *N Engl J Med* 2020:1–3.
- 11 Kofman YB, Garfin DR. Home is not always a Haven: the domestic violence crisis amid the COVID-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy* 2020;12:S199–201.
- 12 Vogel L. COVID-19: A timeline of Canada's first-wave response, 2020;Canadian Medical Association Journal (CMAJ) News. Available: <https://cmajnews.com/2020/06/12/coronavirus-1095847/>
- 13 Dong E, Du H, Gardner L. An interactive web-based dashboard to track COVID-19 in real time. *Lancet Infect Dis* 2020;20:533–4.
- 14 Children First Canada. Children and youth living with family violence, 2020. Available: <https://educ.ubc.ca/sos/>
- 15 Fegert JM, Vitiello B, Plener PL, et al. Challenges and burden of the coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child Adolesc Psychiatry Ment Health* 2020;14:1–11.
- 16 Waddell C, Schwartz C, Barican J, Yung D, Gray-Grant D. COVID-19 and the Impact on Children's Mental Health. Vancouver, BC:Children's Health Policy Centre, Simon Fraser University; 2020.
- 17 Russell BS, Hutchison M, Tambling R, et al. Initial challenges of caregiving during COVID-19: caregiver burden, mental health, and the parent–child relationship. *Child Psychiatry Hum Dev* 2020;51:671–82.
- 18 Shonkoff JP, Garner AS, Siegel BS, et al. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* 2012;129:e232–46.
- 19 Hertzman C, Boyce T. How experience gets under the skin to create gradients in developmental health. *Annu Rev Public Health* 2010;31:329–47.
- 20 Benner AD, Mistry RS. Child development during the COVID-19 pandemic through a life course theory lens. *Child Dev Perspect* 2020;14:236–43.
- 21 Elder GH. The life course as developmental theory. *Child Dev* 1998;69:1–12.
- 22 Armitage R, Nellums LB. Considering inequalities in the school closure response to COVID-19. *Lancet Glob Health* 2020;8:e644.
- 23 Golberstein E, Gonzales G, Meara E. How do economic downturns affect the mental health of children? Evidence from the National health interview survey. *Health Econ* 2019;28:955–70.
- 24 Shah V, Shaker E. When proximity is a problem: what reopening means for schools and child care centres, 2020;Canadian Centre for Policy Alternatives. Available: <https://behindthenumbers.ca/2020/05/26/when-proximity-is-a-problem-what-reopening-means-for-schools-and-child-care-centres/>
- 25 Kousoulis A, McDaid S, Crepaz-Keay D, et al. Smaller boats in the COVID-19 storm: how different groups are coping with the coronavirus pandemic. London, UK: Mental Health Foundation; 2020: In press.
- 26 Kousoulis A, McDaid S, Crepaz-Keay D, et al. The COVID-19 pandemic, financial inequality and mental health: a briefing from the “Coronavirus: Mental Health in the Pandemic” study. London, UK: Mental Health Foundation; 2020.
- 27 Maru/Blue. 28 questions to help research buyers of online samples. ESOMAR; 2018.
- 28 IBMSPSS statistics for MacIntosh. version 26.0. 2019.
- 29 Patrick SW, Henkhaus LE, Zickafoose JS, et al. Well-Being of parents and children during the COVID-19 pandemic: a national survey. *Pediatrics* 2020;146:e2020016824.
- 30 Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: a systematic review. *J Affect Disord* 2020;277:55–64.
- 31 Schmitz N, Holley P, Meng X, et al. COVID-19 and depressive symptoms: a community-based study in Quebec, Canada. *Can J Psychiatry* 2020;65:733–5.
- 32 McIntyre RS, Lee Y. Projected increases in suicide in Canada as a consequence of COVID-19. *Psychiatry Res* 2020;290:113104.
- 33 Gunnell D, Appleby L, Arensman E, et al. Suicide risk and prevention during the COVID-19 pandemic. *Lancet Psychiatry* 2020;7:468–71.
- 34 Palmer RHC, Young SE, Hopfer CJ, et al. Developmental epidemiology of drug use and abuse in adolescence and young adulthood: evidence of generalized risk. *Drug Alcohol Depend* 2009;102:78–87.
- 35 Bronte-Tinkew J, Moore KA, Matthews G, et al. Symptoms of major depression in a sample of fathers of infants. *J Fam Issues* 2007;28:61–99.
- 36 Winstok Z, Straus MA. Bridging the two sides of a 30-year controversy over gender differences in Perpetration of physical partner violence. *J Fam Violence* 2016;31:933–5.
- 37 Melton HC, Belknap J. He hits, she hits: assessing gender differences and intimate partner violence. *Crim Justice Behav* 2003;30:328–48.
- 38 Sinha I, Bennett D, Taylor-Robinson DC. Children are being sidelined by covid-19. *BMJ* 2020;369:1–2.
- 39 Chanchlani N, Buchanan F, Gill PJ. Addressing the indirect effects of COVID-19 on the health of children and young people. *CMAJ* 2020;192:1–7.
- 40 Johnson K. Parenting during COVID-19: a new frontier. Canadian Paediatric Society; 2020.
- 41 Ye J. Pediatric mental and behavioral health in the period of quarantine and social distancing with COVID-19. *JMIR Pediatr Parent* 2020;3:e19867.
- 42 Bashshur RL, Shannon GW, Bashshur N, et al. The empirical evidence for telemedicine interventions in mental disorders. *Telemed J E Health* 2016;22:87–113.
- 43 Baumel A, Muench F, Edan S, et al. Objective user engagement with mental health apps: systematic search and panel-based usage analysis. *J Med Internet Res* 2019;21:e14567–15.
- 44 Fleming T, Bavin L, Lucassen M, et al. Beyond the trial: systematic review of real-world uptake and engagement with digital self-help interventions for depression, low mood, or anxiety. *J Med Internet Res* 2018;20:e199–11.
- 45 Yao H, Chen J-H, Xu Y-F. Rethinking online mental health services in China during the COVID-19 epidemic. *Asian J Psychiatr* 2020;50:102015.
- 46 Benfer EA, Wiley LF. Health justice strategies to combat COVID-19: protecting vulnerable communities during a pandemic. *Health Affairs Blog* 2020;March.
- 47 Rummo PE, Bragg MA, Yi SS. Supporting equitable food access during national emergencies—the promise of online grocery shopping and food delivery services. *JAMA Health Forum* 2020;1:e200365.
- 48 Rose G. Sick individuals and sick populations. *Int J Epidemiol* 1985;14:32–8.
- 49 Black J. The worst time for food banks to raise barriers to food, 2020. The Province. Available: <https://theprovince.com/opinion/jennifer-black-the-worst-time-for-food-banks-to-raise-barriers-to-food>
- 50 Eaves S. The housing affordability crisis will still be here after COVID-19, 2020. Generation squeeze. Available: <https://www.gensqueeze.ca/housing-after-covid-19>
- 51 Galea S, Merchant RM, Lurie N. The mental health consequences of COVID-19 and physical distancing: the need for prevention and early intervention. *JAMA Intern Med* 2020;180:817–8.
- 52 Canadian Mental Health Association. The universal basic income: an idea whose time has come, 2020. Available: <https://cmha.ca/news/the-universal-basic-income-an-idea-whose-time-has-come>