

Changes in household debt due to COVID-19 and mental health concerns among adults in Ontario, Canada

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Abstract

Background: Canadian households experienced unexpected changes in their economic well-being during the COVID-19 pandemic. The extent of the impact of the pandemic on household debt and its effect on health and mental health remains unknown.

Aim: The aim of the study was to examine the associations of change in household debt due to COVID-19 with serious psychological distress (SPD) and general health measures.

Methods: Data were from the 2020 Monitor study, a repeated cross-sectional survey of adults 18 years and older in Ontario, Canada. The 2020 cycle employed a web-based panel survey of 3,033 adults. The survey included measures of change in household debt due to the COVID-19 pandemic, mental and general health. Odds ratios (OR) were estimated from logistic regression models accounting for sociodemographic factors.

Results: Overall, 17.5% of respondents reported that their household debt increased due to the COVID-19 pandemic. Such an increase in household debt was significantly associated with SPD (OR=2.92, 95% CI, 2.05–4.16), fair/poor mental health (OR=2.02, 95% CI, 1.59–2.56), frequent mental distress days (OR=1.80, 95% CI, 1.31–2.48), fair/poor general health (OR=1.93, 95% CI, 1.47–2.52), and suicidal ideation (OR=3.71, 95% CI, 2.41–5.70) after adjusting for potential confounders including education, income and employment.

Conclusions: Household debt during the COVID-19 pandemic is an important determinant of health. Individuals who reported an increase in household debt due to COVID-19 were more likely to report serious mental health concerns including suicidal ideation. This suggests that debt-related interventions may be needed to alleviate the adverse effects of indebtedness on health.

Keywords

COVID-19, debt, distress, suicide, pandemic, indebtedness

Introduction

The novel coronavirus disease (COVID-19) pandemic has created an unexpected health, social and economic crisis, which has affected most countries in the world including Canada (WHO, 2020). During the first 3 months of the pandemic, more than 50% of the world's population had experienced a lockdown with strong public health measures aimed at controlling the spread of the virus (OECD, 2020). Soon after the World Health Organization (WHO) declared the COVID-19 outbreak as a global pandemic, most Canadian provinces declared a state of emergency and enforced containment measures. As more public health and economic restrictions were implemented to combat the spread of the virus, many Canadian households experienced significant changes in their economic well-being (Dawel et al., 2020; Shillington et al., 2021). For many, the COVID-19 pandemic led to economic and employment

insecurity due to loss of employment, reduced work hours, and loss of income. Such circumstances contribute to economic hardships among households, which might lead to

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mental health challenges or exacerbate existing ones (Dubey et al., 2020; Sweet, 2021; Weida et al., 2020; Wolfe et al., 2022). Research has shown that households who are in the lowest socioeconomic gradient tend to have worse mental health compared to those who are in the highest socioeconomic group (Adler et al., 1994; Braveman et al., 2010; Orpana & Lemyre, 2004; Orpana et al., 2007, 2009). The economic hardships created by the pandemic may also contribute to increased debt, a key aspect of socioeconomic position that is often neglected in research.

Debt is an important socioeconomic determinant of health (Drentea & Reynolds, 2015; Sweet, 2021). While factors such as income, education and occupation are often used as measures of socioeconomic status, they may not fully capture the economic burdens faced by households. A recent report indicated that Canadian households owed an average of \$1.72 for every dollar of disposable income in 2020 (Statistics Canada, 2021a). Household debt has been found to be associated with poorer subjective health and health-related behavior (Turunen & Hiilamo, 2014). Research suggests that an important contributing factor to negative health effects from debt is the stress that often stems from such debt (Drentea & Lavrakas, 2000; Drentea & Reynolds, 2015). In turn, debt-related stress is associated with adverse health outcomes such as psychological distress and self-rated poor mental health (Bridges & Disney, 2010; Dijkstra-Kersten et al., 2015; Drentea & Reynolds, 2015; Hamilton et al., 2019; Heintz-Martin et al., 2022; Hojman et al., 2016; Jenkins et al., 2008, 2009). Unpaid financial obligations were also found to be associated with poorer subjective health and health-related behavior (Turunen & Hiilamo, 2014), in which the debt burden might impede the borrower from making health-maximizing choices. For instance, a recent survey found that 64% of Canadians reduced their spending related to entertainment and vacations in order to manage their debts incurred due to the pandemic (BDO Canada LLP, 2021).

Although the Canadian government provided emergency and recovery benefits, as well as debt-relief programs (e.g. deferrals on loan payments) on a temporary basis, the majority of Canadians did not enroll in debt-relief programs (Bank of Canada, 2021) and there is evidence of increasing debt due to the pandemic (BDO Canada LLP, 2021). The decline in household income due to the pandemic and inability to pay off debts was reported to be the main reason for households enrolling in debt-relief programs (Vallée, 2020). Compared to the pre-pandemic level, the overall household debt in Canada increased by 4% during COVID-19, and 43% of Canadians added to their existing debt because of the pandemic (BDO Canada LLP, 2021). Despite the economic challenges created by the COVID-19 pandemic, there is a lack of research on the association between changes in household debt due to COVID-19 and health concerns. Households who experienced an increase in debt due to the COVID-19 pandemic

could potentially be more vulnerable to serious mental health concerns, such as serious psychological distress, poor mental health and quality of life, and suicidal ideation. The objectives of the present study were to characterize households experiencing increased debt due to COVID-19 and to examine the associations between the change in household debt and mental and general health measures.

Methods

Study design and population

The present study utilized data from the Monitor study, a repeated cross-sectional survey of adults 18 years and older in Ontario, Canada. In 2020, the survey employed a web-based survey assessing substance use, mental health and general well-being among households living in Ontario. Quota sampling by age, sex, region, education, and foreign born were introduced such that the survey sample was proportional to the adult population in Ontario. The province of Ontario accounts for more than 40% of the Canadian population (Government of Ontario, 2022). A total of 3,033 participants completed the online survey. The study received ethics approval from both the research ethics board at the Centre for Addiction and Mental Health and York University.

Measures

Serious Psychological Distress (SPD). SPD was assessed using the Kessler Psychological Distress scale (K6), which is a 6-item scale that includes feeling nervous, hopeless, restless or fidgety, sad or depressed, worthless, and that everything is an effort during the past 30 days (Kessler et al., 2003). Items were measured on a 5-point Likert scale (0 = “none of the time”, 4 = “all of the time”) and responses were summed across the six items (total scores ranging from 0 to 24). K6 has been shown to have good validity and reliability for serious mental illnesses including anxiety and depressive disorders (Kessler et al., 2003, 2010). In the present study, a total score of ≥ 13 was considered indicative of serious psychological distress (SPD) (Olfson et al., 2019).

Other health measures

Overall self-rated mental health and general health as well as frequent mental distress days were assessed with survey questions (Moriarty et al., 2003; Öunpuu et al., 2000). *Self-rated mental health* was assessed by asking the following question: “In general, would you say your overall mental health is excellent, very good, good, fair, or poor?” A dichotomous measure was constructed to reflect fair or poor mental health versus good to excellent mental health. *Mental distress days* was assessed by asking the following

question: “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days in the last 30 days was your mental health not good?” *Frequent mental distress days* was defined as the percentage reporting 14 or more mentally unhealthy days during the past 30 days (Okoro et al., 2021). *Self-rated general health* was assessed by asking the following question: “In general, would you say your overall health is excellent, very good, good, fair, or poor?” A dichotomous measure was constructed to reflect fair or poor general health versus good to excellent general health.

Suicidal ideation was assessed from the question: “In the past 12 months, did you ever seriously consider attempting suicide?” Response options were yes or no.

Change in household debt due to COVID-19

Change in household debt due to COVID-19 was assessed with the following question: “How was the amount your household owes in overall debt affected by the COVID-19 crisis?” Response options were increased, decreased, and no change during the pandemic. In the present analyses, response categories were dichotomized as increased versus decreased/no change in household debt.

Covariates

Covariates for the analyses included age (18–34, 35–54, and 55 years or older), sex (male, female), marital status (married/living with partner, widowed/divorced/separated, never married), educational status (less than high school, completed high school, some postsecondary, college or university), household income (< \$30,000; \$30,000–49,999; \$50,000–79,999; \$80,000+; refused/do not know), employment status (full time, self-employed, unemployed, retired, other (part-time/student)), having children less than 18 years of age in household (yes/no), foreign-born (yes/no), and number of residents in the household (continuous).

Statistical analysis

Descriptive statistics (means and proportions) were used to present age, sex, marital status, education status and survey year by change in household debt due to COVID-19. Chi-square tests were used to compare the differences between sociodemographic characteristics and change in household debt due to COVID-19 with the exception of household size, which was compared across change in debt using a *t*-test.

Bivariate associations, and multivariate logistic regression analyses were used to examine the associations of change in household debt with mental health concerns including SPD, suicide ideation, mental health related

quality of life measures adjusting for age, sex, marital status, educational status, household income, employment status, having children, foreign-born, and household size. The proportion of missing cases for most included measures was less than 2%, thus missing cases were excluded except for household income (Hughes et al., 2019). All analyses were weighted, *p*-values were two-tailed, and statistical significance was set at $p < .05$. All analyses were performed using STATA version 16.0 software (StataCorp LLC, 2019).

Results

Characteristics of sample

Characteristics of participants by change in debt due to COVID-19 are shown in Table 1. Overall, 51.7% of respondents were female, 27.4% were aged 18 to 34 years, 37.6% were employed full-time, 39.5% were unmarried, and 30.2% had children under 18 years of age in the household. About 17.5% of respondents reported that their household debt increased due to COVID-19, with the highest increase among those aged 35 to 54 (22.2%) and 18 to 34 (20.9%), compared to those 55 years and older (11.0%). In addition, respondents who were unemployed (32.0%), self-employed (27.4%), having less than \$30,000 household income (26.2%), having children under 18 years old in the household (27.6%), and having larger household size were more likely to report an increase in household debt due to COVID-19 (Table 2).

Serious psychological distress (SPD)

The prevalence of SPD in the total sample was 13.4%. The prevalence of SPD among households reporting an increase in debt due to COVID-19 was 28.3%, compared to 10.2% among those who reported a decrease/no change in household debt due to COVID-19 ($\chi^2(1)=77.9$, $p < .001$) (Table 2). Multivariate logistic regression models for the associations between changes in household debt due to COVID-19 and SPD are presented in Table 3. After adjusting for covariates, the odds of SPD were 2.92 (95% CI 2.05–4.16) times higher among those reporting an increase in household debt due to COVID-19 compared to those who reported either a decrease or no change in household debt due to the pandemic.

Poor (mental) health quality of life

Among the total sample, the percentages reporting fair/poor mental health, fair/poor general health and frequent mental distress days in the past 30 days were 25.9%, 16.3%, and 16.9%, respectively (Table 2). As shown in Table 2, the percentages reporting fair/poor mental health

Table 1. Characteristics of participants by household debt due to COVID-19 among Canadian households.

Characteristics	Total	Household debt due to COVID-19		χ^2/t -test
	N (%)	Decreased/no change	Increased	p-Value
Sex				
Male	1,366 (48.3)	1,153 (84.9)	213 (16.1)	.059
Female	1,563 (51.7)	1,252 (81.0)	311 (19.0)	
Age				
18–34	793 (27.4)	622 (79.1)	171 (20.9)	<.001
35–54	1,043 (34.0)	812 (77.8)	231 (22.2)	
55+	1,083 (38.6)	965 (89.0)	118 (11.0)	
Employment status				
Full time	1,125 (37.6)	941 (83.4)	184 (16.6)	<.001
Self-employed	265 (9.2)	191 (72.6)	74 (27.4)	
Unemployed	203 (6.9)	135 (68.0)	68 (32.0)	
Retired	655 (23.0)	622 (95.1)	33 (4.9)	
Other (part-time/student. . .)	676 (23.3)	512 (76.4)	164 (23.6)	
Educational attainment				
Less than high school	71 (2.2)	56 (79.1)	15 (20.9)	.266
Completed high school	389 (13.8)	313 (80.6)	76 (19.4)	
Some post-secondary	515 (17.6)	409 (80.2)	106 (19.8)	
University/College degree	1,954 (66.4)	1,627 (83.5)	327 (16.5)	
Annual household income				
<\$30,000	430 (13.9)	312 (73.8)	118 (26.2)	<.001
\$30,000–49,999	405 (13.8)	318 (80.0)	87 (20.0)	
\$50,000–79,999	675 (23.2)	557 (82.6)	118 (17.4)	
\$80,000+	1,228 (42.5)	1,065 (86.2)	163 (13.8)	
Refused/don't know	187 (6.6)	149 (80.5)	38 (19.5)	
Marital status				
Married/living with partner	1,809 (60.5)	1,499 (83.2)	310 (16.8)	.500
Previously married	384 (13.8)	309 (81.2)	75 (18.8)	
Never married	721 (25.7)	585 (81.3)	136 (18.7)	
Children (<18) in household				
No	2,179 (75.8)	1,855 (85.6)	324 (14.4)	<.001
Yes	743 (24.2)	543(72.4)	200 (27.6)	
Foreign-born				
No (born in Canada)	2,493 (85.1)	2,054 (82.9)	439 (17.1)	.244
Yes	418 (14.9)	339 (80.3)	79 (19.7)	
Number of residents in household	Mean=2.64	2.54	3.02	<.001

COVID-19 = novel corona virus disease 2019; χ^2 = Chi-squared test.

and frequent mental distress were two times higher among households who had an increase in debt due to COVID-19 (42.0% for poor mental health and 27.8% for mental distress), compared to those who had a decrease/no change in household debt due to COVID-19 (22.5% and 14.7%, respectively) (Table 2). Table 3 shows the multivariate logistic regression models for the associations between change in household debt due to COVID-19 and self-rated mental and general health, frequency of mental distress and suicidal ideation. After adjusting for potential confounders, significant associations were found between an increase in debt due to COVID-19 and fair/poor mental health (OR=2.02, 95% CI 1.59–2.56), fair/poor general

health (OR=1.93, 95% CI 1.47–2.52), and frequent mental distress days (OR=1.80, 95% CI 1.31, 2.48).

Suicidal ideation

In the total sample, 7.2% of adults reported that they have seriously considered attempting suicide in the past 12 months. Suicide ideation was about four times higher among those who reported an increase in household debt due to COVID-19 (18.4%), compared to those who reported a decrease or no change in household debt due to COVID-19 ($\chi^2(1)=75.4, p<.001$) (Table 2). Even after adjusting for sex, age, foreign-born, educational status,

Table 2. Overall and mental health outcomes by change in household debt due to COVID-19 among adults in Ontario, Canada.

Outcomes	Total N (%)	Household debt due to COVID-19		χ^2/t -test p-Value
		Decreased/no change	Increased	
Psychological distress				
K6 score of ≥ 13	262 (13.3)	161 (10.2)	101 (28.3)	<.001
K6 score < 13	1,684 (86.7)	1,445 (89.8)	239 (71.7)	
Self-rated mental health				
Fair/poor	766 (25.9)	541 (22.5)	225 (42.0)	<.001
Good/very good/excellent	2,095 (74.1)	1,809 (77.5)	286 (58.0)	
Frequent mental distress days				
≥ 14 days	323 (16.9)	229 (14.7)	94 (27.8)	<.001
< 14 days	1,586 (83.1)	1,350 (85.3)	236 (72.2)	
Self-rated general health				
Fair/poor	495 (16.3)	353 (14.2)	142 (25.8)	<.001
Good/very good/excellent	2,430 (83.7)	2,050 (85.8)	380 (74.2)	
Suicidal ideation				
Yes	145 (7.2)	78 (4.8)	67 (18.4)	<.001
No	1,777 (92.8)	1,508 (95.2)	269 (81.6)	

COVID-19 = novel corona virus disease 2019; SPD = Serious Psychological Distress; K6 = Kessler 6-item scale; χ^2 = Chi-squared test.

marital status, employment status, household income, having children in the household and household size, the association remained highly significant (OR=3.71, 95% CI 2.41–5.70) (Table 3).

However, no interactions existed between change in household debt and sociodemographic variables with regards to SPD, overall mental and general health, and suicidal ideation.

Discussion

The present study examined the association between change in household debt due to the COVID-19 pandemic and mental and general health concerns among Ontario adults. We found that increases in household debt were significantly associated with greater odds of SPD, poor mental health, frequent mental distress days and suicidal ideation compared to those households who reported a decrease or no change in household debt, after adjusting for sex, age, educational status, marital status, employment status, household income, having children in the household, foreign-born, and household size.

Debt is increasingly an important component of the finances of many Canadian households (Statistics Canada, 2021a). Canadians frequently take out loans to finance housing purchases, car purchases, and for investment or business purposes, which may be manageable and affordable to most households in normal circumstances. Survey findings prior to the COVID-19 pandemic indicated that higher household income was associated with an increased probability of holding debt and a higher debt load, which might be due to their greater debt-carrying capacity (Statistics Canada, 2015). The COVID-19 pandemic

resulted in severe economic challenges in many households due to employment or income loss, thus debt may be less manageable, and existing financial problems might become more severe, and induce adverse health outcomes (Bushman & Mehdipanah, 2022; Shillington et al., 2021). The present study suggests that increasing debt during a crisis is an important indicator for financial well-being of a household as well as a major risk factor for individual's health concerns. Studies conducted prior to the pandemic has also reported similar results (Hall et al., 2008; Richardson et al., 2013).

Several potential mechanisms could explain the link between an increase in debt and poor mental and general health. Stress resulting from an increase in debt (over-indebtedness), may be one of the possible explanations for the adverse effects associated with debt during the pandemic (Hamilton et al., 2019; Sweet et al., 2013; Turunen & Hiilamo, 2014). Another potential explanation could be sleep disturbances associated with debt (Richardson et al., 2013; Warth et al., 2019). The impact of sleep disturbance on mood including SPD and behavior is well-established (Akerstedt et al., 2004; Goldstein et al., 2020; Strine & Chapman, 2005), and sleep disturbances are also known to adversely affect the quality of life especially when individuals excessively worry about debt repayments (Hall et al., 2008; Strine & Chapman, 2005). A recent study conducted during the pandemic showed that households with mortgage debts reported worse self-rated health and greater mental distress than those households without mortgage debt (Bushman & Mehdipanah, 2022). The present findings are also in line with reports from the Organization for Economic Co-operation and Development (OECD) indicating that people with less secure

Table 3. Change in household debt due to COVID-19 and overall and mental health concerns among adults in Ontario, Canada.

Independent variables	Serious psychological distress (N = 1,908) Fair/poor mental health (N = 2,806) Mental distress (N = 1,885) Suicide ideation (N = 1,885) Fair/poor general health (N = 2,884)			
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Household debt due to COVID-19				
Decreased/no change	1.00	1.00	1.00	1.00
Increased	2.92 (2.05–4.16)***	2.02 (1.59–2.56)***	1.80 (1.31, 2.48)***	3.71 (2.41–5.70)***
Sex				
Female	1.00	1.00	1.00	1.00
Male	0.82 (0.59–1.13)	0.63 (0.51–0.76)***	0.63 (0.47–0.84)**	1.10 (0.72–1.71)
Age (years)				
18–34	1.00	1.00	1.00	1.00
35–54	0.51 (0.35–0.74)***	1.10 (0.86–1.40)	1.23 (0.86–1.77)	0.71 (0.44–1.16)
55+	0.22 (0.12–0.40)***	0.58 (0.41–0.81)**	0.87 (0.54–1.41)	0.33 (0.15–0.73)**
Employment status				
Full time	1.00	1.00	1.00	1.00
Self-employed	1.00 (0.53–1.87)	0.92 (0.64–1.31)	1.11 (0.64–1.93)	0.79 (0.36–1.73)
Unemployed	1.49 (0.88–2.52)	2.12 (1.47–3.01)***	2.04 (1.24–3.36)***	1.17 (0.57–2.41)
Retired	0.64 (0.28–1.47)	0.82 (0.55–1.21)	0.73 (0.42–1.27)	0.40 (0.15–1.10)
Other (part-time/student. . .)	1.45 (0.94–2.22)	1.48 (1.13–1.92)**	1.73 (1.17–2.53)**	1.42 (0.84–2.38)
Educational attainment				
Less than high school	1.00	1.00	1.00	1.00
Completed high school	0.63 (0.26–1.57)	0.76 (0.41–1.41)	0.84 (0.36–1.97)	0.37 (0.12–1.15)
Some post-secondary	0.77 (0.31–1.91)	0.91 (0.50–1.67)	0.89 (0.39–2.04)	0.56 (0.20–1.58)
University/College degree	0.47 (0.20–1.13)	0.66 (0.37–1.19)	0.74 (0.33–1.65)	0.50 (0.18–1.37)
Annual household income				
<\$30,000	1.00	1.00	1.00	1.00
\$30,000–49,999	0.63 (0.37–1.06)	0.83 (0.59–1.18)	0.62 (0.39–0.98)*	0.54 (0.29–1.01)
\$50,000–79,999	0.55 (0.34–0.90)*	0.79 (0.57–1.09)	0.53 (0.34–0.81)**	0.49 (0.27–0.90)*
\$80,000+	0.37 (0.22–0.61)***	0.56 (0.40–0.77)***	0.35 (0.22–0.55)***	0.30 (0.16–0.57)***
Refused/don't know	0.35 (0.16–0.78)*	0.57 (0.36–0.89)*	0.75 (0.42–1.34)	0.49 (0.20–1.20)
Marital status				
Married/living with partner	1.00	1.00	1.00	1.00
Previously married	1.50 (0.91–2.49)	1.05 (0.77–1.43)	1.31 (0.86–1.99)	0.87 (0.46–1.66)
Never married	1.02 (0.69–1.50)	1.19 (0.92–1.54)	0.92 (0.63–1.32)	0.99 (0.57–1.71)
Children (<18 years) in household				
No	1.00	1.00	1.00	1.00
Yes	1.00 (0.64–1.57)	1.04 (0.78–1.39)	0.68 (0.45–1.03)	0.88 (0.48–1.62)
Foreign-born				
No (born in Canada)	1.00	1.00	1.00	1.00
Yes	0.42 (0.23–0.77)**	0.45 (0.32–0.62)***	0.59 (0.38–0.92)*	0.48 (0.24–0.97)*
Household size	0.95 (0.82–1.09)	0.96 (0.87–1.05)	1.08 (0.94–1.23)	0.98 (0.82–1.18)

COVID-19 = novel corona virus disease 2019; AOR = adjusted odds ratio.

*p < .05. **p < .01. ***p < .001.

employment, lower educational status and lower income experienced higher rates of mental distress in 2020 during the COVID-19 crisis (OECD, 2021).

The present study also showed that households that experienced an increase in debt due to COVID-19 were about four times more likely to contemplate suicide irrespective of household income, educational status, employment status, and other demographic factors. Although evidence is limited about the link between pandemics in general and suicide, there is concern that the risk of suicide might increase during global pandemics and economic crises (Banerjee et al., 2021). During previous economic crises, unexpected changes in economic security have been reported to be associated with higher rates of completed suicide (Reeves et al., 2012; Stuckler et al., 2009). The current COVID-19 pandemic also presents a unique set of challenges for populations such as panic and uncertainty related to the virus, in addition to unemployment and financial strain and debt, which might increase the risk of suicide (Ettman et al., 2020; Rojas, 2022). Particularly, the protective factors for good mental health such as social interaction, employment and educational engagement, and daily routines were greatly decreased by public health measures such as quarantines and social distancing. A separate body of literature has indicated that quarantine alone is an independent contributor to adverse mental health outcomes as observed during the SARS epidemic in Toronto, Canada in 2003 (Hawryluck et al., 2004). In general, major economic crises are tied to more mental health problems and even increased suicide rates (Chang et al., 2013). Unemployment appeared to be linearly associated with increases in suicide rates (Chang et al., 2013; McIntyre & Lee, 2020). During the COVID-19 pandemic, a 7.5% unemployment rate was associated with a 11.6% suicide rate per 100,000 population in Canada (McIntyre & Lee, 2020). According to WHO, for every death due to suicide there are more than 20 suicide attempts (WHO, 2022). Periods of economic recession are also associated with higher mental health problems including suicidal behavior (Frasquilho et al., 2016). Hence, it is important to monitor suicidal attempts or ideations especially among the households most vulnerable to financial distress during crises.

Limitations of the study

The study has several limitations that are worth noting. The data were based on a cross-sectional study and, as such, the temporal association between change in household debt and health measures cannot be determined. Poor mental health and/or pre-existing mental health conditions may also have contributed to being in higher debt as a result of the COVID-19 pandemic. Additional research is needed to address the direction of the relationship between debt and aspects of health, and potential mechanisms that

mediate the link between increases in debt and adverse health outcomes. Change in debt due to COVID-19 was measured with a single question rather than a scale, which may induce some bias. Although there is potential for recall bias associated with most surveys, asking whether debt increased, decreased, or remained the same (as was done in the present study) would result in less recall bias than asking respondents to report the scale or amount of debt. Respondents may not know the true scale of their household debt, which would increase the possibility of underreporting or overreporting. The debt assessment in the present study was broad and did not examine the nature of household debt. Previous research has shown that mortgage debt may be less stressful than credit card debt (Brown et al., 2005), such that the type of debt might partially explain the association between indebtedness and health. Therefore, understanding the varying impacts of different types of debt and the mechanisms through which debt impacts health would greatly contribute to knowledge and efforts to reduce negative impacts on health. It is also important to acknowledge that the present study assessed suicidal ideation in the past 12 months, such that it might be important to consider more frequent time horizons as it is not constant over time. Finally, the study used a web panel sample and thus those without access to the internet may have been excluded, which increases the possibility of selection bias. However, more than 95% of households in Ontario had access to the Internet at home in 2020 (Statistics Canada, 2021b), thus the selection bias induced due to internet access would be minimal.

Implications of the findings and conclusions

Financial debt during the COVID-19 pandemic negatively affects the mental and general health of individuals. The present study demonstrated that an increase in household debt due to COVID-19 was strongly associated with the risk of SPD, poor overall mental health, mental distress days, poor overall general health and suicidal ideation. Overall, Canadian populations are experiencing a deterioration in mental health and coping due to the pandemic (Jenkins et al., 2021). Across OECD countries, the mental health of unemployed people and those experiencing financial insecurity was worse than that of the general population (OECD, 2021). In Canada, the prevalence of anxiety was quadrupled in early 2020 compared to the pre-COVID estimate (increased from 5% to 20%) (Mental Health Research Canada, 2020). The findings suggest that tailored debt-related programs may be needed to alleviate the adverse effects of indebtedness on health. In addition to financial provisions (e.g. COVID-19 support, tax deferral), investing in debt counseling programs that are intended to mitigate financial problems among households during the pandemic may also be needed. The World Bank

suggested that the degree of protection for people who are in debt might be needed, since there is high levels of uncertainty regarding COVID-19 (The World Bank, 2022). In Canada, the temporary debt-relief programs (e.g. deferring payments on mortgages and other loans) appeared to be less effective than the majority of Canadians did not enroll in the programs, with only 7% deferring on credit card loans and 24% deferring on mortgages (Bank of Canada, 2021). The effectiveness of debt-relief programs may depend on the level of awareness and how easy they are to use. Thus, promoting and advertising such programs widely is important to increase awareness and utilization. In general, Canada entered the pandemic crisis with the lowest net debt-to-GDP ratio in the G7 and historically low borrowing rates, which helped the government to provide the temporary relief measures, which ended in September 2020 (Statistics Canada, 2022b). Yet, COVID-19 continues to impact the economic situations of many individuals with the highest inflation rates recorded in four decades, resulting in higher food prices and transportation costs with possible economic recession over the next year (International Monetary Fund, 2022; Statistics Canada, 2022a), which becomes even more of a concern that may further exacerbate mental health issues. Therefore it is important for continued monitoring of the household debt and mental wellbeing of the households.

In conclusion, household debt is an important consideration when assessing the association between economic challenges and general or mental wellbeing. The results of this study suggest that debt is an important socioeconomic determinant of health that should be explored further in health research.

Conflict of interest

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