


# Financial stress during COVID-19: implications for parenting behaviour and child well-being

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**To cite:** McGill MG, Purkey E, Davison CM, *et al*. Financial stress during COVID-19: implications for parenting behaviour and child well-being. *BMJ Paediatrics Open* 2022;**6**:e001569. doi:10.1136/bmjpo-2022-001569

► Additional supplemental material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/bmjpo-2022-001569>).

Received 6 June 2022

Accepted 9 August 2022

## ABSTRACT

**Background** Family financial stress and parenting behaviours are each associated with child behaviours. We sought to explore the association between parent financial stress and child socioemotional and behavioural difficulties during the COVID-19 pandemic and examine parenting behaviour, including overreactive and lax parenting approaches, as a potential mediator to this relationship.

**Methods** Cross-sectional sample of parent and child data pairings in Ontario, Canada between April and November of 2020. Linear models were used to describe the relationships between financial worry, child Strengths and Difficulties Questionnaire (SDQ) total difficulties and parenting behaviours measured by the Parenting Scale 8-item (PS-8), which includes measures of both overreactive and lax parenting tendencies. Formal mediation testing was performed to assess the potential mediating role of parenting behaviour.

**Results** 528 parent and child pairs were enrolled from largely European ancestry (78%), female (93%) and varied household income levels. Analysis revealed increased financial worry during the COVID-19 pandemic was significantly associated with increased child SDQ total difficulties scores ( $\beta=0.23$ ,  $SE=0.10$ ,  $p=0.03$ ). This relationship was mediated by reported parenting behaviour, independent of parent education, household income, parent age, parent sex, parent anxiety and child sex (total effect:  $\beta=0.69$ ,  $p=0.02$ , average causal mediation effects:  $\beta=0.50$ ,  $p=0.02$ , average direct effects:  $\beta=0.19$ ,  $p=0.08$ ).

**Conclusion** Financial stress during the COVID-19 pandemic was associated with poorer child social and emotional well-being. Parenting behaviours measured by the PS-8 significantly mediated these effects. This work supports the importance of policies aimed to alleviate family financial stresses and highlights the potential impact such policies have on child well-being.

## BACKGROUND

The COVID-19 pandemic and associated lockdowns presented unique stressors to communities globally. In addition to possible experiences with the virus itself, increased social isolation, loss of income and school closures have placed widespread and unprecedented pressure on families. Such pressures have had significant

## WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ The COVID-19 pandemic and associated lockdowns subjected families to novel stress and uncertainty.
- ⇒ Parents experiencing financial stress are more likely to experience parenting difficulties.
- ⇒ Early research during the pandemic suggests a rise in parental stress, increased parenting difficulties, and a decline in child and youth mental health and well-being.

## WHAT THIS STUDY ADDS

- ⇒ Parenting difficulties during the COVID-19 pandemic were associated with higher child socioemotional and behavioural difficulties.
- ⇒ The relationship between parenting behaviour and child well-being during the COVID-19 pandemic was mediated by concurrent financial stress.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Our findings underscore the importance of policy interventions aimed to alleviate financial burden on families.

negative impacts on the well-being of families and children worldwide.<sup>1 2</sup>

In children and adolescents, low socioeconomic status (SES) and economic hardship are associated with increased socioemotional and behavioural difficulties,<sup>3-5</sup> including increased internalising, externalising and total problems, as measured by both the Child Behaviour Checklist and the Strengths and Difficulties Questionnaire (SDQ).<sup>6 7</sup> This is an important consideration, as child socioemotional and behavioural difficulties are known predictors of mental health difficulties later in life.<sup>8-10</sup> Despite this evidence, it is important to note that the individual variation in outcomes between low-income children is wide.<sup>11</sup> That is to say that not all children who are experiencing low income will exhibit socioemotional and behavioural difficulties, and furthermore, not all children who experience



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such difficulties in childhood develop lasting mental health difficulties.

In addition, a new transition into poverty is also associated with increased child socioemotional and behavioural difficulties,<sup>12</sup> highlighting the impact of both chronic financial stress and new financial stress on child well-being. The COVID-19 pandemic has served to introduce and amplify many stresses for families including both exacerbation of existing financial stress and introduction of new financial stress.<sup>13</sup>

Parenting behaviours or approaches are also important predictors of child socioemotional and behavioural problems. Overreactive parenting describes a behaviour that directs out-of-proportion negative emotional expression towards children following an undesirable child behaviour. Lax parenting describes a behaviour where firm limits are not set or acted on.<sup>14</sup> Both overreactive and lax parenting behaviours are associated with higher levels of child socioemotional and behavioural difficulties.<sup>15–19</sup>

The Family Stress Model (FSM) is a useful and well-supported framework to understand the relationships between familial financial stress, parenting behaviour and child socioemotional and behavioural health. The FSM postulates that financial pressure results in elevated stress on parents leading to difficulties parenting that may look like increased overreactiveness, or laxness, for example. In turn, parenting difficulties can result in poorer child socioemotional and behavioural health.<sup>20–21</sup> COVID-19 has presented parents with an array of stressors, including financial stress, that may contribute to parental stress and increased mental health difficulties, making the FSM framework especially relevant for considering the downstream sequelae of the COVID-19 pandemic.

Early literature during the COVID-19 pandemic indicates that overreactive parenting was associated with increased prevalence of child externalising problems and was exacerbated by additional financial stress.<sup>22</sup> The prevalence of mental health problems in children and adolescents has increased during the pandemic, likely related to a multitude of factors, including familial financial strain, increased parental stress and poorer parent mental health.<sup>23–24</sup> Investigations into the impact of COVID-19 and associated lockdowns on families are ongoing, and more work is needed to understand the impacts on family and child well-being. We aimed to explore the association between familial financial stress and child socioemotional and behavioural difficulties during the COVID-19 pandemic, and how concurrent parenting behaviours contributed to this association.

## METHODS

### Study design and participants

This study used data from the Cost of COVID Study, a cross-sectional observational study aimed at understanding the social and emotional impacts of the COVID-19 pandemic. An online anonymous survey was distributed widely in Kingston, Frontenac, Lennox and Addington (KFL&A) region in Ontario,

Canada through professional and social networks and social media by the investigators. Additional targeted outreach to Indigenous communities and low-income individuals was conducted. Indigenous participant recruitment was supported by involvement of an Indigenous research associate (AW), who is a trusted community member. Data were collected from 23 April 2020 to 30 November 2020. Ethical approval was obtained from the Health Sciences and Affiliated Hospitals Research Ethics Board, Queen's University.

### Financial worry assessment

Financial stress was assessed using three questions regarding current and pre-pandemic financial position. Each question addressed a different domain of financial worry including maintaining housing, paying bills and ability to purchase food. Responses were recorded on a 5-point scale ranging from “not at all worried” to “very worried” and coded numerically from 1 to 5, with 1 being “not at all worried”. Scores from the three financial worry questions were summed, providing a range of 3 to 15 to describe participants combined financial stress across all three domains currently and pre-pandemic.

### Child behaviour

Child socioemotional and behavioural problems were reported using the parent-reported SDQ.<sup>25</sup> This validated 25-item instrument assesses five domains: emotional problems, conduct problems, hyperactivity/inattention, peer problems and prosocial behaviour. The SDQ total difficulties score is created by summing the hyperactivity, conduct problems, peer problems and emotional problems domains. The survey was completed by the responding parent in reference to their child's current behaviour. Guardians reported on their child with the next coming birthday. Child age and sex were recorded. The SDQ is validated for children ages 2–17, which informed the inclusion criteria of this study.<sup>26–27</sup> An SDQ total difficulties score of 13 or lower is considered to be a normal score based on British norms.<sup>28</sup>

### Demographic and parent mental health information

In our analysis, we used education and household income as measures of socioeconomic status. Education was self-reported highest level of education attained and income was self-reported total after tax household income. Both measures were included in our models. Self-identified ethnicity of participants was collected. Age and gender of parents/guardians were also recorded. Parent anxiety was assessed using the Generalized Anxiety Disorder 2-item (GAD-2), a validated screening tool for anxiety.<sup>29</sup> The GAD-2 estimates participants' level of nervousness and ability to control worry over the past 2 weeks and is measured on a scale of 0–3 per item, with a maximum score of 6. Scores above 3 have high specificity for clinically relevant anxiety.

### Parenting information

Parenting behaviours were reported using the Parenting Scale 8-item (PS-8) questionnaire, a validated tool used to

assess specific parenting behaviours.<sup>30</sup> The scale consisted of eight questions, four pertaining to overreactive parenting behaviours and four regarding lax parenting behaviours. Parents ranked their behaviour on a scale from 1 to 7 for each question, with 7 representing more overreactive or lax behavioural tendencies. To reduce bias, the response order was reversed in some questions, where 1 represented more overreactive or lax behaviours. Reverse coding was accounted for accordingly, and scores were calculated by averaging all questions, leaving a score between 1 and 7 to represent parenting behaviour. From this scale, average combined parenting using all eight items, overreactive parenting behaviour (four items) and lax parenting behaviour (four items) can be calculated. In this study, parents responded to this questionnaire based on their current behaviour at the time of the survey.

## Data analysis

### Model selection

Pearson correlation coefficients were used to explore the relationships between our variables of interest: pre-pandemic and current financial worry, child SDQ total difficulties scores and parenting behaviour. Next, Pearson correlations were performed between our variables of interest, measures of socioeconomic status and parent anxiety (online supplemental table 1). All analyses were performed in R. Variables that were significantly associated with our variables of interest were included as covariates in our models. Covariate selection was further informed by literature review. Parental anxiety symptoms (GAD-2), education, household income, child sex, parent gender, parent age and ethnicity were included in our models. We examined our models for multicollinearity using variance inflation factor and tolerance calculations (online supplemental table 2).

### Linear regression model

We constructed three multivariable linear models to test associations between current financial worry, child SDQ total difficulties scores and parenting behaviour. First, we modelled the association between current financial worry and SDQ total difficulties scores. Second, we modelled the association between the combined 8-item parenting behaviour score and child SDQ total difficulties scores. Next, we modelled the association between combined parenting behaviour score and financial worry during the pandemic. All previously described covariates were included in each model.

### Mediation analysis

Following examination of the relationships between current financial worry, child SDQ total difficulties scores and parenting behaviour using linear models, our next step was to assess the role of parenting behaviour as a causal mediator in the relationship between financial worry and child SDQ total difficulties scores. Causal mediation was tested using non-parametric bootstrap CIs

with the percentile method from the Mediation package in R, at 500 simulations.

### Secondary analyses

We developed additional models to examine the association of pre-pandemic financial worry and child SDQ total difficulties scores. In the first model, pre-pandemic financial worry was our predictor variable. In the second model, current financial worry was the predictor variable, and pre-pandemic financial worry was included as a covariate along with all previously described covariates.

Additional models were developed to examine the association between the laxness and overreactivity subscales of parenting behaviour and child SDQ total difficulties scores using two separate linear models. Child SDQ total difficulties score was the outcome variable in each model. All covariates were included in each model.

Finally, we assessed the association between the subscales of parenting behaviour (laxness and overreactivity) and current financial worry using two separate linear models. Current financial worry was the predictor variable in each of the models, and parenting behaviour subscales were the outcomes. All covariates were included.

## RESULTS

In total, 2433 individuals completed the online survey including 934 who identified as parents/guardians and 528 parents/guardians who provided complete information on their children (see [table 1](#) for sample characteristics and see online supplemental table 3 for comparison of all parents (n=934) with parents with complete data (n=528)). Responding guardians were largely female (93.2%). Most parents report being college (37%) or university (49%) educated. Household income was distributed evenly across categories, with most parents reporting income of \$C40 000 to \$C149 000 (65%) and 17.7% reporting income less than \$C40 000. Ethnicity of the sample was identified as largely of European descent (78%), with 14% of respondents identifying as Indigenous and 8% as African, Latin American, Asian, Middle Eastern or other non-European descent. Parent anxiety measured by the GAD-2 showed a mean of 2.44 (SD 1.71) and 189 (36%) individuals reported a score of 3 or higher on the GAD-2. Parenting behaviour scores showed combined parenting had a mean of 2.61 (SD 0.94), lax parenting 2.64 (SD 1.24) and overreactive parenting 2.58 (SD 1.14). The mean child SDQ Total Difficulties Score was 11.84 (SD 6.83) including 181 (36.6%) children who scored 14 or higher. Combined financial worry of the parents/guardians during the pandemic had a mean of 6.88 (SD 3.5).

### Model selection

Online supplemental table 1 summarises the correlations between pre-pandemic and current financial worry, child behaviour, parenting behaviour, SES and guardian anxiety during the pandemic. Current financial



**Table 1** Cohort characteristics

Parent information	N (%)	Mean (SD)
Education	526	–
High school or Less	29 (6)	–
Some post-secondary	48 (9)	–
College	193 (37)	–
University	256 (49)	–
% Missing	0.4	–
Household Income	514	–
\$C0–39 999	91 (18)	–
\$C40 000–79 999	140 (27)	–
\$C80 000–1 49 999	196 (38)	–
\$C150 000+	87 (17)	–
% Missing	2.7	–
Ethnicity	468	–
Indigenous	66 (14)	–
Non-European	37 (8)	–
European	365 (78)	–
% Missing	11.4	–
Sex	526	–
Female	490 (93)	–
Male	36 (7)	–
% Missing	0.4	–
Parent anxiety (GAD-2)	528	2.44 (1.72)
Parenting behaviour		
Current behaviour		
Total parenting behaviour	488	2.61 (0.94)
Overreactive behaviour	493	2.58 (1.14)
Lax parenting behaviour	490	2.65 (1.23)
% Missing	7.6	–
Pre-pandemic behaviour		
Total parenting behaviour	208	2.44 (1.00)
Overreactive behaviour	210	2.35 (1.17)
Lax parenting behaviour	208	2.51 (1.31)
% Missing	60.60	–
Child Information		
Sex	528	–
% Female	47.7	–
Age	528	9.43 (4.40)
SDQ total	495	11.84 (6.83)

All measures are self-report or parent-report from the Cost of COVID study. Parent anxiety was measured using the Generalized Anxiety Disorder 2-item (GAD-2). Parenting behaviour was assessed using the Parenting Scale 8 (PS-8). SDQ, Strengths and Difficulties Questionnaire.

worry was significantly correlated with child SDQ scores ( $r=0.29$ ,  $p<0.001$ ), GAD-2 scores ( $r=0.34$ ,  $p<0.001$ ) and significantly inversely correlated with household income

( $r=-0.42$ ,  $p<0.001$ ) and education ( $r=-0.32$ ,  $p<0.001$ ). Pre-pandemic combined financial worry followed similar correlational trends as current combined financial worry.

### Financial worry and child strengths and difficulties scores

Current combined financial worry was significantly associated with SDQ total difficulties scores ( $\beta=0.23$ ,  $p=0.03$ ,  $SE=0.10$ ). Pre-pandemic financial worry was not significantly associated with SDQ total difficulties scores, and current financial worry was significantly associated with SDQ total difficulties scores independent of pre-pandemic financial worry (see Secondary analyses section). Based on this finding, our subsequent analyses focus on financial worry of caregivers during the COVID-19 pandemic (table 2).

### Parenting behaviour and child strengths and difficulties scores

To investigate the potential mediating role of parenting behaviour in the relationship between financial worry and child SDQ total difficulties, we first tested the association between parenting behaviour and child SDQ total difficulties scores (table 3). Combined 8-item parenting scores were significantly associated with SDQ total difficulties scores independent of covariates ( $\beta=2.15$ ,  $p<0.001$ ,  $SE=0.36$ ). For information regarding associations with parent overreactive and lax behaviour specific subscales, see Secondary analyses section.

### Financial worry and parenting behaviour

Next, we assessed the relationship between current financial worry and parenting behaviour (table 4). Current financial worry was significantly associated with combined 8-item parenting scores ( $\beta=0.04$ ,  $p=0.02$ ,  $SE=0.01$ ). Since financial worry was not significantly associated with overreactive or lax parenting behaviour specific 4-item subscales individually, mediation analysis was performed using the combined 8-item parenting behaviour variable only.

### Mediating role of parenting behaviour

Once the relationship between our variables of interest were described (figure 1), we proceeded with a test of causal mediation. Combined parenting behaviour was a significant partial mediator in the relationship between financial stress and child behaviour during the COVID-19 pandemic (total effect: estimate=0.69,  $p=0.02$ , 95% CI 0.09 to 1.41) (figure 1). There was evidence of average causal mediation effect (estimate=0.50,  $p=0.02$ , 95% CI 0.09 to 1.04). Notably, the average direct effect (ADE) of financial worry on child SDQ total difficulties is no longer significant (estimate=0.19,  $p=0.07$ , 95% CI -0.01 to 0.4), supporting the role of parenting behaviour as a mediator in this relationship.

### Secondary analyses

#### Financial worry and child strengths and difficulties scores

Pre-pandemic financial worry was not significantly associated with SDQ total difficulties scores, independent

**Table 2** Linear model of the association of current financial worry and child strengths and difficulties total score

A	Current financial worry (N=424)	Adj. R <sup>2</sup> =0.18		p<0.001	
	Coefficients:	Estimate	SE	p	
	Current financial worry	0.23	0.1	0.03	*
	Parent anxiety	0.88	0.19	<0.01	**
	Education	-1.28	0.42	<0.01	*
	Income	-0.59	0.38	0.12	
	Ethnicity	-0.53	0.44	0.22	
	Parent sex	2.32	1.2	0.05	
	Parent age	-0.13	0.4	0.74	
	Child sex	0.35	0.62	0.57	

Financial worry was assessed using a summation of three Likert scales regarding financial stress (see Methods section). Parent anxiety was measured using the Generalized Anxiety Disorder 2-item (GAD-2). All measures are self-report or parent-report. Significance is denoted with asterisk where \*p<0.05 and \*\*p<0.001.

of child sex, ethnicity, household income, parent education, parent age, parent sex and parent anxiety symptoms ( $\beta=0.10$ ,  $p=0.38$ ,  $SE=0.12$ ). Current financial worry was significantly associated with child SDQ total difficulties scores independent of pre-pandemic financial worry ( $\beta=0.27$ ,  $p=0.03$ ,  $SE=0.12$ ) (online supplemental table 4).

#### Parenting behaviour and child strengths and difficulties scores

Overreactive parenting behaviour was significantly associated with SDQ total difficulties scores ( $\beta=2.07$ ,  $p<0.001$ ,  $SE=0.27$ ). Lax parenting behaviour was not significantly associated with child SDQ total difficulties scores ( $\beta=0.54$ ,  $p=0.05$ ,  $SE=0.28$ ) (online supplemental table 5).

#### Financial worry and parenting behaviour

Current financial worry was not significantly associated with overreactive parenting behaviour (estimate=0.03,  $p=0.09$ ,  $SE=0.02$ ) or lax parenting behaviour subscales

(estimate=0.04,  $p=0.05$ ,  $SE=0.02$ ) (online supplemental table 6).

#### DISCUSSION

We found that during the COVID-19 pandemic, increased familial financial stress was significantly associated with an increase in child socioemotional and behavioural difficulties, after controlling for parent education, household income, parent age, parent sex, child sex, ethnicity and parental anxiety symptoms. Combined parenting behaviour, including measures of both lax and overreactive tendencies, significantly mediated the relationship between financial stress and child socioemotional and behavioural difficulties. These findings highlight the burden of financial stress on the family environment and suggest an important relationship between parents' perceived financial concern and their parenting behaviours, which in turn influence child well-being.

**Table 3** Parenting behaviour and child strengths and difficulties total score

A	Total parenting (N=395)	Adj. R <sup>2</sup> =0.24		p<0.001	
	Coefficients:	Estimate	SE	p	
	Total parenting	2.15	0.36	<0.01	**
	Parent anxiety	0.80	0.19	<0.01	**
	Education	-1.28	0.43	<0.01	*
	Income	-0.70	0.37	0.06	
	Ethnicity	-0.47	0.44	0.29	
	Parent sex	2.67	1.19	0.03	*
	Parent age	-0.43	0.40	0.29	
	Child sex	0.07	0.63	0.91	

A linear model describes the association between parenting behaviour and child Strengths and Difficulties Questionnaire (SDQ) total scores. Parenting behaviour was measured using the total scale of the Parenting Scale 8 tool (PS-8). Parent anxiety was measured using the Generalized Anxiety Disorder 2-item (GAD-2). All measures are self-report or parent-report. Significance is denoted with asterisk where \*p<0.05 and \*\*p<0.001.

**Table 4** Financial worry and parenting behaviour

A	Total parenting (N=417)		Adj. R <sup>2</sup> =0.06	p<0.001
	Coefficients:	Estimate	SE	p
	Current financial worry	0.04	0.01	0.02 *
	Parent anxiety	0.05	0.03	0.09
	Education	-0.12	0.06	0.06
	Income	-0.03	0.05	0.59
	Ethnicity	-0.04	0.06	0.50
	Parent sex	-0.09	0.17	0.59
	Parent age	0.22	0.08	0.01 *

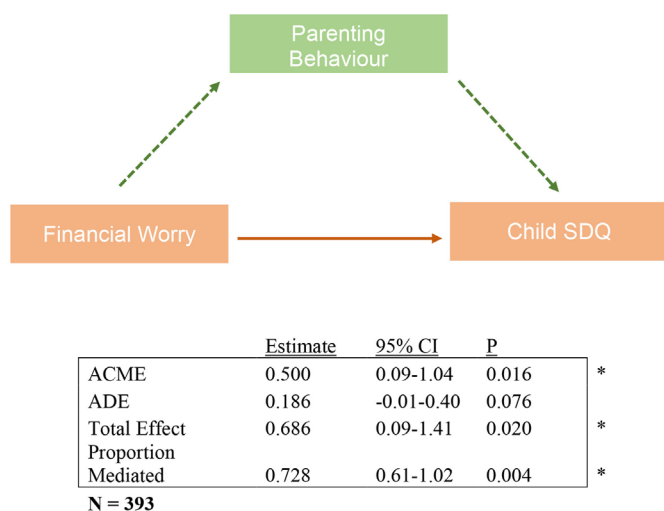
A linear model describes the association between financial worry and parenting behaviour. Parenting behaviour was measured using the Parenting Scale 8 tool (PS-8). Financial worry was assessed using a summation of three Likert scales regarding financial stress (see Methods section). Parent anxiety was measured using the Generalized Anxiety Disorder 2-item (GAD-2). All measures are self-report or parent-report. Significance is denoted with asterisks where \*p<0.05 and \*\*p<0.001.

Our findings are consistent with the FSM framework, which suggests that financial pressure leads to increased parental stress, resulting in parenting difficulties ultimately influencing child social, emotional and behavioural well-being.<sup>20</sup> Although there are many sources citing the impact of the COVID-19 pandemic on financial stress, parenting stress, parent health and child well-being, to date few studies have examined the interplay of these variables during this time as we have done. In Australia, overreactive parenting was associated with externalising problems in children, a relationship that was exacerbated in disadvantaged families.<sup>22</sup> Another study in Singapore illustrates a similar pattern in support of the FSM, showing that parenting stress significantly mediated the relationship between perceived impact of COVID-19 and overreactive parenting.<sup>31</sup> In the USA, increased familial financial stress was associated with increased parenting stress

and decreased adolescent well-being.<sup>23</sup> Our findings are consistent with current COVID-19 pandemic literature, adding a new discovery of the mediating role of parenting behaviour in this multifactorial relationship.

The data in this study were collected in a period where the incidence of COVID-19 infection in our community was very low, implying that our findings are largely reflective of the effects of COVID-19 public health measures on families in the area. This has important implications for informing potential resource allocation and interventional strategies to promote family, parent, and child health and well-being for ongoing and future public health involvements. This work illuminates how parental worry about providing food and shelter for one's family can negatively impact parenting behaviours and, in turn, child well-being. This study shows clear evidence in support of policy interventions, such as the Canadian Emergency Response Benefit, aimed to ameliorate parental financial stress during the COVID-19 pandemic. Looking forward to post-pandemic times, our study highlights the importance of policy-maker support for more resources and interventions aimed to lighten the financial burden on families who need it including, but not limited to, consideration of a universal basic income.

Our study had multiple strengths, including a large sample size and good distribution of responses across income and educational categories. Measures in our questionnaire were largely well-validated tools. Some limitations of our study should also be noted. The cross-sectional nature of our survey meant we could not examine trends. For practical reasons, our study was a convenience sample, reaching individuals accessible by our circles of researchers and ultimately cannot be deemed representative of the population. When compared with the Kingston, Ontario census data, the median after tax household income for families with children in 2020 was \$C112 000, which is similar to the more frequently reported income category in our sample. Our sample included a higher proportion of



**Figure 1** Mediation model. Parenting behaviour as a mediator of the relationship between financial worry and child SDQ. ACME, average causal mediation effect; ADE, average direct effect; SDQ, Strengths and Difficulties Questionnaire.

adults with post-secondary education (86%) compared with the local population of 68% of adults over age 25 years (68%).<sup>32</sup> We also were limited to parent report, which could lead to proxy bias in terms of child SDQ and parent behaviour reporting. This is an important consideration as parenting behaviour is central to our main findings; however, we were able to mitigate this limitation to the best of our ability by including a measure of parental well-being in our models. Furthermore, the parent-report SDQ questionnaire has been validated as a sound tool for the assessment of child difficulties in the general Canadian population.<sup>33</sup> The parenting behaviour measure focused on lax and over-reacting behaviours and did not encompass other types of potential parenting behaviours.

## CONCLUSIONS

Family financial worry was associated with poorer child social and emotional well-being and mediated by parenting behaviour. Our findings are consistent with the FSM framework and underscores the importance of health policy interventions that also aim at alleviating financial burdens for families.

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**Acknowledgements** We would like to extend our thanks to the participants of this study for making this work possible. We also would like to thank Mary Martin for assistance with data management.

**Contributors** All authors contributed to study conceptualisation and design, interpretation of results and manuscript preparation, and approved the final manuscript. EP and IB obtained funding for the study. EP, CMD, AW and IB supported participant recruitment. MGM completed the statistical analysis, under the supervision of IB. IB is study guarantor. She accepts full responsibility for the the study conduct and the work and controlled the decision to publish the manuscript.

**Funding** Funding for this project was provided by Queen's University and the PSI Foundation.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Ethics approval** This study involves human participants and was approved by the Queen's University Health Sciences and Affiliated Hospitals Research Ethics Board Ref. No. 6029458. Participants gave informed consent to participate in the study before taking part.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Data are available on reasonable request.

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