



Multilevel Impacts of the COVID-19 Pandemic: A Bioecological Systems Perspective of Parent and Child Experiences

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Abstract

Background The coronavirus (COVID-19) pandemic and associated public health restrictions created unprecedented challenges for parents and their young dependent children. While psycho-social impacts of natural disasters on families are well studied, a typography of parent specific concerns in the COVID-19 context was yet to be articulated.

Objective Using a bioecological systems framework, we adopted a mixed-methods research design to examine parents' core concerns about the impacts of the pandemic on themselves and their children, testing for differences in concern foci of mothers compared with fathers.

Method Data were drawn from the Australian Temperament Project Generation 3 (ATPG3) study, a prospective study of children born to a 40-year population-based cohort. During enforced COVID-19 lockdown restrictions between May to September 2020, ATPG3 parents ($n = 516$) were surveyed about their own and their children's functioning in the context of the pandemic. Subject of qualitative content analysis, parents ($n = 192$) experiencing wellbeing concerns offered additional free-text responses about the nature of stress impacting themselves and their child/ren.

Results Parents reported far-reaching impacts for themselves and their children across multiple bioecological systems. Core concerns were for emotional rather than physical health, specifically, for parents this was represented by increased levels of anxiety and stress, and for children, these impacts were notable from a developmental perspective. Greater frequency of parenting related concern was expressed by mothers in comparison to fathers.

Conclusions Findings demonstrate the complex and interrelated nature of multi-systemic and gendered stressors impacting parents during the pandemic, and importantly point to modifiable risk factors which may inform early risk detection efforts.

Keywords COVID-19 · Parenting · Family stress · Bioecological systems theory · Emotional wellbeing

Introduction

The coronavirus (COVID-19) pandemic brought about a novel stress context for individuals, families, and communities around the world, resulting in unique and unprecedented disruption to family life. Globally, public health restrictions in response to the outbreak led to the closure of schools, workplaces, and various ‘non-essential’ businesses, confining families to their homes with strict limitations dictating reasons to leave.

Following Australia’s first confirmed case of COVID-19 in January 2020, extensive Government regulated lockdown measures were enforced at intermittent periods throughout 2020 and 2021 (Australian Institute of Health & Welfare, 2021). Although effective in controlling the spread of the virus, restrictions concurrently caused considerable challenges to the mental and physical health of parents and their young children, with research demonstrating links to a range of negative outcomes, including increased loneliness, anxiety, depression, and insomnia (Gayatri & Irawaty, 2022; Irwin et al., 2022; Patrick et al., 2020).

Through sudden and profound disruption to daily living and stability, in the presence of an unprecedented threat, individuals experienced a diminished sense of control as physical connections to family, work, and the community were lost. The impact of these abrupt changes can be understood through the lens of ambiguous loss theory (Pauline & Boss, 2009). Ambiguous loss occurs when a situation is experienced without definition or closure, resulting in a sense of helplessness and uncertainty (Pauline & Boss, 2009). These experiences are particularly important to understand in the case of young children, who thrive in stable and nurturing environments (Merrick et al., 2020).

A recent meta-analysis of 25 longitudinal studies suggests lockdowns did not uniformly impact the mental health of adults and that many people showed psychological resilience in the face of this significant stress (Prati & Mancini, 2021). However, research specifically focused on parents offers a less homogenous view. Prior thematic analysis indicates predominant parental focus on the negative impact of restrictions on mental health and the quality of family relationships (Evans et al., 2020). A study of over 2000 Australian parents demonstrated considerable decline in subjective wellbeing following the onset of the pandemic compared to pre-pandemic estimates (Westrupp et al., 2023). Identified sources of pressure conferred by pandemic restrictions related to both acute and ongoing uncertainty, in particular, resource-related employment stress and financial insecurity, and stress related to separation from usual social supports (Westrupp et al., 2021, 2023).

Theoretical Gaps and Opportunities

Collectively these findings support a cumulative perspective whereby risk factors in the face of challenge pose additive risks for worsened mental health outcomes (Evans et al., 2013). This is consistent with a bioecological typography of inter-dependent stress, which to date has not been well articulated in the COVID-19 parenting context. This paper sought to address that gap, considering impact for families from a bioecological systems perspective (Bronfenbrenner, 1975, 1979; Bronfenbrenner & Morris, 2006; Rosa & Tudge, 2013), to refine knowledge of differential stressors and contexts in which the same adversity can become consequential for some, and not for others (Masten, 2021; Myer & Moore, 2006; Weems & Overstreet, 2008).

Bronfenbrenner’s bioecological systems theory conceptualises human development in the context of multiple interacting ‘ecologies’ in which an individual is enmeshed

(Garbarino, 2017; Swick & Williams, 2006). Recent iterations of the theory support a *process-person-context-time* (PPCT) model for research (Rosa & Tudge, 2013; Tudge et al., 2016). Below we discuss each component of the PPCT model and later in the Methods section articulate how this framework was embedded in the analytic strategy.

Process defines the interactions an individual has with their environment (both people and objects) over time and subsequently how a person comes to make sense of the world and understand their place in it (Tudge et al., 2009). Pandemic-related restrictions are likely to have created significant disruption to these processes, compromising the nature, quality, and quantity of interactions experienced by both parents and children.

Person defines the demand, resource, and force characteristics of the individual (Tudge et al., 2009), and includes observable features such as parent gender. The influence of gender on process interactions is of particular relevance to the COVID-19 context given caregiver responsibilities for mothers and fathers tend to be amplified during the pandemic, with disproportionate burden experienced by women (Johnston et al., 2020; O’Sullivan et al., 2022). Further, while both mothers and fathers experienced an increase in domestic obligations during COVID-19 lockdowns, research indicates parents’ dissatisfaction with the balance of paid and unpaid work rose significantly more and from a much higher base for women (Craig & Churchill, 2021).

The *context* component of the model accounts for influences on an individual emanating from five separate systems; the ‘microsystem’ of the individual’s immediate environment; the ‘mesosystem’ or interconnections between elements in the microsystem; the ‘exosystem’ comprising both formal and informal structures that indirectly influence the individual via the microsystem; the ‘macrosystem’ of overarching beliefs and values of the culture/s and society in which the individual exists; and the ‘chronosystem’ representing environmental challenge and change (Bronfenbrenner & Morris, 2006; Rosa & Tudge, 2013).

Finally, the *time* element of the model refers to changes occurring over time through the life course. Given the cross-sectional nature of the present study, change is not captured over time and a test of this component of the model is beyond the scope of this paper. The lived experience of the passage of time during lockdowns however seems central to an evolving understanding of pandemic-related stress.

Study Objectives

Informed by this bioecological framework, we devised qualitative and quantitative methods to (i) explicate common sources of embedded stress for parents and children, and (ii) explore differences in the lived experience of stress experienced by mothers and fathers of young children.

Method

Participants and Recruitment

Participants were recruited from the Australian Temperament Project (ATP), a prospective cohort study tracking social and emotional development across the life course. The ATP, established in 1983, began as a representative sample of 2443 infants and their families recruited from maternal and child health centres within the state of Victoria, Australia. Since its conception, Generation 1 (G1; grandparents) and their Generation 2 (G2)

offspring (parents) have been followed for 40 years, with 15 waves of preconception survey data collection on temperament, internalising symptoms, externalising behaviours, and various measures of positive youth development. The original sample was socio-demographically representative of the state of Victoria. Further details pertaining to sample characteristics and the ATP study procedures are available elsewhere (Vassallo & Sanson, 2013).

The Generation 3 (G3) Study began in 2012, recruiting existing ATPG2 participants and their infants. Participants (aged 29–35 years) were contacted via email or phone every six months in order to identify new offspring, forming the ATPG3 cohort. Assessments were conducted in the third trimester of pregnancy and at 2 months and 1 year postpartum, yielding a sample of 1167 G3 offspring born to 703 G2 parents. The present study makes use of a particular subset of G2-G3 dyads, further detailed below.

Data Collection and Survey

In 2020 (May to September) an adaptation of the Coronavirus Health Impact Survey (CRISIS; Nikolaidis et al., 2021) was disseminated online to all parents in the ATPG3 cohort. This COVID-19 survey aimed to examine the impact of the pandemic on families with a specific focus on parent and child wellbeing and was completed by 516 G2 parents in total. The parent wellbeing section on the full survey comprises 8 parent-reported items rated on a 5-point Likert scale, examining the extent to which parents experienced specific mood states over the preceding 2 weeks. Together, these items provide an independent measure of parent emotional distress during the pandemic which was used to assess viability of the current study, further detailed below.

At the end of the survey parents were asked two optional free-text questions: (i) “Please describe anything else that concerns you about the impact of the outbreak on you or your ATPG3 child” and, (ii) “Please provide any comments about this survey and/or related topics here”. Parents providing free-text responses to these questions were eligible for inclusion in the current study. Responses with insufficient depth for analysis (e.g., “N/A”) and those explicitly unrelated to the pandemic (e.g., survey feedback) were excluded and the final sample comprised 192 G2 parents. Key sociodemographic and contextual variables from the full COVID-19 survey were extracted for the analytic sample.

Sample Demographics

Sample demographics are displayed in Table 1. The sample was predominantly female, with 135 mothers and 57 fathers. Most participants were living in the state of Victoria (83.9%) at the time of survey completion. COVID-19-related lockdown restrictions were imposed to different extents throughout various states, with the strictest measures felt by those living in Victoria, and more specifically in its capital city, Melbourne during the full extent of the data collection period (May–September 2020). This is important to note in the context of our study, given the sample predominantly comprised Victorians.

No participant reported a positive COVID-19 diagnosis during the study period. Two participants reported having family members (living in a different household) with positive diagnoses. One participant reported the death of a relative due to COVID-19. Table 2 details additional COVID-19 related risk and stress in the current sample. Approximately 70% of the sample expressed some level of concern for exposure to the virus. One quarter

Table 1 Sample characteristics
(*N* = 192 parents)

	<i>N</i>	%
<i>Parent characteristics</i>		
Parent gender		
Male	57	29.7
Female	135	70.3
State of residence		
Victoria	161	83.9
New South Wales	8	4.2
Queensland	8	4.2
South Australia; Western Australia; Tasmania; Northern Territory	9	4.7
Marital status		
Not married	31	16.1
Married	112	58.3
Level of education		
Secondary schooling incomplete	7	3.6
Completion of secondary schooling or higher	173	90.1
Employment status		
Not in paid employment	34	17.7
In paid employment	140	72.9
Number of children		
1	82	42.7
2	77	40.1
3	27	14.1
4	4	2.1
<i>Child characteristics</i>		
Child gender		
Male	148	44.4
Female	185	55.6
Child education/care		
Attending creche or day-care	70	21.0
Attending kinder/pre-school/ELC	72	21.6
Attending school/primary school	157	47.1
Not attending care/education	34	10.2

Parent *N* = 192; Child *n* = 333; percentages that do not equal 100% indicate missing data

of respondents experienced a reduced ability to earn money due to COVID-19 and a small portion (5%) had lost their job.

Data Analysis

Responses to free-text questions were aggregated for each parent where applicable. Following aggregation of responses, average length of parent response was 48 words

Table 2 COVID-19 related risk and stress in the current sample

	<i>N</i>	%
COVID-19 infection concern		
Not at all	57	29.5
Slightly/moderately	116	60.4
Very/extremely	18	9.4
Recent financial strain		
Living comfortably	88	45.8
Doing alright	78	40.6
Just getting by/finding it quite difficult/finding it very difficult	25	13.0
Recent housing concern		
Not at all	154	80.2
Slightly/moderately	35	18.2
Very/extremely	2	1.0
Recent COVID-19 related hardship		
Put into self-quarantine with or without symptoms (e.g., due to possible exposure)	23	12.0
Reduced ability to earn money	46	24.8
Lost job	9	4.7

N = 192; percentages that do not equal 100% indicate missing data

(range = [1, 419]). Of 192 ATPG2 parents, 86.98% ($n = 167$) reported a concern for themselves and/or their ATPG3 child. The remaining 25 parents detailed reasons why they were not concerned and/or what perceived benefit the pandemic and associated restrictions were having for themselves and/or their child/ren.

Representativeness of the sample responding to the qualitative question/s relative to non-respondents was assessed via three demographic items: financial circumstances, employment status, and marital status. In order to check the respondent group had experienced the condition in question, namely parent stress during the pandemic restrictions, the parent wellbeing scale of the full COVID-19 survey (i.e., parent emotional distress) was also analysed.

Analytic Approach

Mixed methods were utilised to conduct the exploration of pandemic-related lived experiences of concern for parents (qualitative enquiry), as a function of gender (quantitative enquiry). Given the anticipated diversity and complexity of parent experiences, and our primary focus on explication within a bioecological systems framework, we used directed qualitative content analysis to analyse parent's free-text responses. Directed content analysis is particularly well indicated for studies validating, refining, or extending an existing theory or theoretical framework in a new context (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005).

Qualitative analysis was carried out across three phases; (i) preparation of the data, (ii) organisation of the extraction framework and coding, and (iii) reporting of results (Elo & Kyngäs, 2008). Following data immersion, an independent researcher (FP) extracted the core concerns reported in parents' free-text responses. New categories of

extraction were obtained in an inductive manner as they emerged from the dataset until data saturation was achieved (Kyngäs et al., 2020). Each category was treated as a separate meaning unit and these were subsequently sorted and grouped under the relevant system of the *context* component of the bioecological model (i.e., individual, microsystem, mesosystem, exosystem, macrosystem, chronosystem). This process led to the development of the data extraction framework (Elo & Kyngäs, 2008). The framework was designed so that categories of concern could be explicated for both the parent and child separately, within each system. Pilot testing of data extraction was carried out by multiple researchers (FP, JM), leading to the refinement of coding categories via extensive discussion. Following finalisation of the extraction framework, parent responses were binary-coded, resulting in frequencies at both the domain and system level for both parents and children. Frequencies were further disaggregated by parent gender. Finally, in testing the *person* component of the bioecological model, chi-square analyses were conducted to examine gender level differences in parent report of concern across each of the explicated ecological domains. Quantitative analyses were performed using SPSS Version 20.0.

Validity and Reliability

The entire data set was coded by a single researcher (FP) with constant self-scrutiny and careful reflection on each category of extraction throughout the development and coding phases. The data extraction and coding processes were documented in detail including in-depth descriptions of each category in the data extraction framework and supporting exemplar quotes from parent responses (see Supplementary File 1). This process ensures the transferability and dependability of the research and facilitates objective evaluation of the trustworthiness of analysis (Graneheim & Lundman, 2004; Nowell et al., 2017). Inter-coder reliability was carried out for 10% of all cases (19 parent responses) with an a priori acceptable level of agreement between coders set at 80% (Miles, 1994). These responses were extracted at random and blind coded by a second researcher (JM). Inter-rater coding achieved 98.3% agreement between researchers. Points of disagreement were situated within the microsystem of the parent, specifically within the parent–child relationship stress and the interparental stress domains. Discrepancies led to discussion and re-defining of coding criteria within each of these domains and subsequently the entire data set was recoded for consistency. This process contributed to ensuring the credibility of findings and interpretations and trustworthiness of the current inquiry (Nowell et al., 2017).

Researcher Description

Two authors were directly involved in the analysis of qualitative data for the current study (FP, JM). Both were Australian and identified as female. At the time of analysis, the primary author (FP) was a Ph.D. candidate with research experience in developmental psychology and the senior author (JM), a Professor of Family Therapy and Systemic Research. FP and JM had expertise in the application of qualitative research methods. Regarding reflexivity, both researchers involved in data analysis experienced the strict lockdown measures implemented in the state of Victoria, Australia, and JM was

a parent. Given these subjective experiences have the potential to influence analyses, the process of bracketing (Tufford & Newman, 2010) was employed. Researchers consciously and consistently ensured they remained cognisant of their personal influences throughout the analytic process.

Results

Sample Representativeness and Study Viability

Respondents to qualitative free-text questions on the COVID-19 survey were representative of the non-responding group on key demographic variables analysed: financial circumstances ($p=0.510$), employment status ($p=0.588$) and marital status ($p=0.734$). Comparison of respondents and non-respondents on the parent-reported parent well-being scale of the full survey revealed a significant difference in emotional distress of parents, with those in the qualitative subsample reporting greater emotional distress on average ($p=0.005$). Findings confirmed experience of the examined condition and credibility of reporting by the respondent group and suggest that the open-ended responses may have given a useful forum for elaboration on the standard survey questions.

Qualitative Findings

Thirteen identical domains of concern were identified for both parent concern for themselves and concern for their children, and two additional domains were added relevant to the parent only (financial/unemployment related stress and occupational stress). Each domain was grouped under the relevant contextual system of Bronfenbrenner's bioecological model (Bronfenbrenner & Morris, 2006). For child related concerns, the exosystem was omitted given no reports in this range of concern.

Table 3 displays the frequency and percentage of concerns nominated at both the domain and system level within each system. We discuss each domain below in turn, organised under each contextual level. Illustrative quotes from parent's free-text survey responses are included in-text to support the presentation of results, followed by the reporting parent gender, state of residence (VIC = Victoria, NSW = New South Wales, QLD = Queensland, NT = Northern Territory), and number of children. While examples are presented under the dominant domain, several statements fit under multiple domains, reflecting the interrelated nature of codes. Graphical representation of concern foci are presented in Supplementary File 2, demonstrating the spread of concerns across each of the relevant ecological domains.

Parent Concerns for Self

Level: Individual (Biosystem)

Physical Health At the individual level, concern for impacts to parental physical health were shared in 12.5% of responses, characterised by fear of exposure to and spread of the virus. This was most commonly reported in the context of parent anxiety associated with

Table 3 Locus of parent-reported concerns and significant chi-square comparisons

System/Domain	Parent				Child					
	Maternal report		Paternal report		Maternal report		Paternal report		Total	
	n = 135	%	n = 57	%	n = 135	%	n = 57	%	N = 192	%
Individual	82	60.7	26	45.6	92	68.1	31	54.4	123	64.1
Physical health	19	14.1	5	8.8	19	14.1	8	14.0	27	14.1
Emotional well-being	81	60.0*	25	43.9*	85	63.0	30	52.6	115	59.9
Pre-existing vulnerability	6	4.4	3	5.3	12	8.9	3	5.3	15	7.8
Microsystem	63	46.7	18	31.6	43	35.9*	9	15.8*	52	27.1
Parent-child relationship	18	13.3	3	5.3	16	11.9	4	7.0	20	10.4
Interparental relationship	16	11.9	10	17.5	5	3.7	0	0.0	5	2.6
Caregiving stress	47	34.8*	11	19.3*	28	20.7**	2	3.5**	30	15.6
Wider family system	16	11.9	6	10.5	18	13.3	6	10.5	24	12.5
Mesosystem	41	30.4	10	17.5	67	49.6	25	43.9	92	47.9
Home (schooling)	20	14.8	3	5.3	35	25.9	11	19.3	46	24.0
Social support	11	8.1	6	10.5	42	31.1	20	35.1	62	32.3
Structure/routine	28	20.7	6	10.5	54	40.0	20	35.1	74	38.5
Occupational	22	16.3	5	8.8	-	-	-	-	-	-
Exosystem	15	11.1	6	10.5	-	-	-	-	-	-
Financial/unemployment	15	11.1	6	10.5	-	-	-	-	-	-
Macrosystem	29	21.5	12	21.1	22	16.3	9	15.8	31	16.1
Policy (government)	29	21.5	12	21.1	22	16.3	9	15.8	31	16.1

Table 3 (continued)

System/Domain	Parent			Child		
	Maternal report	Paternal report	Total	Maternal report	Paternal report	Total
	<i>n</i> = 135 %	<i>n</i> = 57 %	<i>N</i> = 192 %	<i>n</i> = 135 %	<i>n</i> = 57 %	<i>N</i> = 192 %
Chronosystem	29 21.5	14 24.6	43 22.4	26 19.3	11 19.3	37 27.4
Existential/soci-etal	16 11.9	7 12.3	23 12.0	14 10.4	7 12.3	21 10.9
Major life transitions	13 9.6	8 14.0	21 10.9	14 10.4	5 8.8	19 9.9

Exact *p*-values are reflected in text

**p* < 0.05

***p* < 0.01

passing on sickness to their families: *“I am a nurse, so there is always the risk and fear I may bring COVID into the home”* (Mother, VIC, 1). Parents also reported impacts on physical wellbeing through loss of fitness and sleep, as well as related concerns associated with physical fatigue experienced as a direct result of pandemic-related lockdown measures: *“Working from home full time with children was intense and exhausting”* (Mother, QLD, 2).

Emotional Wellbeing Over half the sample (55.2%) expressed concern for the impact of the pandemic on their emotional wellbeing. This was closely linked to increased levels of anxiety and stress: *“To be honest, for most of April I was really struggling mentally. I felt really stressed and anxious...”* (Mother, VIC, 1), and a sense of helplessness: *“I ended up going going [sic] into this state of survival mode where my brain wouldn’t slow down or shut off. I was unable to focus on my studies and was not sleeping...”* (Mother, VIC, 1). Parent’s responses also commonly reflected their experience of mental *“ups and downs”* (Mother, VIC, 1).

Pre-existing Vulnerability Less frequently, parents (4.7%) reported on the significance of pre-existing vulnerability in their concerns. This was conceptualised both physically and psychologically. Concerns for physical vulnerability were directly related to the virus itself and the subsequent health complications that may occur if the virus were to be contracted. For example, one parent emphasised the anxieties surrounding the *“impending birth of our third child”* noting, *“I do not want myself to contract this virus whilst pregnant”* (Mother, VIC, 2). Similarly, another reported: *“My wife is...pregnant with our 3rd child so we are concerned to ensure she doesn’t get it”* (Father, QLD, 2).

Psychological vulnerability was represented in the context of increased mental health symptomatology as a direct result of the pandemic: *“Due to my previous mental health problems, the impact of COVID-19 has resulted in these becoming more prevalent”* (Mother, VIC, 1). In the same manner: *“How I have been feeling was made worse by the outbreak as because I couldn’t go out of the house with my boys, I didn’t have my stress outlet”* (Mother, VIC, 2).

Level: Microsystem

Interparental Relationship At the microsystem level, relational stress between parents was reported in 13.5% of responses. Some recognised the struggle experienced by their partners and expressed a level of concern associated with this: *“My wife has found it hard isolating at home by herself while I’ve been working”* (Father, VIC, 1). In direct contrast, others experienced added pressure within the parent–parent relationship and reflected negatively on feelings toward their partner: *“I resented my husband as he was still able to work uninterrupted whilst I had to work after hours once the kids slept and was staying up really late and waking up early to fit work in”* (Mother, VIC, 1).

Parent–Child Relationship Parent stress grounded in the parent–child relationship was coded in 10.9% of responses, specifically negative disruption through the quantity and consistency of time spent together, which both increased and decreased with changes to lockdown policies throughout the data collection period. For example: *“The biggest stressor is not Covid 19 but the homeschooling/working/caring. I am currently mum, teacher and friend to a grade prep, 2 and 3 whilst having a 2.5yo helper”* (Mother, VIC, 4), while in contrast: *“We feel disconnected now by not being able to drop even kindergarten kids off in*

classrooms, it will be sad to be so much less involved all of a sudden when we have been so involved in their learning..." (Mother, VIC, 4).

Caregiving Concern related to caregiving responsibilities was the most common microsystem stressor, expressed in 30.2% of parent responses. Parents noted difficulty in managing increased and altered caregiving responsibilities: *"While I know a lot of people would have had much quality time with their kids over this period, I don't feel this at all. I wish I could have given more to my kids over this period"* (Mother, VIC, 3), as well as the exacerbated stress associated with protecting the health and safety of their children in the COVID-19 context: *"Increased anxiety for me; as a parent trying to protect my children & do the right thing by them"* (Mother, VIC, 2).

Despite both parents spending more time at home as a result of pandemic-related restrictions, some mothers reported a greater sense of obligation related to additional domestic duties and home-schooling, highlighting the unequal division of labour experienced by mothers compared to fathers: *"I was struggling with the fact that both my husband and I were working from home, but I was the one who felt responsible for the children"* (Mother, VIC, 1).

Wider Family Stress Extending concern beyond the immediate family, 11.5% of parents reported stress within the wider family system. For some, this was as a direct result of concern for the health and wellbeing of relatives: *"We are concerned to ensure our parents don't get it given their age / health"* (Father, QLD, 2). In a different manner, others expressed concern for the psychological, relational, and long-term implications of extensive physical separation from family due to lockdown restrictions: *"The limitations on interactions especially with family and the potential loss of close connections with direct family members and what the long-term implications of this level of separation might be"* (Mother, VIC, 1).

Level: Mesosystem

Home (Schooling) Concern focused on the home-schooling environment was present in 12.0% of responses. Parents reported a sense of overwhelming demand on them, engendered by expectations of home teaching transferred to them with the closure of schools and day-care centres: *"homeschool was very difficult to do. And made 'working from home' impossible, without having to make up 'lost hours' after school hours"* (Father, VIC, 2). Parents also commonly reported on the logistical concerns experienced in this context: *"This was a very stressful time for us and we had to spend considerable time finding a new childcare centre which took away time from our paid employment and took up our leisure time"* (Mother, VIC, 1).

Social Support A lower frequency concern was parents' lack of support from friends, family, and the community more broadly (8.9%): *"inability to have help from family were extremely draining and fatiguing over isolation time"* (Mother, VIC, 4), with a common emphasis on loss of connection to others. Highlighted here was the importance of physicality and the direct impact of this on various aspects of coping, such as parenting capacity: *"I felt really stressed and anxious mostly from trying to juggle work and looking after a 3-year-old and an 8-month-old with nowhere to go and no one to visit or help me (apart from*

my husband)” (Mother, VIC, 2), and bereavement processes: “*Limits on funerals. Limits to elderly [sic] getting visitors while they are dying*” (Father, QLD, 1).

Structure/Routine Difficulties associated with disruption to regular routine and daily living for parents were present in 17.7% of responses, with specific focus on loss of stability in work and home life. This source of disruption, accompanied by an inability to juggle multiple demands in the context of rapid changes, significantly impeded parents’ capacity to cope: “*It has been extremely difficult with both my husband and I working from home full time whilst trying to home school 3 children. Grade 1, grade 4 and grade 6*” (Mother, VIC, 3). As one respondent noted, there were “*physically not enough hours in the day*” (Father, VIC, 2) to fulfill these multiple role expectations.

Occupational Stress Parent stress as a result of employment related concern was present in 14.1% of responses, specifically disruption to working arrangements, and difficulties in managing workload in the context of multiple competing demands: “*My confidence at work has plummeted over the last few weeks as I don’t believe I have operated to the high standards that I expect of myself*” (Mother, VIC, 3).

Level: Exosystem

Financial/Unemployment Stress Approximately one in ten parents reported on stress related to financial instability, in the context of both immediate and long-term sequelae. For some, stress originated from the immediate impact of salary diminution: “*We are at a 40% pay cut, financially covid19 is effecting is greatly*” (Mother, VIC, 3), and loss of employment: “*My partner being able to work again so we can take certain bills off hold*” (Father, VIC, 1). For others, the long-term uncertainty surrounding job security and financial implications exacerbated stress: “*I am concerned about the long-term job prospects for my husband and how that will affect our life*” (Mother, VIC, 2). For several parents, the transition to unemployment was also significant here: “*I will be losing my job in six weeks so that is an added pressure for me to find another job*” (Mother, VIC, 3).

Level: Macrosystem

Government/Policy Common to responses within the macrosystem was concern related to government policy, with 21.4% of parents attributing some or all of the stress expressed in their response to restrictions enforced as a direct result of the outbreak: “*I’m concerned about extreme financial difficulties if the government doesn’t decide soon to let us go back to work*” (Father, VIC, 2). Additionally, parents reflected on the flow-on effect of policy changes across varying aspects of daily living (i.e., implications for work, school, travel, uncertainty of future restrictions): “*Not being able to select a school for next year as yet, as all our school tours were cancelled*” (Mother, VIC, 1).

Level: Chronosystem

Existential Stress Twelve percent of parents expressed stress of an existential nature, characterised by uncertainty surrounding meaning, choice, freedom in life, and the future. For example, one parent shared anticipated stress flowing into the future via: “*The memories*

of masks/gloves etc. and people avoiding each other on walks” (Father, VIC, 1). From this perspective, parents also expressed worry about ongoing impacts to community functioning: “If this will ever end fully or will social distancing be the new normal” (Father, VIC, 2).

Major Life Transitions Stress relating to a major life transition was present in 10.9% of parent responses. Common transitions imbued with new layers of stress through the pandemic included death: “We had a family member pass away during the pandemic and the restrictions impacted on how we were able to grieve and support family members” (Mother, VIC, 3), and pregnancy and new births: “I had my second child [date] during the covid-19 pandemic which in the lead up to the birth was one of the most anxious and frightening times of my life” (Mother, VIC, 2).

Parent Concerns for their Child/ren

Level: Individual (Biosystem)

Physical Health Physical health related concerns for child/ren were present in 14.1% of parent responses. Similar to concern for themselves within this domain, this was defined by virus exposure and the direct physical health implications occurring as a result of the pandemic. For example, loss of fitness: “They have had reduced exercise as not able to attend swimming lessons” (Mother, QLD, 2), lack of sleep: “My youngest son being 7 years of age has struggled a lot with the issues surrounding with COVID. He is now not sleeping well, unfocused at school, is easily angered.” (Mother, VIC, 2), and sickness: “My four-year-old really doesn’t understand the virus at all but was still a bit worried at times. She was worried her kindy might now have the “virus” because she accidentally forgot to cough into her elbow” (Father, QLD, 2).

Emotional/Developmental Wellbeing The majority of responses (59.9%) conveyed strong concern for children’s mental and developmental health. This included struggle related to social wellbeing: “My 8-year-old girl in particular has struggled without her friends. Her 2 brothers are quite happy playing together all day!” (Mother, VIC, 3), emotional wellbeing: “my eldest son is already having issues with separation anxiety and being overly sensitive/anxious, so not being able to go out or meet up with others made things a little bit worse” (Mother, VIC, 2), and behavioural wellbeing: “She began throwing many tantrums and lots of attention seeking behaviour, which is very unlike her” (Mother, VIC, 1). For many, these concerns were amplified by the combined impacts of home-schooling, playground closures, cancelled events and the cessation of extra-curricular activities (e.g., sport, music, dance).

Concern for developmental implications were noted in the context of both regression and delay, with a specific focus on children missing critical developmental opportunities at vulnerable periods, and the subsequent impacts of this on school readiness and foundational learning. Commonly highlighted here, was the age of children, emphasising the significance of differential vulnerability as a function of age. For example: “[I am worried about my child’s] readiness to start school in 18 months due to 3 months out of kinder” (Mother, VIC, 3); “Warnings against physical and close contact may have long lasting effects on my youngest child at age 3.5 years” (Father, VIC, 2); “I am concerned about my 6-year old’s social development in this first year of school” (Mother, VIC, 2).

Pre-existing Vulnerability Negative impacts attributed to children’s pre-existing challenges were reported in 7.8% of responses, characterised by medical diagnoses, recent loss, and trauma. This involved physical vulnerabilities: “[Child] has difficulty breathing when unwell. I am very concerned taking her back to ELC” (Mother, VIC, 2), psychological vulnerabilities: “My oldest child suffers with Generalised Anxiety Disorder and we are concerned with how she will respond when it is time to go back to school and dancing etc.” (Mother, VIC, 2), and developmental vulnerabilities: “Restarting kinder and face to face activities are my main concern as both [Child1] and [Child2] have Autism so it will be challenging. I think they have somewhat enjoyed the bubble” (Mother, VIC, 2).

Events such as the expected death of loved ones created new complexity even in naturally occurring losses: “He is also quite worried about death (his grandfather died slightly more than a year ago, so the virus has just increased the amount of questions)” (Mother, NSW, 1).

Level: Microsystem

Parent–Child Relationship Parent–child relationship stress pertaining to the child was reported in 10.9% of parents’ responses, attributed variously to changes in the relational dynamic and available presence of their parent: “he...seems quite happy to be home spending a lot more time with both parents. Now the concern is about taking that away as restrictions ease” (Father, VIC,2); “[Child] has been very lonely and left to entertain herself...I think she’s been most effected by change in routine, lack of attention by us” (Mother, VIC, 3); “Slightly concerned that my eldest child is becoming a bit more clingy and anxious. She wants me around all the time” (Mother, VIC, 2).

Interparental Relationship Less common within the microsystem for the child was stress associated with the parent–parent relationship (2.6%). Here, parents acknowledged the flow-on negative impacts of interparental stress for their child/ren: “Also the impact of our increased stress as parents and what fallout this may have for our children” (Mother, VIC, 1).

Caregiving Concern for the child within the caregiving domain emerged in 15.6% of responses. Explicitly and implicitly reported, parents shared concern for the impacts of disruption to their capacity to respond to the needs of their child/ren. In the context of parents’ multiple novel role expectations, there was an emphasis on decrease in parental presence and involvement in children’s day to day lives. For example: “Took a little while for younger child to adjust to having older sister home and mum spending a lot of time with her and her schooling instead of playing with him” (Mother, VIC, 2). Similarly: “Home-schooling [Child1] whilst the other parent works, means that [Child2] is missing out on a lot of our time and attention” (Mother, VIC, 2).

Wider Family Stress Parent report of wider family stress for the child was noted in 12.5% of responses, defined in the context of extensive separation from elder kin and relatives outside the immediate family: “After taking her out of daycare and isolating from grandparents she went downhill emotionally, getting very sad” (Father, VIC, 1). In some cases, stress was compounded by children’s inability to fully comprehend why this level of separation was being enforced: “I have seen the impact on the changes in regards

to my 18 month old's relationship with his grandparents. I think he has been confused and upset by only seeing them at a distance" (Mother, VIC, 2).

Level: Mesosystem

Home (Schooling) At the mesosystem level, one in four parents reported on home-schooling related concerns relevant to the child. This was defined by any stress explicitly attributed to changes in the schooling/day-care environment. For many parents, concern pertained specifically to the educational and developmental impacts experienced by children as a direct result of missing school: "*They miss the social and stimulation aspects*" (Mother, VIC, 4). In this context, some parents also noted the potential difficulties their child may face when returning to school: "*My concern is [Child] being home-schooled has made him less anxious in himself, so we will have a hard time getting him back to school next week. Although we have trouble getting him to actually do any work at home*" (Mother, VIC, 1).

Social Support One in three parents noted concern for children's social support, characterised in the context of restrictions by loss or lack of support and connection with friends and within the neighbourhood or community (i.e., school, kinder): "*[Child] is an only child 6 years extremely social and currently has no contact with children which is a negative*" (Mother, VIC, 1). Similar to separation from the wider family system, stress for the child was exacerbated in the context of an inability to fully understand why they were unable to see friends: "*My 3 year old has struggled the most with ...Missing her ... friends and not really being about [sic] to fully understand why she has to stay away*" (Mother, VIC, 3).

Structure/Routine Concern for the impact of disruption to child routine and the structure of daily living was reported in 38.5% of parent responses. Parents reflected on impact broadly: "*Loss of structure in activities will set her development back as she is a very routine based child*" (Father, VIC, 1), as well as more specifically, with attributed concern to various changes including, schooling disruptions: "*The outbreak and closure of schools has put her even further behind than she already was. Taking an autistic child out of their routine and [sic] lead to so many issues*" (Mother, VIC, 1), and the loss of extra-curricular activities: "*For [Child]—missing out on extra curricular activities such as sport and parties etc.*" (Father, NSW, 2).

Level: Macrosystem

Government/Policy At the macrosystem level, policy related concern pertaining to the child was expressed in 16.1% of parent responses. Parents expressed concern in the context of restrictions being both enforced and relaxed. For example, some parents reported concern for the negative impacts on their children as a direct result of government restrictions being imposed: "*Stupid government interventions ruining their future*" (Father, VIC, 1). While others reported on concerns for their children in relation to the easing of restrictions: "*It's been quite a few weeks kids have been home and have a sense of safety with their parents, it will take some time to readjust returning to school*" (Father, VIC, 2).

Level: Chronosystem

Existential Stress At the chronosystem level, 10.9% of parents reported on existential stress for the child. Concerns were closely linked with children's current and future uncertainty: *"The impact it has on my children's learning and how or if it will impact on them later in life"* (Father, VIC, 2), their difficulty in processing COVID-19 related circumstances: *"My child's inability (due to age) to be able to fully process what is happening and the associated changes"* (Mother, VIC, 1), as well as specific long-term implications: *"We wonder what impact this will have on kids reconnecting with families after a long period of not being able to see / cuddle family and how this will return to normal"* (Mother, VIC, 4).

Major Life Transitions One in ten parents denoted concern specifically relating to a transitional event or period for the child. Most commonly reported was the impact on school related transitions (e.g., kinder to school): *"The disruption to school for my timid child who was just settling into her first year of school and making friends etc. is a bit sad"* (Mother, VIC, 2). Also characteristic within this domain was family related transitional changes such as death of a relative or less commonly, the indirect impacts of the birth of a sibling: *"We've been working really hard to keep social distancing and socialising as [Child] (sibling) is only 4 months old"* (Father, VIC, 2).

Parent Gender Differences in Reported Concerns

Frequencies and percentages for each domain of concern arranged by gender are presented in Table 3. Chi-square analyses revealed significant domain-level differences between maternal and paternal report of concerns. Relative to fathers, mothers more frequently reported concern about their own emotional wellbeing, $X^2(1, N=192)=4.22$, $p=0.040$, and about caregiving related stress for themselves, $X^2(1, N=192)=4.58$, $p=0.032$. Mothers were also more likely to report the impacts of caregiving related stress for their children in comparison to fathers, $X^2(1, N=192)=9.03$, $p=0.003$.

Discussion

In the context of the COVID-19 pandemic in Australia we aimed to explicate and map sources of concern for parents of young children, and to do so in line with a bioecological theory of human development. Our findings highlight a primary focus for parents on impacts to emotional rather than physical health, and the cumulative effect of stress experienced during extensive lockdown restrictions. Below, we consider our findings within the *process*, *context*, and *person* components of the PPCT model (Bronfenbrenner & Morris, 2006; Tudge et al., 2009). Implications for public policy and practice are then discussed.

Process

Optimal development is facilitated when the interactive processes between an individual and their environment occur in a coherent, predictable, and consistent manner over an extended period (Tudge et al., 2009). Overall, our findings suggest multiple processes were significantly compromised within domains of personal experience and across relationships for both parents and children during pandemic-related public health restrictions.

Context

Individual

Aligned closely with earlier COVID-19 research examining the impact of lockdown for parents and children (Spinelli et al., 2020; Westrupp et al., 2023), the most frequent parent reported concern was for impacts to their emotional wellbeing and that of their children, with notable emphasis on contexts of prior vulnerability (e.g., existing mental health diagnoses). Our findings replicate and deepen a contextual understanding of parent worry surrounding exposure to and sickness from the virus, concern about poor sleep for children (El-Osta et al., 2021), and parental burnout through the physical exhaustion of unprecedented demands of adding work and school supervision to normal caregiving stress (Mikolajczak & Roskam, 2020; Wiemer & Clarkson, 2023).

Merged social and emotional impacts for children's development featured in parent responses, referenced against a background of a missing epoch of normative social experience within critical periods of development. Our findings mirror prior findings of parents' concerns for increased clinginess, distractibility, and irritability in children during the early stages of the COVID-19 outbreak in China (Francisco et al., 2020; Jiao et al., 2020), and extend them to suggest the important context of children's adverse reactions, including developmental regression, separation anxiety and extreme anger. The potential for focused knowledge sharing from studies such as ours is clear, to support parents in recognising and responding appropriately to children's behavioural manifestations of stress. While potential developmental impacts of stress for young children are long recognised (McEwen, 2011), the amassed evidence to date about the COVID-19 context reinforces the importance for public health policy and practice and for researchers, of differential susceptibility of children to COVID-19-related stress (Lewis & Olsson, 2011).

Microsystem (Relational)

Concern pertaining to growing relational stress in the context of the pandemic was dominant in parent responses, with noted impacts within the parent–child dyad, the interparental dyad as well as the wider family system. Origins and contexts of stress varied, from children's regressed dependence on their parents due to extra time spent together, through to extensive separation from parents due to border closures. While prior research indicates the predictive power of parent–child attachment security in healthy child outcomes during this novel period of stress (Dubois-Comtois et al., 2021), modification by context and duration of pandemic-related stress requires further study.

With respect to co-parental relationships, reported interactions between strain in the interparental relationship, increased time together working and enforced confinement to the home environment, and difficulty coping with concurrent and constant parenting responsibilities were notable. Our findings sit alongside meta-analytic evidence of the negative influence of parental conflict on child attachment security and cascading relationship dysregulation in the family (Tan et al., 2018), and the cumulative stress of raising a child together with diminished coping resources in the face of major life events (Anthony et al., 2005; Deater-Deckard, 2008; Pereira et al., 2012). Collectively, this evidence seems key to future prevention work.

The impact of parent stress on children was recognised by several parents. Aligned with prior evidence, competing stressors impeded parent capacity to attune to the needs of their child, resulting in diminished timely and sensitive responses (Cassidy & Shaver, 2016; Conger & Donnellan, 2007). Given implications for child and parent wellbeing, the critical need for alleviating stress within the caregiving role is clear.

Concerns were amplified across the wider family system as a result of extensive separation from family-of-origin members. Collective worry for the physical health of elder kin due to increased medical vulnerability dominated the narratives. Parents reported that children unable to see grandparents suffered a sense of loss and longing. Highlighted here was children's difficulty in effectively processing the loss of continuity in family relationships. Through the lens of ambiguous loss theory, such experiences, particularly when chronic, are associated with physical, behavioural, cognitive, and emotional problems (Betz & Thorngren, 2006).

Mesosystem (Contextual)

At the mesosystemic level, parents attributed extensive impacts for self and child to disruption of routine, school closures and loss of social interaction and support. With consecutive months out of school, children in our study lost significant stability and support, factors clearly linked to risk for the development or re-emergence of mental health problems (Singh et al., 2020). These findings are particularly relevant from a global standpoint given the closure of schools by mid-2020 had affected over 180 countries worldwide and more than 1.7 billion children, youth, and their families (Organisation for Economic Co-operation & Development, 2020).

Concerns about the removal of important buffering mechanisms such as social support and regular routine were also recurrent throughout responses, and frequently linked with added strain on parents with pre-existing mental health conditions. Aligned with findings about children with special educational needs (Singh et al., 2020), many parents drew attention to the elevated risk of their children living with pre-existing vulnerabilities such as autism spectrum disorder, through disconnection from specialist care systems, unpredictability of daily routines, and challenges to positive parenting. The interrelated nature of these impacts is echoed in earlier research which links lack of routine and structure, particularly in the home environment, to negative outcomes in psychological adjustment, school performance, and family cohesion (Fennis & Wiebenga, 2015; Fiese, 2006; Flouri, 2009).

Parents also recognised the difficulty of adjusting to novel working from home conditions while assuming responsibility of around the clock care for their children. Some parents noted additional struggle in grappling with a perceived decline in work productivity and quality because of this. These findings are not surprising given established knowledge

about family stress and spill over into the work domain, resulting in poorer job functioning (Hill et al., 2001).

Exosystem (Financial)

Consistent with earlier pandemic-related research (Goldfeld et al., 2022), several parents reflected on the financial stress associated with job loss, reduction in working hours and salary diminution, reporting flow on concern for career prospects, working opportunities, and future unemployment rates. These findings are of particular importance given exacerbated links between financial difficulties and problematic patterns of alcohol use in the context of social isolation (Rehm et al., 2020). While financial impacts of the pandemic for many will be unavoidable, close monitoring of modifiable impacts such as risks occurring through increased alcohol consumption may prove key to future policy initiatives.

Macrosystem (Societal)

Within the macrosystem, several parents attributed concern to government policy enforced in an attempt to mitigate the spread of the virus. Concerns clustered around uncertainty about ongoing restrictions and impact to societal norms and community coherence. Lockdown measures enforced in response to the virus fostered for most, a sense of uncertainty and helplessness through a loss of control. Once again, from the perspective of ambiguous loss theory, this experience for both parents and children has potential to cause significant physical, mental and behavioural challenges (Betz & Thorngren, 2006).

Chronosystem (Existential)

Chronosystemic stress related to major life transitions, longer-term implications for the economy and “life as we know it”. As with prior findings on the complexity of bereavement in the context of lockdown restrictions (Bauld et al., 2021), many respondents reported disruption to grieving and support processes during this time. In the face of COVID-19 measures, families were unable to share in mourning the loss of loved ones in customary ways, with limits on funeral attendance and separation from regular support networks.

In the context of such major life transitions, parents highlighted added concern for the absence of a sufficiently stimulating social and learning environment for their children. Even in a normative context, the transition to school and between grades, for example, is a potentially challenging rite of passage (Hair et al., 2006). Children not prepared for or unable to adjust to the novel school context may be more at risk of adverse outcomes throughout their schooling and later in life (Quirk et al., 2017). Our findings suggest the utility of leveraging school readiness programs or specific re-entry support for young children affected by lockdown restrictions during these important transitional periods.

Person

Gender Comparisons

We found clear gendered differences in reporting by mothers and fathers within the caregiving stress domain. This aligns with research demonstrating disproportionate caregiver

burden and attendant parenting-related exhaustion experienced by mothers compared with fathers during both pandemic and non-pandemic conditions (Australian Bureau of Statistics, 2022; Marchetti et al., 2020; Negraia et al., 2018; O’Sullivan et al., 2022). This is particularly relevant in countries like Australia, where fathers typically spend fewer hours providing care to children (Baxter, 2019) and are less likely to suffer consequent negative impacts to emotional wellbeing in comparison to mothers (Musick et al., 2016; Offer, 2014).

Although restrictions generally meant both parents were spending additional time at home, our results suggest that mothers reported a greater sense of obligation related to additional domestic duties and home-schooling. This is consistent with earlier research in the United States (Dunatchik et al., 2021) which found although paternal involvement in care increased with COVID-19 lockdown measures and altered working arrangements, so too did maternal involvement and subsequently the gender gap in domestic work remained constant. With mothers taking on a greater proportion of caregiving responsibility, elevated levels of stress were also established. As with findings of our study, relative to fathers, a greater proportion of mothers nominated concern for their own emotional wellbeing, reflecting established links between caregiving stress and parental mental health (Penning & Wu, 2016) and flow-on into the interparental relationship of dissatisfaction and perceived unfairness related to the division of domestic labour (Gillespie et al., 2019).

Strengths, Limitations, and Future Directions

Our study adds to an existing evidence base examining multilevel impacts of the COVID-19 pandemic for parents of young dependent children. Utilising qualitative data from a sub-set of parents within a large population-based cohort study, a key strength includes the delineation and discussion of parents’ core concerns in accordance with the *process*, *person*, and *context* components of Bronfenbrenner’s bioecological systems framework. While this cohort was socio-demographically representative of the state of Victoria, Australia, participants were predominantly Caucasian. The sample was also specifically limited in that it was restricted to parents with children born between 2012 and 2018 and included a higher proportion of mothers. Future research should focus on more socio-demographically diverse populations and examine effects in older and younger families representative of both mothers and fathers, particularly given the gendered experiences of the pandemic highlighted in the Australian context.

Noting the cross-sectional nature of the current research design, the time component of the PPCT model was not tested. Longitudinal investigation examining the impact of pandemic-related stressors on later wellbeing among both parents and children, is warranted. Future research should also extend on the depth of data obtained, focusing on more in-depth interviews or focus groups. Further, our sample was skewed toward the early months of harsh restrictions enforced throughout Victoria. Interpretations should bear in mind both that results may vary from parent reports during less restrictive circumstances, and also that the full impacts of the pandemic may not yet have been felt by families. Future enquiries should continue to explore the ongoing and cumulative effects of pandemic-related stress.

Child related factors such as age, number of children in the family and the individual health status of each child are important considerations in the vulnerability of children to impact in the COVID-19 context. While qualitative findings of the current study provided

evidence in support of this, demographic characteristics of each child were not collected individually and as such interpretation in line with these factors was limited.

Qualitative findings of the present study also provide an indication of the considerable variability in the level of stress conveyed in parents' responses. This presents an opportunity for future research in this area, highlighting the relevance of further investigation of the varying experiences of stress for parents in the COVID-19 context.

Implications

Findings from this study strengthen the amassing evidence about stress for parents and children in the context of pandemic conditions. Applied to public health initiatives, these findings reinforce the need for multilevel family support and intervention efforts, including early identification of children needing additional developmental support in contexts of family and educational strain, pre-existing vulnerability, and school readiness. Parents' reports of acute or chronic caregiving stress in interaction with financial equity gaps highlight the need for easy-to-access, evidence-based psycho-educational support delivered online and/or therapeutic support via Telehealth (McLean et al., 2021). Considering family functioning in the context of its multiple interacting ecologies, and the needs and experiences of individual family members in the face of ambiguous loss may provide valuable insight and direction for well-targeted support. Educational policy initiatives to support the remote learning needs of all children during school closures are also indicated. Specialist professional development programs for teachers may help children transition back to school and mitigate the emotional stress accompanying this process.

Conclusion

Multi-systemic approaches in reducing trauma for disaster-affected individuals have an established evidence base (e.g., Berger, 2005). Our work adds to understanding of domain and system level stress useful for prevention efforts, and targeted investments to intergenerational wellbeing following significant epochs of stress. At a time when our healthcare systems are burdened, this may provide significant health economic benefits to governments and communities. Our study provides nuanced knowledge about sources of family stress in the context of COVID-19 restrictions, identifying specific risk factors of relevance for both current and future periods of crisis. Findings attest to the widespread, cumulative nature of stress at the individual, relational and broader societal levels, providing parents with multi-tiered support and focused strategies to prevent or ameliorate negative outcomes in the context of a pandemic is key.

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Declarations

Conflict of Interest We have no conflicts of interest to disclose.

Ethical Considerations Participation was voluntary and all parents provided informed consent prior to completion. Participants were reimbursed with a \$25 e-gift voucher. Those who completed the COVID-19 survey were representative of all ATPG3 families on baseline sociodemographic variables (see Biden et al., 2021). ATPG3 Study protocols have been approved by the Royal Children's Hospital Human Research Ethics Committee (HREC #34185).

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