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To cite this article: Sarah E. Martiny, Kjærsti Thorsteinsen, Elizabeth J. Parks-Stamm, Marte Olsen & Marie Kvalø (2021): Children's Well-being during the COVID-19 pandemic: Relationships with attitudes, family structure, and mothers' Well-being, European Journal of Developmental Psychology, DOI: [10.1080/17405629.2021.1948398](https://doi.org/10.1080/17405629.2021.1948398)

To link to this article: <https://doi.org/10.1080/17405629.2021.1948398>



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Published online: 07 Jul 2021.



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Children's Well-being during the COVID-19 pandemic: Relationships with attitudes, family structure, and mothers' Well-being

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ABSTRACT

COVID-19 triggered social restrictions worldwide including the shutdown of schools. Whereas research has documented the negative effects on parents' well-being, less is known about children's well-being during the pandemic. We investigated the well-being, emotions, and COVID-19-related attitudes of 87 Norwegian elementary children (42 boys, 45 girls; $M_{\text{age}} = 9.66$ years, $SD = 1.77$) and their mothers ($M_{\text{age}} = 39.69$ years; $SD = 5.79$) in June 2020. Children reported reduced well-being relative to European norms. In line with research on child well-being before the pandemic, living in a one-parent home was associated with lower child well-being and more negative emotions during the pandemic, and mother's well-being was related to child well-being. Concerning attitudes towards COVID-19-related restrictions, we found a positive relationship between child age and attitudes and between children's attitudes and well-being. Implications for protecting children from negative effects of the ongoing and future pandemics are discussed.

ARTICLE HISTORY Received 9 November 2020; Accepted 14 June 2021

KEYWORDS COVID-19 pandemic; child Well-being; children's emotions; mothers' well-being

In response to the COVID-19 pandemic, many countries implemented strict and far-reaching policy regulations in spring 2020, including the shutdown of schools, shops, and restaurants. One group that was particularly affected by these restrictions were families with school-aged children. Parents had to care for their children without the help of babysitters or grandparents, take over the role of educator in home-schooling, and balance this with the demands of paid work – mostly from home – and domestic tasks.

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The data of this study are openly available at Open Science Framework (link: osf.io/4frk2).

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Not surprisingly, emerging research shows that this situation increased stress and decreased the well-being of the parents of school-aged children (e.g. Cameron et al., 2020; Etheridge & Spantig, 2020; Huebener et al., 2020; Thorsteinsen et al., 2021a). In addition, it is likely that the pandemic and related restrictions had negative effects on children, both directly (i.e. through the changes in their daily lives) and indirectly (e.g. because of the increase in their parents' stress). Preliminary results suggest direct negative effects of the pandemic on children (e.g. Patrick et al., 2020). However, most of this data relies on parental reports (e.g. Jiao et al., 2020; Patrick et al., 2020; Spinelli et al., 2020). In addition, research has consistently found a link between mental health problems in parents and negative outcomes for children (e.g. Rutter & Quinton, 1984; Smith, 2004). Therefore, the present research examines children's well-being during the pandemic by asking children themselves about their well-being and comparing it to non-pandemic normed values (RQ1). In addition, we test whether family-related variables that have been shown to be related to child well-being before the pandemic continue to be relevant to child well-being during the pandemic (e.g. income, family structure, and parental well-being and stress; RQ2-6). We additionally explore children's attitudes to the COVID-19 pandemic and related restrictions and examine relationships between these attitudes and their well-being.

Children's Well-being during the COVID-19 pandemic

Despite unified warnings from policymakers and researchers of the potentially severe negative consequences for children (e.g. Fore, 2020; Golberstein et al., 2020; Yoshikawa et al., 2020), empirical research on children's perceptions of the pandemic and its effect on their well-being and emotions is scarce. The few existing studies have found negative effects (e.g. Ravens-Sieberer et al., 2021). Two studies from China showed an increase in symptoms of depression and anxiety in children (Duan et al., 2020; Xie et al., 2020), and preliminary results from a study conducted in the US reported that 14% of the surveyed parents reported worsening behavioural health for their children during the pandemic (Patrick et al., 2020). However, most of this data relies on parental reports (e.g. Jiao et al., 2020; Patrick et al., 2020; Spinelli et al., 2020; for an exception see Ravens-Sieberer et al., 2021). The first aim of the present analysis is therefore to directly assess elementary school children's well-being compared to normed values (RQ1).

Recently Prime et al. (2020) developed a conceptual model explaining how the COVID-19 pandemic may impact child adjustment and well-being. As outlined in Prime et al., this model is based on frameworks such as family system theory (Carr, 2015; Fiese et al., 2019), the bioecological model (Bronfenbrenner & Morris, 2006), the family stress model (Conger & Conger, 2002), and the developmental system theory (Lerner & Damon, 2006). The model proposes that the COVID-19 pandemic affects families by social disruption (e.g. financial insecurity, social distancing) and that this disruption affects child well-being both directly and indirectly via caregiver well-being. More precisely, caregiver well-being is proposed to affect parent-child interactions and the family as a whole, which in turn affects child adjustment and well-being. Pre-existing family vulnerabilities are further proposed to moderate these effects (see Prime et al., 2020; Figure 1). These direct and indirect effects (and our related research questions) are discussed below.

Known predictors of children's Well-being

In the present research we tested whether traditional predictors of children's well-being (i.e. income, family structure, parental well-being, and parental stress) also relate to children's well-being during a public health emergency (RQ2-RQ6). First, parental income (RQ2) is a known predictor of child well-being (Chaudry & Wimer, 2016). Economic resources have both a direct impact on the well-being of children and an indirect impact through parental well-being and stress (Brown, 2010), and explain much of the often observed single mother disadvantage in child well-being (Thomson et al., 1994). Duncan et al.'s (2011) review of studies that used random assignment to income interventions shows a significant causal effect of income on child outcomes.

Second, family structure (RQ3)—that is whether children live in one- or two-parent households—is also an important predictor of child well-being, with earlier research showing that children in two-parent households report higher well-being than children in one-parent households (e.g. Mínguez, 2020; Thomson et al., 1994). Family structure predicts emotional and behavioural problems of children, even when controlling for economic resources (Brown, 2004). Research in Norway before the pandemic found significant differences in child well-being between single parent and dual parent households (Dinisman et al., 2017). The present study will examine this question in the COVID-19 context.

Other important predictors of child well-being are the well-being (RQ4) and stress (RQ5) of the parents. The life satisfaction of family members who live together are positively correlated, and they even continue to be correlated after children leave home (Headey et al., 2014). Mothers seem to be particularly important in this relationship: mothers have a greater influence on the life satisfaction of their children than fathers (Headey et al., 2014). Relatedly, parental stress (RQ5) is associated with a number of negative child outcomes, from child obesity (Parks et al., 2012) to emotional and behavioural problems (Jones et al., 2021). Research conducted in response to traumatic events suggests that the relationship between parents' and children's well-being is particularly important in this context. For example, refugee mothers' emotional well-being predicted their children's well-being (Almqvist & Broberg, 1999), and mothers' PTSD and depression following the September 11th attacks predicted their preschool children's behavioural problems (Chemtob et al., 2010). In Norway, parents' adjustment following a traumatic event was a significant predictor of their child's adaptation (Hafstad et al., 2010). In addition, research conducted during the pandemic suggests parental stress may impact child outcomes in the context of COVID-19: a study from Italy showed that parents' individual and dyadic stress during the crisis had a negative impact on children's behavioural and emotional problems (Spinelli et al., 2020). Thus, the present study will examine whether these predictors play a role in child well-being in response to the social disruptions associated with COVID-19 (Prime et al., 2020).

Finally, empirical research suggests that in addition to the independent effects of structural family variables and caregiver well-being on child well-being, structural variables might indirectly affect child well-being via caregiver well-being (RQ6). For example, Carlson and Corcoran (2001) found mothers' psychological well-being predicted behaviour problems in their children, and mediated the effect of family structure on children. This effect might be pronounced in times of social disruptions (Prime et al., 2020). We will therefore test whether mother's well-being mediates the relationship between one- vs. two-parent households and child well-being after testing the direct effect of family structure on child well-being.

Children's attitudes towards the pandemic and related restrictions

Children's attitudes about the effect of the pandemic on their lives and whether they view the restrictions positively or negatively has not

received much research attention. Idoiaga et al. (2020) conducted a free-association task with elementary-aged children in Spain (i.e. what comes to mind when they think about the coronavirus) and asked children how they felt about the virus. Children reported both fear of the virus and feelings of safety at home with their families. Past research has demonstrated the primary importance of feelings of safety for children's well-being (Ben-Arieh & Shimon, 2014; Fattore et al., 2007), and thus attitudes towards the restrictions (i.e. whether they are viewed positively as a source of safety) may be related to children's well-being. We investigate children's attitudes both about the effect of the virus on their lives and about the restrictions in an exploratory analysis.

The present research

The present research adds to the limited research that directly asks children about their well-being and emotions during the COVID-19 pandemic. The data were collected in Norway as part of a larger project investigating the effects of the pandemic on parents' and children's well-being and attitudes towards school (Thorsteinsen et al., 2021a, 2021b). In general, Norway is known for inclusive educational and welfare policies and high levels of well-being for both children and parents (e.g. Bradshaw & Richardson, 2009; OECD, 2020). In normal times, the well-being of children in Norway is positively associated with spending substantial time with their parents, playing with friends and participating in leisure activities, and having a positive school life (Mínguez, 2020). The lockdown and social restrictions in response to the pandemic likely disrupted many of these aspects of Norwegian children's lives.

In Norway, all schools and most non-essential businesses closed on March 12th, 2020. Some workers were temporarily laid off (5.6% of the workforce were partly or completely furloughed in week 26; Norwegian Labour and Welfare Administration, 2020), while others worked from home. Children under the age of twelve with two parents (or a single parent) who were essential workers (e.g. health care workers, grocery store workers) were entitled to daycare, but most children completed schoolwork from home with their parents. By the time of the data collection (June 8th to July 3rd), children were back in their regular classes, and businesses, shops, and restaurants had started to reopen. Compared to other European countries, the COVID-19 infection rates and mortality rates in Norway in 2020 were relatively low. In the official report from

The Norwegian Institute of Public Health (NIPH 2020) in week 26, 2020—the last week of data collection—the cumulative reported cases were 8,884, representing 165 cases per 100,000 inhabitants and a mortality rate of 4.7 per 100,000 inhabitants (NIPU, 2020). In contrast, the corresponding COVID-19 numbers for Italy and Spain were 398 and 530 cases per 100,000 and a mortality rate of 57.6 and 60.4 per 100,000, respectively.

Based on the research reviewed above, we developed the following predictions: (H1) Children's well-being after the lockdown and during the reopening of society will be lower than European norms. (H2) Income will be positively associated with children's well-being and positive emotions and negatively with children's negative emotions. (H3) Family structure (single parent vs. cohabiting parents) will be negatively associated with children's well-being and emotions. (H4) Parents' well-being will be positively associated with children's well-being and positive emotions and negatively associated with their children's negative emotions. (H5) Parents' stress will be negatively related to children's well-being and positive emotions, and positively to children's negative emotions. (H6) The relationship between family structure and child well-being will be mediated by parent well-being. Finally, in exploratory analyses, we examined whether children's attitudes about the pandemic and the related restrictions were associated with their well-being.

Methods

Participants

Parents of elementary school children and their children were invited to participate in the study either through one of 266 schools across Norway or through social media. Parents were asked to complete an online questionnaire about family well-being during the COVID-19 outbreak themselves and then help their children to complete a children's online questionnaire. In the data collection period (June 8th to July 3rd), 273 parents and 98 (35.9%) of their children completed the questionnaire. We excluded three children whose self-generated codes did not match a parent's questionnaire, and two children who indicated that they did not understand the questions. Of the remaining sample of 93 parent-child dyads, only six fathers had completed the parent questionnaire. Because parent gender was significantly related to child well-being in our data, we excluded the dyads with fathers and focused on the remaining 87 mother-child dyads in the present analyses. Thus, the final sample includes 42 boys and 45 girls with a mean

Table 1. Sample demographics.

	<i>n</i>	%
Born in Norway	77	88.5
Gay relationship	1	1.1
Marital status		
Single	14	16.1
In a relationship	2	2.3
Married/cohabitating	70	80.5
Widowed	1	1.1
Family structure		
Single-parent	17	19.5
Dual-parent	70	80.5
Annual income		
NOK 0–320,000	17	19.5
NOK 320,000–460,000	21	24.1
NOK 460,000–1 200,000	48	55.2
NOK 1 200,000–2 000 000	1	1.1
Not working	8	9.2
Essential worker	31	35.6
Essential worker, partner	18	22.2
Belonging to Covid-19 risk group	14	16.1
Child belonging to Covid-19 risk group	3	3.4

Note. Mothers reporting zero work hours were categorized as 'Not working'.

age of 9.66 years ($SD = 1.77$, range 6.42–13 years). The mean age of mothers in the sample was 39.69 years ($SD = 5.79$, range 26–53 years). Additional sample demographics are described in Table 1. The study was approved by the Norwegian Center for Research Data and the board for research ethics at the Department of Psychology at UiT The Arctic University of Norway.

Sensitivity analyses

We conducted post-hoc sensitivity analyses with G*Power to explore the size of effects we were able to detect given a power of .95. With the current sample ($N = 87$) and three measures, we were able to detect an effect size of $f^2 = 0.15$, which is conventionally viewed as a small effect.

Procedure

After giving their consent, parents completed their questionnaire first, which took an average of about 15 minutes. Items within each measure were presented in a randomized order. Participants were then given the opportunity to provide their email address to participate in a lottery for five gift cards (NOK 500).

In the children's questionnaire, we used short sentences and easily understandable questions. Items were written in a large font, with one item per page. To enable young children and those with reading

difficulties to participate, children could click on an audio button to have all information on the page read to them (including instructions, items, and scale points). Most of the scale points were illustrated with visual images. Before starting the questionnaire, children gave consent. The questionnaire took children on average about 15 minutes to complete.

Measures

All scales and images can be found in the Supplementary Materials in the order in which they were presented. The audio files (in Norwegian) can be found on OSF (link: osf.io/4frk2).

Children's COVID-19 attitudes

We included two questions asking children about their attitudes towards the pandemic and the restrictions accompanying its onset: 'Has the coronavirus made your life better or worse?' on a scale from 1–5 with anchors 1 (worse) to 5 (better), and 'Do you think the restrictions related to the coronavirus are good or bad?' on a scale from 1–5 with anchors 1 (bad) to 5 (good).

Child Well-being

We used the Norwegian version of the KIDSCREEN-10 index to assess child well-being (translated by Haraldstad et al., 2006 as reported by Ravens-Sieberer, U. & the European KIDSCREEN Group, 2006). This is a cross-culturally validated measure that includes ten items addressing physical well-being, psychological well-being, autonomy and parent relations, social support and peers, and school environment. Each question is answered on a five-point Likert scale, ranging from 'never' to 'always' or from 'not at all' to 'extremely.' Answers were coded so that higher values indicate better well-being and a Rasch-scaled single score was computed using instructions provided by the KIDSCREEN-group (Ravens-Sieberer, U. & the European KIDSCREEN Group, 2006). This procedure resulted in an index score with a mean of approximately 50 and standard deviation of approximately 10, which could be compared to existing European norm data for two age groups, 8–11 and 12–18 years (Ravens-Sieberer, U. & the European KIDSCREEN Group, 2006). The scale showed a good reliability, Cronbach's $\alpha = .74$.

Child emotions

Positive and negative emotions were measured with the emotion frequency items from the *How I feel Questionnaire*, which has been used with children as young as 8 years of age (Walden et al., 2003). A mean score was computed for three positive items (happy, excited, satisfied) and three negative items (e.g. scared, mad, sad). Originally there were only two items tapping positive emotions, but we included a third (i.e. satisfied) to ensure reasonable psychometric properties. Children rated how often they had felt each emotion during the last week, on a scale from 1 (never) to 5 (always). Cronbach's alpha was acceptable with .59 for positive emotions and .62 for negative emotions.¹

Parent Well-being

The 5-item World Health Organization Index was used to measure parent well-being (Topp et al., 2015). The index contains positively phrased items, e.g. 'I have felt cheerful and in good spirits,' scored from 1 (at no time) to 6 (all of the time), which participants rated for their well-being after the reopening of the society, i.e. 'Please indicate how you felt *after* the schools reopened.' The scale showed a good reliability, $\alpha = .91$.

Additional parent variables

Reopening stress was measured by asking parents to rate on a 1–5 scale, 1 (totally disagree) to 5 (totally agree), how much they agreed with the statement 'In general, I was stressed by the reopening of society.'

In addition, the following demographic variables were assessed from parents: marital status, gender of partner, number of children and their age, own income, own and partners' occupation, own and partners' work hours, born in Norway or not, belonging to a COVID-19 risk group and child belonging to COVID-19 risk group. From the marital status question we coded family structure as 'single-parent' if marital status was answered 'single', 'in a relationship' or 'widowed', and dual-parent if marital status was answered 'married/cohabitating'. From mothers' answer to open-ended questions about own and partner's occupation, Author 4 and 5 coded the occupation as 'essential worker' or not based on the Norwegian government classification (<https://www.regjeringen.no/no/tema/samfunnsikkerhet-og-beredskap/innsikt/liste-over-kritiske-samfunnsfunksjoner/id2695609/>). The first 10% of the occupations were

¹In addition to the variables reported here, the children's questionnaire contained: general attitudes towards school, performance at school, gender stereotypes and career aspirations, status of communal and agentic occupations, and demographics.

categorized independently by both authors. They showed a high agreement ($\kappa = .92$), therefore Author 5 finished the categorization. Belonging to COVID-19 risk group and child belonging to COVID-19 risk group' had answering options 'yes', 'no', 'do not want to say'. Two participants answered 'do not want to say' to each of these questions.

Results

See [Table 1](#) for the demographic characteristics of the sample. Descriptive statistics and correlations of all dependent variables, independent variables, and additional demographics are presented in [Table 2](#). The data and code can be found on Open Science Framework ([link: osf.io/4frk2](https://osf.io/4frk2)). In the following, bivariate correlations are reported for all central variables and potential covariates. Linear regression analyses are additionally reported when investigating predicted relationships between central variables while controlling for covariates.

RQ1: Children's Well-being at reopening

To investigate how children in Norway were doing at the time of the reopening of the Norwegian society, we conducted an independent t-test in which we compared mean well-being scores of children in our sample with published European norms of the same scale using the norm of children aged 8–11 years.² A Welch's t-test showed, $t(88) = 3.03$, $p = .003$, that in line with H1 the well-being in our sample ($M = 50.55$, $SD = 10.21$) was significantly lower than the published norm ($M = 53.90$, $SD = 10.73$). The 95% confidence interval for the difference is between -5.54 and -1.15 .

RQ2: Is maternal income associated with children's Well-being and emotions?

In contrast to H2, bivariate correlations showed mothers' income was not related to children's well-being and emotions (see [Table 2](#)).

²17 participants in our sample were between six and a half and eight years, 59 between eight and 12 years, and 11 children were between 12 and 13 years. We thus decided to use the European norm data for children 8-11. The results of the t-test do not change if we exclude children older than 11 and younger than 8 years old.



Table 2. Descriptive statistics and correlations.

Variables	M	SD	N	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Child																				
1. Attitude towards Covid-19 Pandemic	2.72	10.21	87	1																
2. Attitude towards Covid-19 regulations	3.28	0.60	87	.08	1															
3. Well-being	50.55	0.49	87	-.15	.30**	1														
4. Positive emotions	3.89	1.19	87	.01	.23*	.52**	1													
5. Negative emotions	1.67	1.42	87	-.02	-.16	-.37**	-.27*	1												
6. Gender	0.52	-	87	-.15	.11	.09	.14	.11	1											
7. Age	9.66	1.77	87	.07	.26*	.04	.05	-.07	-.06	1										
Parent																				
8. Well-being	3.98	1.09	87	-.03	.17	.35**	.13	-.22*	.06	.09	1									
9. Reopening stress	2.66	1.36	87	.03	-.10	-.18	-.09	.09	.01	-.10	-.52**	1								
10. Income	2.38	0.81	87	.01	-.07	-.02	.06	-.06	-.00	-.04	.09	-.43**	1							
11. Family structure	0.20	-	87	.09	-.01	-.29**	-.11	.30**	.07	.05	-.27*	.30**	-.23*	1						
12. Work hours	32.63	13.18	85	-.10	.02	.09	.02	.05	.00	-.13	.12	-.37**	.65**	-.34**	1					
13. Parent essential worker	0.45	-	87	.02	-.06	.06	.14	.05	-.01	.06	-.06	.01	-.08	-.15	.00	1				
14. Age	39.69	5.79	87	-.05	.02	.10	-.00	-.09	.03	.34**	.22*	-.23*	.07	-.03	.08	.18	1			
15. Age, youngest child	7.37	3.33	87	.01	.17	.18	.20	-.01	.10	.40**	.35**	-.23*	-.06	.02	-.06	.12	.58**	1		
16. Number of children, 19 or younger	2.21	0.95	87	.11	-.09	-.18	-.26*	.12	-.06	-.09	-.05	.06	-.07	.11	-.09	-.15	-.07	-.35**	1	
17. Parent or child in risk group	0.20	-	87	-.01	-.01	-.24*	-.01	-.04	.30**	-.03	-.18	.30**	-.12	.05	-.09	.14	.15	-.14	-.14	1

Note: Values reflect * $p < .05$, ** $p < .01$. Gender is coded 0 = boys, 1 = girls; Family structure is coded 0 = two-parent, 1 = single-parent; Work hours is reported in weekly hours; Parent essential worker is coded the following: neither parent being an essential worker is coded 0, it is coded 1 if one or both are essential workers. Parent or child in risk group is coded the following: neither parent nor child in the risk group is coded 0, 1 = if parent or child is in a risk group.

RQ3: Is family structure associated with children's Well-being and emotions?

In line with H3, family structure showed significant correlations with child well-being, $r(87) = -.29$, $p = .006$, and negative emotions, $r(87) = .30$, $p = .005$. Therefore, we used linear regression analyses to further investigate the effect of family structure on these dependent variables. Living in a one-parent household was associated with lower child well-being, $b = -.29$, $t(86) = -2.80$, $p = .006$, $f^2 = 0.09$, and more negative emotions, $b = .30$, $t(86) = 2.90$, $p = .005$, $f^2 = 0.10$. These effects remained stable when controlling for mothers' income. There was no association between family structure and children's positive emotions, $b = -.11$, $t(86) = -0.98$, $p = .330$.

RQ4: Is maternal well-being associated with children's Well-being and emotions?

In a series of regression analyses, we used mothers' well-being as a predictor for children's well-being and positive and negative emotions (H4). As predicted, mothers' well-being was significantly related to children's well-being, $b = .35$, $t(86) = 3.39$, $p = .001$, $f^2 = 0.14$, and children's negative emotions, $b = -.22$, $t(86) = -2.10$, $p = .039$, $f^2 = 0.05$, but not with children's positive emotions, $b = .13$, $t(86) = 1.12$, $p = .235$. These effects held when controlling for mothers' income.

RQ5: Is maternal stress associated with children's Well-being and emotions?

The association between mothers' reopening stress and children's well-being did not reach the conventional significance level, $b = -.18$, $t(86) = -1.72$, $p = .089$, but pointed in the expected direction namely that increased mothers' stress goes along with reduced child well-being (H5). Reopening stress of mothers was neither related to children's positive emotions, $b = -.09$, $t(86) = -0.86$, $p = .391$, nor to their negative emotions, $b = .09$, $t(86) = 0.86$, $p = .390$. The association between mothers' reopening stress and children's well-being became significant when controlling for mothers' income, $b = -.24$, $t(86) = -2.00$, $p = .049$.

RQ6: Does mothers' Well-being mediate the link between family structure and child Well-being?

We then tested whether the relationship between family structure and children's well-being is mediated by mothers' well-being (H6; Process model 4, Hayes, 2018, 50,000 bootstrap samples, see Table 3). This model was supported; family structure was associated with mothers' well-being ($a = -0.74$, $[-1.31; -0.18]$), which in turn was related to children's well-being ($b = 2.70$ $[0.76; 4.64]$). A bias corrected bootstrap confidence interval for the indirect effect ($ab = -2.01$ $[-5.24; -0.03]$) did not include zero. The mediation model remained significant when controlling for mothers' income.

Exploratory analyses

Children's COVID-19 attitudes

We measured children's general attitudes towards the COVID-19 pandemic by testing their attitudes against the scale midpoint. Overall, children reported that the coronavirus had made their lives slightly worse ($M = 2.72$, $SD = 1.18$), $t(86) = -2.17$, $p = .033$. We found no association between family-level variables and children's attitudes towards COVID-19 (see Table 2).

Children's attitudes towards COVID-19-related restrictions

Concerning children's attitudes towards the COVID-19-related restrictions, we found that descriptively children reported having slightly favourable attitudes towards the restrictions ($M = 3.28$, $SD = 1.42$), but this was not significantly different from the midpoint of the scale (3.0; labelled 'neither good nor bad'), $t(86) = 1.81$, $p = .073$. Older children had more favourable attitudes towards the restrictions, $r(87) = .26$, $p = .016$. No other demographic or family-level variable was significantly correlated with children's attitudes towards the restrictions (see Table 2).

Are children's COVID-19 attitudes related to their well-being?

Finally, we explored whether children's attitudes regarding the pandemic and related restrictions were related to their well-being. We found no association between children's attitudes towards the pandemic and their well-being or emotions (see Table 2). However, we found that positive attitudes towards the COVID-19-related restrictions were associated with



Table 3. Mediation model for the relationship of family structure to child well-being via parent well-being (N = 87).

	Parent well-being (M)			Child well-being (Y)				
	Coeff. [LLCI; ULCI]	SE	p	Coeff. [LLCI; ULCI]	SE	p		
Family structure (X)	<i>a</i>	-0.74 [-1.31; -0.18]	0.29	.011	<i>c'</i>	-5.41 [-10.70; -0.12]	2.66	.045
Parent well-being (M)	<i>i_M</i>	4.12 [3.87; 4.37]	0.21	< .001	<i>b</i>	2.70 [0.76; 4.64]	0.98	.007
Constant		$R^2 = .07$			<i>i_Y</i>	40.87 [32.57; 49.18]	4.18	< .001
		$F(1, 85) = 6.83$				$R^2 = .16$		
						$F(2, 84) = 8.04$.001

Note: Confidence intervals are displayed at the 95% level.

higher well-being, $r(87) = .30, p = .005$, and more positive emotions, $r(87) = .23, p = .035$, but not with negative emotions $r(87) = -.16, p = .133$.

Discussion

In line with earlier research (e.g. Jiao et al., 2020; Spinelli et al., 2020), the results point to the negative effects of the pandemic on children's well-being and emotions (H1). However, in the present work, we found relatively small negative effects on children. This might be due to the relatively low number of COVID-19 infections and deaths in Norway in spring 2020 (as compared to European countries with higher mortality rates such as Italy and Spain) and the timing of the survey. Participants completed the questionnaire in June 2020, when the Norwegian society was reopening and many of the restrictions that had affected children's daily life were no longer in place. In addition, at this point of time many people thought that the worst part of the pandemic was over and did not realize that the pandemic would continue for more than a year. However, the significant negative effects on well-being even at this point of time and in this population shows the widespread and enduring effects for children.

The next five research questions examined whether past predictors of child well-being also were related to child well-being during the pandemic. Whereas maternal income was not found to be associated with child well-being (H2), we did replicate past research in Norway showing lower levels of subjective well-being for children living in single parent families (H3; Dinisman et al., 2017). The present findings are also in line with earlier research that has shown a close relationship between parents' well-being and stress and children's well-being (H4 and H5; e.g. Headey et al., 2014; Jones et al., 2021). This relationship might have been enhanced during the COVID-19 pandemic, because during the lockdown many children were solely dependent on their parents. Mothers' well-being is an important predictor of child well-being, especially in response to traumatic events (Almqvist & Broberg, 1999; Chemtob et al., 2010), and thus our findings highlight the importance of paying attention to both parent and child mental health during the COVID-19 crisis (Gassman-Pines et al., 2020). Furthermore, mothers' well-being partially explained the relationship between family structure and children's well-being (H6).

In our exploratory analysis of children's attitudes, we found that children in our study had a slightly positive attitude towards the restrictions, and this positive attitude increased with age. Importantly, children's attitudes towards the restrictions were significantly related to their well-being and emotions. Research conceptualizing well-being from the perspective of children has highlighted the importance of feelings of safety in determining children's well-being (Fattore et al., 2007). According to this research, children's negative emotions of fear and insecurity negatively impact their well-being, and factors that provide feelings of security and safety are beneficial for their well-being. Our research suggests that positive attitudes towards the COVID-19-related restrictions are positively associated with children's reported well-being and positive emotions, highlighting the importance of framing these measures in terms of safety and security for children's well-being.

Limitations

Despite the important contribution this work makes to our understanding of how children are affected by the ongoing COVID-19 pandemic, some limitations need to be discussed. First, due to the cross-sectional design, the present analyses are unable to determine causation. Second, to keep the questionnaire as short as possible for children, we measured children's attitudes towards the pandemic and the restrictions only with one item, and the positive emotion scale had a relatively low internal consistency. Future research should implement more and better measures. Further, despite the fact that we targeted mothers and fathers, the vast majority of the parents who completed our questionnaire were female; future research should also focus on fathers. Finally, some of the demographic variables were not optimally measured. For example, in addition to mother's income, household income should be included in future research as an indicator of the economic situation of the family.

Conclusion

The present work makes an important contribution to our understanding of how children experienced the COVID-19 pandemic and which factors increase their vulnerability in times of crisis. We conclude that decision makers should pay more attention to the well-being of parents – particularly mothers – of school-aged children because of the close link between

mothers' and children's well-being and negative emotions. It is particularly important for policymakers to implement structures that support one-parent families in the time of global crisis, as children in one-parent households reported more negative emotions and lower well-being, and this effect was mediated by decreases in single mothers' well-being. Finally, in addition to communicating with children about the virus in an understandable manner (Dalton et al., 2020), governments and parents should communicate restrictions that affect children in a positive way so that children can see the benefits of these restrictions for their safety and well-being. Children's positive attitudes towards the restrictions were related to higher well-being and positive emotions, highlighting the importance of messaging about restrictions in helping children to cope positively with the social disruptions that upend children's and parents' lives during a pandemic.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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References

- Almqvist, K., & Broberg, A. G. (1999). Mental health and social adjustment in young refugee children 3½ years after their arrival in Sweden. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38(6), 723–730. <https://doi.org/10.1097/00004583-199906000-00020>

- Ben-Arieh, A., & Shimon, E. (2014). Subjective well-being and perceptions of safety among Jewish and Arab children in Israel. *Child and Youth Services Review, 44*, 100–107. <https://doi.org/10.1016/j.childyouth.2014.05.017>
- Bradshaw, J., & Richardson, D. (2009). An index of child well-being in Europe. *Child Indicators Research, 2*(3), 319–351. <https://doi.org/10.1007/s12187-009-9037-7>
- Bronfenbrenner, U., & Morris, P. (2006). The bioecological model of human development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 793–828). Wiley.
- Brown, S. L. (2004). Family structure and child well-being: The significance of parental cohabitation. *Journal of Marriage and Family, 66*(2), 351–367. <https://doi.org/10.1111/j.1741-3737.2004.00025.x>
- Brown, S. L. (2010). Marriage and child well-being: Research and policy perspectives. *Journal of Marriage and Family, 72*(5), 1059–1077. <https://doi.org/10.1111/j.1741-3737.2010.00750.x>
- Cameron, E., Joyce, K., Delaquis, C., Reynolds, K., Protudjer, J., & Roos, L. E. (2020). Maternal psychological distress & mental health services use during the COVID-19 pandemic. *Journal of Affective Disorders, 276*, 765–774. <https://doi.org/10.1016/j.jad.2020.07.081>
- Carlson, M. J., & Corcoran, M. E. (2001). Family structure and children's behavioral and cognitive outcomes. *Journal of Marriage and Family, 63*(3), 779–792. <https://doi.org/10.1111/j.1741-3737.2001.00779.x>
- Carr, A. (2015). The evolution of systems theory. In T. L. Sexton & J. Lebow, (Eds.), *Handbook of family therapy* (pp. 13–29). Published December 10, 2015 by Routledge. <https://doi.org/10.4324/9780203123584-2>
- Chaudry, A., & Wimer, C. (2016). Poverty is not just an indicator: The relationship between income, poverty, and child well-being. *Academic Pediatrics, 16*(3), S23–S29. <https://doi.org/10.1016/j.acap.2015.12.010>
- Chemtob, C. M., Nomura, Y., Rajendran, K., Yehuda, R., Schwartz, D., & Abramovitz, R. (2010). Impact of maternal posttraumatic stress disorder and depression following exposure to the September 11 attacks on preschool children's behavior. *Child Development, 81*(4), 1129–1141. <https://doi.org/10.1111/j.1467-8624.2010.01458.x>
- Conger, R. D., & Conger, K. J. (2002). Resilience in midwestern families: Selected findings from the first decade of a prospective, longitudinal study. *Journal of Marriage and Family, 64*(2), 361–373. <https://doi.org/10.1111/j.1741-3737.2002.00361.x>
- Dalton, L., Rapa, E., & Stein, A. (2020). Protecting the psychological health of children through effective communication about COVID-19. *The Lancet Child & Adolescent Health, 4*(5), 346–347. [https://doi.org/10.1016/S2352-4642\(20\)30097-3](https://doi.org/10.1016/S2352-4642(20)30097-3)
- Dinisman, T., Andresen, S., Montserrat, C., Strózik, D., & Strózik, T. (2017). Family structure and family relationship from the child well-being perspective: Findings from comparative analysis. *Children and Youth Services Review, 80*, 105–115. <https://doi.org/10.1016/j.childyouth.2017.06.064>
- Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in China during the outbreak of COVID-19. *Journal of Affective Disorders, 275*, 112–118. <https://doi.org/10.1016/j.jad.2020.06.029>

- Duncan, G. J., Magnuson, K., Kalil, A., & Ziol-Guest, K. (2011). The importance of early childhood poverty. *Social Indicators Research*, 108(1), 87–98. <https://doi.org/10.1007/s11205-011-9867-9>
- Etheridge, B., & Spantig, L. (2020). *The gender gap in mental well-being during the Covid-19 outbreak: Evidence from the UK (No. 2020-08)*. Institute for Social and Economic Research. <https://www.iser.essex.ac.uk/research/publications/working-papers/iser/2020-08.pdf>
- Fattore, T., Mason, J., & Watson, E. (2007). Children's conceptualisation(s) of their well-being. *Social Indicators Research*, 80(1), 5–29. <https://doi.org/10.1007/s11205-006-9019-9>
- Fiese, B. H., Celano, M. E., Deater-Deckard, K. E., Jouriles, E. N., & Whisman, M. A. (Eds.). (2019). *APA handbook of contemporary family psychology: Foundations, methods, and contemporary issues across the lifespan Vol. 1 (pp. xxvi-815)*. American Psychological Association. <https://doi.org/10.1037/0000099-000>
- Fore, H. H. (2020). A wake-up call: COVID-19 and its impact on children's health and wellbeing. *The Lancet Global Health*, 8(7), 861–862. [https://doi.org/10.1016/S2214-109X\(20\)30238-2](https://doi.org/10.1016/S2214-109X(20)30238-2)
- Gassman-Pines, A., Ananat, E. O., & Fitz-Henley, J. (2020). COVID-19 and parent-child psychological well-being. *Pediatrics*, 146(4), 3. <https://doi.org/10.1542/peds.2020-007294>
- Golberstein, E., Wen, H., & Miller, B. F. (2020). Coronavirus disease 2019 (COVID-19) and mental health for children and adolescents. *JAMA Pediatrics*, 174(9), 819–820. <https://doi.org/10.1001/jamapediatrics.2020.1456>
- Hafstad, G. S., Gil-Rivas, V., Kilmer, R. P., & Raeder, S. (2010). Parental adjustment, family functioning, and posttraumatic growth among Norwegian children and adolescents following a natural disaster. *American Journal of Orthopsychiatry*, 80(2), 248–257. <https://doi.org/10.1111/j.1939-0025.2010.01028.x>
- Haraldstad, K., Eide, H og Helseth S. (2006). KIDSCREEN questionnaire <https://www.kidscreen.org/english/language-versions/norway/>
- Headey, B., Muffels, R., & Wagner, G. G. (2014). Parents transmit happiness along with associated values and behaviors to their children: A lifelong happiness dividend? *Social Indicators Research*, 116(3), 909–933. <https://doi.org/10.1007/s11205-013-0326-7>
- Huebener, M., Waights, S., Spiess, C., Siegel, N., & Wagner, G. (2020). Parental well-being in times of COVID-19 in Germany (IZA discussion paper No. 13556). *Review of Economics of the Household*, 19(1), 91-122. <http://ftp.iza.org/dp13556.pdf>
- Idoiaaga, N., Berasategi, N., Eiguren, A., & Picaza, M. (2020). Exploring children's social and emotional representations of the COVID-19 pandemic. *Frontiers in Psychology*, 11, 1952. <https://doi.org/10.3389/fpsyg.2020.01952>
- Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., & Somekh, E. (2020). Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of Pediatrics*, 221, 264–266. <https://doi.org/10.1016/j.jpeds.2020.03.013>
- Jones, J. H., Call, T. A., Wolford, S. N., & McWey, L. M. (2021). Parental stress and child outcomes: The mediating role of family conflict. *Journal of Child and Family Studies*, 30(3), 746–756. <https://doi.org/10.1007/s10826-021-01904-8>

- Lerner, R. M., & Damon, W. E. (Eds.). (2006). *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed.). Wiley.
- Mínguez, A. M. (2020). Children's relationships and happiness: The role of family, friends and the school in four European countries. *Journal of Happiness Studies*, 21(5), 1859–1878. <https://doi.org/10.1007/s10902-019-00160-4>
- Norwegian Institute of Public Health (2020). *COVID-19 ukessrapport, uke 26 [COVID-19 weekly report, week 26]*. <https://www.fhi.no/en/publ/2020/weekly-reports-for-coronavirus-og-covid-19/>
- Norwegian Labour and Welfare Administration [NAV] (2020) *Hovedtall om arbeidsmarkedet uke 26 [Main numbers of the labour market, week 26]*. <https://www.nav.no/no/nav-og-samfunn/statistikk/flere-statistikkomrader/relatert-informasjon/arkiv-ukentlig-statistikk-over-arbeidsledige.2020>
- OECD (2020). <http://www.oecdbetterlifeindex.org/countries/norway/>
- Parks, E. P., Kumanyika, S., Moore, R. H., Stettler, N., Wrotniak, B. H., & Kazak, A. (2012). Influence of stress in parents on child obesity and related behaviors. *Pediatrics*, 130(5), e1096–e1104. <https://doi.org/10.1542/peds.2012-0895>
- Patrick, S. W., Henkhaus, L. E., Zickafoose, J. S., Lovell, K., Halvorson, A., Loch, S., Letterie, M., & Davis, M. M. (2020). Well-being of parents and children during the COVID-19 pandemic. *A National Survey. Pediatrics*, 146, 3. <https://doi.org/10.1542/peds.2020-016824>
- Prime, H., Wade, M., & Browne, D. T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, 75(5), 631–643. <http://dx.doi.org/10.1037/amp0000660>
- Ravens-Sieberer, U., Kaman, A., Erhart, M., Devine, J., Schlack, R., & Otto, C. (2021). Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany. *European Child & Adolescent Psychiatry*, 1–11. <https://doi.org/10.1007/s00787-021-01726-5>
- Ravens-Sieberer, U., & the European KIDSCREEN Group. (2006). *The KIDSCREEN questionnaires—Quality of life questionnaires for children and adolescents—Handbook*. Pabst Science Publisher.
- Rutter, M., & Quinton, D. (1984). Parental psychiatric disorder: Effects on children. *Psychological Medicine*, 14(4), 853–880. <https://doi.org/10.1017/S0033291700019838>
- Smith, M. (2004). Parental mental health: Disruptions to parenting and outcomes for children. *Child & Family Social Work*, 9(1), 3–11. <https://doi.org/10.1111/j.1365-2206.2004.00312.x>
- Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. (2020). Parents' stress and children's psychological problems in families facing the COVID-19 outbreak in Italy. *Frontiers in Psychology*, 11, 1713. <https://doi.org/10.3389/fpsyg.2020.01713>
- Thomson, E., Hanson, T. L., & McLanahan, S. S. (1994). Family structure and child well-being: Economic resources vs. parental behaviors. *Social Forces*, 73(1), 221–242. <https://doi.org/10.2307/2579924>
- Thorsteinsen, K., Parks-Stamm, E. J., Kvalø, K., Olsen, M., & Martiny. (2021a). *The well-being of Norwegian mothers during the COVID-19 pandemic: Gender ideologies moderate the relationship between share of domestic work and well-being*. Manuscript under review.

- Thorsteinsen, K., Parks-Stamm, E. J., Olsen, M., Kvalø, M., & Martiny, S. E. (2021b). *The impact of the COVID-19-induced changes at schools on elementary students' school engagement*. Manuscript in revision.
- Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 well-being index: A systematic review of the literature. *Psychotherapy and Psychosomatics*, 84(3), 167–176. <https://doi.org/10.1159/000376585>
- Walden, T. A., Harris, V. S., & Catron, T. F. (2003). How I feel: A self-report measure of emotional arousal and regulation for children. *Psychological Assessment*, 15(3), 399–412. <https://doi.org/10.1037/1040-3590.15.3.399>
- Xie, X., Xue, Q., Zhou, Y., Zhu, K., Liu, Q., Zhang, J., & Song, R. (2020). Mental health status among children in home confinement during the coronavirus disease 2019 outbreak in Hubei Province, China. *JAMA Pediatrics*, 174(9), 898–900. <https://dx.doi.org/10.1001%2Fjamapediatrics.2020.1619>
- Yoshikawa, H., Wuermli, A. J., Britto, P. R., Dreyer, B., Leckman, J. F., Lye, S. J., Ponguta, L. A., Richter, L. M., & Stein, A. (2020). Effects of the global coronavirus disease-2019 pandemic on early childhood development: Short- and long-term risks and mitigating program and policy actions. *The Journal of Pediatrics*, 223, 188–193. <https://doi.org/10.1016/j.jpeds.2020.05.020>