

# Effects of Covid-19 lockdown on parental functioning in vulnerable families

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## Abstract

**Objective:** The aim of this study was to increase the knowledge about how the initial Covid-19 lockdown influenced parental functioning in vulnerable families.

**Background:** The Covid-19 pandemic has caused major changes to family life. Using a natural experiment design can potentially adjudicate on former inconclusive findings about the effects of lockdown on parental functioning in vulnerable families.

**Method:** Responses from parents in a sample of potentially vulnerable families in Norway were divided into a lockdown group if participating at baseline and during the initial Covid-19 lockdown ( $n = 820$  responses) or into a control group if participating at baseline and before lockdown ( $n = 1368$  responses). Mixed model regression analyses were used to mimic a wait-list design investigating direct lockdown effects on mental health, parenting stress, and three aspects of interparental conflicts, as well as moderation effects.

**Results:** The lockdown group showed significantly higher levels of parenting stress compared with the control group, but no aversive lockdown effect on mental health or destructive conflicts were found. In fact, decreased levels of verbal aggression and child involvement in conflict were found during lockdown among parents living apart. Pre-existing financial problems and conflict levels, age of youngest child, and parent gender did not moderate the lockdown effects.

**Conclusion:** The initial lockdown did not seem to adversely affect parental functioning, beyond increased parenting stress. Caution should be taken when generalizing the

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findings as child effects and long-term lockdown effects were not investigated.

**KEYWORDS**

conflict, Covid-19, mental health, parental functioning, vulnerable families

The Covid-19 pandemic has had profound negative effects on society and economic activity, and several concerns have been raised about the psychological costs of the pandemic (Brooks et al., 2020; Prime et al., 2020). For most parents and children, lockdown is characterized by more family time and there is an urgent need to investigate how this affects parental functioning in families with pre-existing difficulties.

According to the Covid-19 Family Disruption Model suggested by Prime et al. (2020), lockdown may negatively influence child wellbeing through a cascade of processes, wherein detrimental effects on parental functioning play an important part. The model primarily addresses potential negative impacts on parental functioning, such as parenting stress and mental health problems. However, the model also takes into account that families may experience post-traumatic growth or resilience, for example, if family belief systems are characterized by meaning-making and parents are able to create a “new normal” of rituals and routines (Prime et al., 2020; Walsh, 2015). More family time and fewer obligations were the two most reported experiences in a sample of Dutch parents during the initial lockdown (Achterberg et al., 2021). At least the latter may have positive effects on family life. Prime et al. (2020) also underscore that attachment processes may have caused parents to mobilize extra efforts through this period, generating a sense of purpose that may buffer against mental health problems during lockdown. This idea collects some support from a study with US adults (McGinty et al., 2020) where inability to obtain child-care was not reported to negatively influence mental health during lockdown. Resilience and buffering processes may particularly have been activated during the initial phase of the pandemic, when the situation was novel and the time-frame could still be anticipated as relatively short. Few studies are however available using sufficiently rigorous designs to investigate actual lockdown effects on parental functioning. This study therefore endeavors to elucidate the direct effects of lockdown on three aspects of parental functioning: parental mental health problems, parenting stress, and interparental conflicts, among parents in a heterogeneous Norwegian sample including families with pre-existing relationship struggles.

As in most other countries, the pandemic has been followed by large societal changes in Norway. A national lockdown was imposed on March 12, 2020, including school closure and/or home-schooling, injunction to work from home and closed borders, stores, and restaurants. Schools gradually reopened in May 2020, but with strong restrictions and reduced hours for many (Norwegian Government, 2020). The measures seem effective according to relatively low infection and mortality rates in Norway. Still, the pandemic has been accompanied by large financial and social consequences. The unemployment rate has risen dramatically (NAV, 2021) and the referral rate to child mental health care increased significantly during 2020 (Bufdir, 2021). Thus, despite a strong social security system and relatively low infection rates, child and family lives seem to be affected in similar ways in Norway as in most other countries in Europe and North-America, although the magnitude may vary due to contextual factors.

As lockdown is characterized by increased family time for most families, there is a particular need for increased knowledge about how the pandemic affects parental functioning in families with pre-existing relationship problems. To answer this call, the current study uses a sample recruited from family counseling centers across Norway. These centers represent a free, low-threshold service for families, offering couple and family therapy, mandatory mediation related to parental break-up, and help to improve the coparent relationship for parents living apart.

The sample is therefore considered a vulnerable sample in this context, providing a rare opportunity to investigate how lockdown influenced parental mental health, parenting stress, and interparental conflicts in families with a history of relationship problems.

A growing body of studies investigating parental functioning during lockdown shows mixed findings, and very few studies are in a position to investigate actual lockdown effects. Two prospective studies of mental health among Dutch parents show divergent findings, with one finding no increase in symptoms of anxiety and depression (van der Velden et al., 2020) and the other finding increasing mental health problems during lockdown (Achterberg et al., 2021). Also, for parenting stress, such as worries about own inadequacy or feeling overwhelmed by parenting demands, findings are inconclusive. A cross-sectional study from Italy found that mean levels of parenting stress were not above clinical levels (Spinelli et al., 2020), whereas Russell et al. (2020) found elevated levels of parenting stress (i.e., caregiver burden) during the initial lockdown in the United States, compared with previous findings. Neither of these two studies had prospective designs enabling investigations of actual lockdown effects. Finally, findings shedding light on how interparental conflicts are influenced by the pandemic are sparse at best. However, this is important to investigate as interparental conflict generally has profound effects on child and parental wellbeing (Fincham & Beach, 2010; Harold & Sellers, 2018) and as former findings link dramatic life changes accompanied by potential job loss or illness with increased conflicts (Cohan, 2010). Consequently, increased conflict is suggested to be a mechanism linking the Covid-19 pandemic to decreased wellbeing (Prime et al., 2020). Thus, there is an urgent need for studies with designs and analytic approaches enabling examination of direct effects of societal Covid-19 measures on parental functioning, adjudicating the previous mixed and missing findings. Using a natural experiment design to investigate such effects will therefore fill a gap in the research field.

The Covid-19 Family Disruption Model (Prime et al., 2020) highlights that the consequences of the pandemic may vary with pre-existing family vulnerabilities, but former findings are inconclusive about how risk factors operate during the pandemic. At least two different mechanism may be involved. On one side, having to manage the changes in family life may have implied a double-burden for parents with pre-existing strains or vulnerabilities. For instance, worries about job insecurity may have been more challenging for parents with pre-existing financial strains. In favor of this viewpoint, economic hardship (Russell et al., 2020; Witteveen & Velthorst, 2020) and being a single parent (Li & Wang, 2020) have been linked to more mental health problems during the pandemic. On the other side, contrasting such pre-existing vulnerability models, some risk factors may have been less influential during the pandemic. For instance, increased childcare burden may have been less stressful for parents who were not expected to work from home. Accordingly, findings from Italy indicate more lockdown parenting stress among socio-economic non-risk families (Spinelli et al., 2020). Higher levels of mental health problems were also found among partnered compared with single parents during lockdown in the United States (Russell et al., 2020). Former findings are also mixed about the moderating effects of the children's age during the initial lockdown. In the United States, parents of younger children reported higher levels of parenting stress compared to their counterparts (Russell et al., 2020), whereas home-schooling of children particularly influenced the emotional wellbeing of parents in an Irish study of Lades et al. (2020). Using a natural experiment design, the current study is well-placed to clarify the moderating effect of pre-existing characteristics of parents and families, including financial problems, whether parents are living together or not, pre-existing destructive interparental conflicts, and parent gender.

## Research questions

In this paper, we use a natural experiment design, treating lockdown as an intervention, on a sample of vulnerable families to investigate:

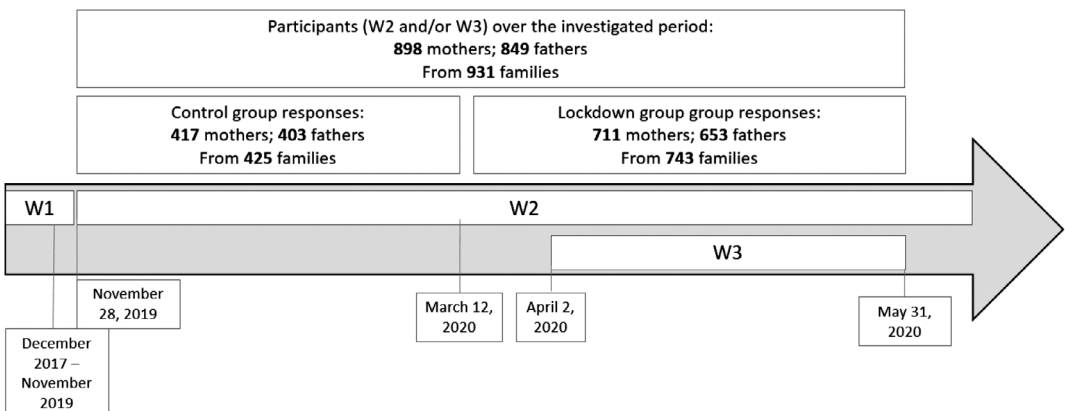
1. To what extent was the initial Covid-19 lockdown associated with decreased (or increased) parental functioning (i.e., mental health problems, parenting stress, and interparental conflict)?
2. To what extent were lockdown effects on parental functioning moderated by pre-existing financial problems, family structure, destructive conflicts, age of youngest child, and parent gender?

## METHODS

### Sample and procedures

A natural experiment design was used on a sample of 931 families from the ongoing longitudinal Dynamics of family conflicts study (<https://www.fhi.no/en/studies/the-dynamics-of-family-conflict-study/about-the-dynamics-of-family-conflict-study/>) in Norway, originally designed to investigate interparental conflicts across families. Recruitment took place when parents attended parental counseling, therapy, or mediation at one of 37 different family counseling centers across Norway from December 2017 to August 2019. Parental dyads were recruited irrespective of whether they lived together or apart. Immediately after recruitment, both parents participated in Wave 1 (baseline) through online questionnaires. In the present study, we compare levels in each outcome from the Wave 2 (W2) data collected prior to lockdown with levels at Wave 3 (W3). These were collected over two successive 3-month periods. The W2 data collection started in November 2019. During W2, parents responded to questionnaires successively, depending on W1 recruitment time. Thus, several parents had participated in W2 prior to the national lockdown, starting on March 12, 2020. To investigate the effect of lockdown on family life, an additional W3 data collection was conducted between April 2 and May 31 among all participants. Figure 1 illustrates the data collection process.

The data structure implies that each family may contribute baseline responses (W1) in addition to one or two parent responses to the control group, the lockdown group, or to both groups. Responses were included in the analytical sample if the parent had participated at W2 and/or at W3 between November 28, 2019, and May 31, 2020. Responses collected before March 12, 2020, were assigned to the control group. Control group responses ( $n = 820$ ) were given by 417 mothers and 403 fathers from 425 unique families. Parent responses collected between March 13 and May 31, 2020, were assigned to the lockdown group. Lockdown



**FIGURE 1** Time line for data collection and division of respondents for lockdown and control groups

responses ( $n = 1364$ ) were given by 711 mothers and 653 fathers from 743 unique families. Altogether 230 mothers and 207 fathers from 237 families participated both in W2 and W3, and thus contributed with responses both to the control group and to the lockdown group.

Participating mothers ( $n = 898$ ) had an average age of 39.7 years and fathers ( $n = 849$ ) had an average age of 42.7 years. Families had an average of 1.65 children, with an average age of the youngest child being 6.11 years. Among the 55% of parents living apart at W2/W3, most (95%) had been living apart for 6 months or more.

## Variables

*Mental health problems* were measured with the SCL-8, a global measure of symptoms of anxiety and depression (Tambs & Røysamb, 2014) previously validated in the general population of Norway (Strand et al., 2003). Each item was rated on a four-point scale from 1 (*not at all*) to 4 (*very much*) with higher scores indicating more distress. A composite score of the eight items was computed ( $\alpha = .91$  for mothers and  $\alpha = .90$  for fathers). The mean SCL score at W1 was 1.74 (1.73 for fathers and 1.76 for mothers), which is significantly higher ( $t = -33.63$ ;  $p < .001$ ) than that observed by Strand et al. (2003) in the general population in Norway (i.e.,  $M = 1.36$ ).

*Parenting stress* was measured with three items from the Parental Stress Scale (Berry & Jones, 1995). Respondents were asked how much they agreed on descriptions of their typical parenting experiences on a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate greater parenting stress. A composite score of the three items was computed ( $\alpha = .66$  for mothers and  $\alpha = .56$  for fathers).

*Interparental conflicts* were measured with the Verbal aggression (e.g., “Name-calling, cursing, insulting”), Physical aggression (e.g., “Throw something at the other”), and Child involvement (e.g., “Involve the child in our argument”) subscales from a short-version of the Conflicts and Problems-Solving Scales (CPS) (Kerig, 1996; Helland et al., 2021). Each subscale includes three items. Parents rate how often they and the coparent attend to each type of conflict behavior on a four-point scale from 0 (*never*) to 3 (*often*). A mean score was computed for each subscale by calculating the mean of the self- and the (other parent’s) coparent report across all three items. For example, the Verbal aggression score for mothers was the average of her three self-reported verbal aggression items and the three coparent verbal aggression items from the father. Reliability scores ranged from 0.61 (Physical aggression, fathers) to 0.83 (Child involvement, fathers).

Descriptive statistics for all outcome variables are presented in Table 1.

*Moderator variables* were mainly collected from the baseline questionnaire and included pre-existing financial problems measured with a single question “How has your family managed financially?” that parents rated on a five-point scale from 1 (*very well*) to 5 (*very poorly*). Pre-existing levels of destructive conflict were measured with a scale including all three included subscales from the CPS. Family structure was collected from the W2/W3 questionnaire. A dummy variable was computed where “Live together” was coded as 1 and “Live apart or about to move apart” was coded 0.

## Statistical methods

This study mimics a wait-list randomized control design. We estimated a series of regression models for each of the five outcomes: Mental health problems, Parental stress, and the three interparental conflict measures, with group affiliation (i.e., control or lockdown) as the independent variable. Families may have multiple reports per outcome, as both parents may participate and some families responded to questionnaire both at W2 and at W3. Statistical dependencies

**TABLE 1** Descriptive statistics for all outcome variables

	<b>Control group</b> ( <i>n</i> = 820 parent responses)	<b>Lockdown group</b> ( <i>n</i> = 1368 responses)	<b>Total sample</b> ( <i>n</i> = 2188 responses)
<b>Mental health problems</b>			
Mean ( <i>SD</i> )	1.56 (0.58)	1.50 (0.55)	1.52 (0.56)
Range	1.00–4.00	1.00–4.00	1.00–4.00
<b>Parenting stress</b>			
Mean ( <i>SD</i> )	2.84 (0.94)	3.01 (0.96)	2.95 (0.96)
Range	1.00–5.00	1.00–5.00	1.00–5.00
<i>Destructive conflict behaviors</i>			
<b>Verbal aggression</b>			
Mean ( <i>SD</i> )	1.06 (0.77)	0.96 (0.75)	1.00 (0.76)
Range	0.00–3.00	0.00–3.00	0.00–3.00
<b>Physical aggression</b>			
Mean ( <i>SD</i> )	0.10 (0.26)	0.10 (0.27)	0.10 (0.27)
Range	0.00–3.00	0.00–2.33	0.00–3.00
<b>Child involvement</b>			
Mean ( <i>SD</i> )	0.74 (0.66)	0.71 (0.66)	0.72 (0.66)
Range	0.00–3.00	0.00–3.00	0.00–3.00

of responses within families (e.g., correlations between mother and father responses) may deflate the standard errors and lead to misleading conclusions. The model we report here therefore includes a family-level random effect to adjust for correlated responses within families. Gender of the respondents was controlled for in the model. Since W1 data were collected over a longer time period than the W2/W3 data and the families were recruited during what might have been a crisis for most, we controlled for time since W1 participation, to rule out confounding timing effects.

We also conducted a moderation analysis to investigate interaction effects of pre-existing financial problems, family structure, destructive conflicts, and age of youngest child. In these analyses, we estimated the family-level random effect model with an additional interaction term between group affiliation and the moderator. Potential interaction effects of parent gender on lockdown effects on mental health problems and parenting stress were also investigated.

## RESULTS

As shown in Table 2, there were no significant differences between parents in the lockdown group and control group at baseline. This indicates that any later differences between the two groups were due to lockdown effects.

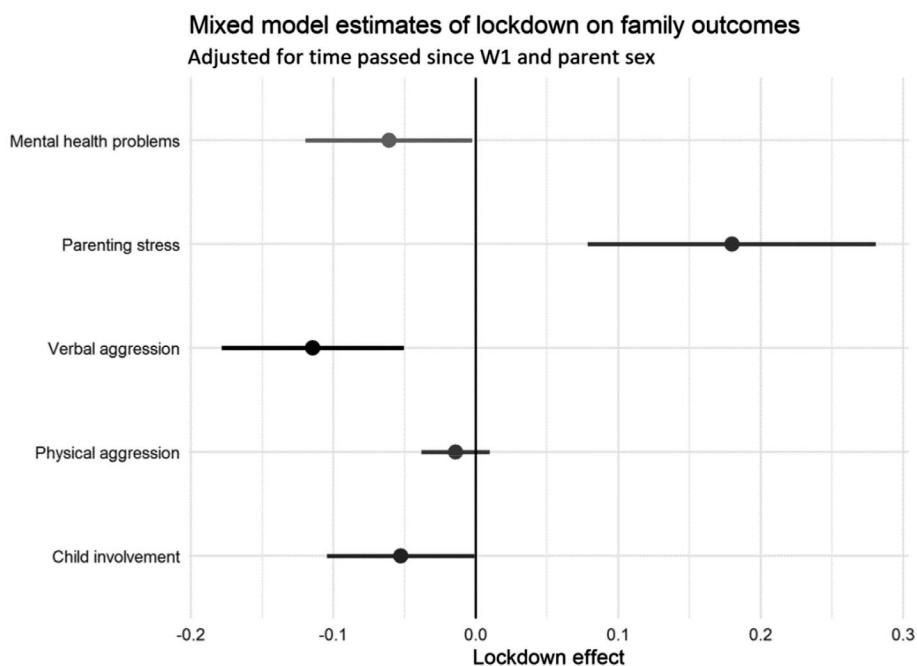
The results from the family-level random effect regression models investigating the direct effect of lockdown on each of the five outcome variables (i.e., Mental health problems, Parenting stress, Verbal aggression, Physical aggression, and Child involvement) are reported in Figure 2. Lockdown did not seem to adversely affect parental mental health, and there was actually a slight negative lockdown effect, suggesting a decrease in symptoms during lockdown. Parenting stress, on the other hand, was significantly higher in the lockdown compared with the control group. We found no indication of increased interparental conflicts in the lockdown group and rather, the findings suggest somewhat lower verbal aggression during lockdown. For

**TABLE 2** Descriptive statistics for W1 moderator variables and group difference tests

	Control group ( <i>n</i> = 820 responses)	Lockdown group ( <i>n</i> = 1364 responses)	<i>p</i> -value
Family structure (W2/W3) <sup>a</sup>			.35
Mean ( <i>SD</i> )	0.44 (0.50)	0.46 (0.50)	
Range	0.00–1.00	0.00–1.00	
Age youngest child			.08
Mean ( <i>SD</i> )	5.83 (4.17)	6.18 (4.16)	
Range	0.00–15.00	0.00–15.00	
Financial problems			.63
Mean ( <i>SD</i> )	2.15 (0.78)	2.13 (0.78)	
Range	1.00–4.50	1.00–5.00	
Destructive conflicts			.79
Mean ( <i>SD</i> )	0.86 (0.42)	0.85 (0.41)	
Range	0.00–1.86	0.00–2.17	

Note: Altogether 444 parents contributed with responses both to the control group and to the lockdown group.

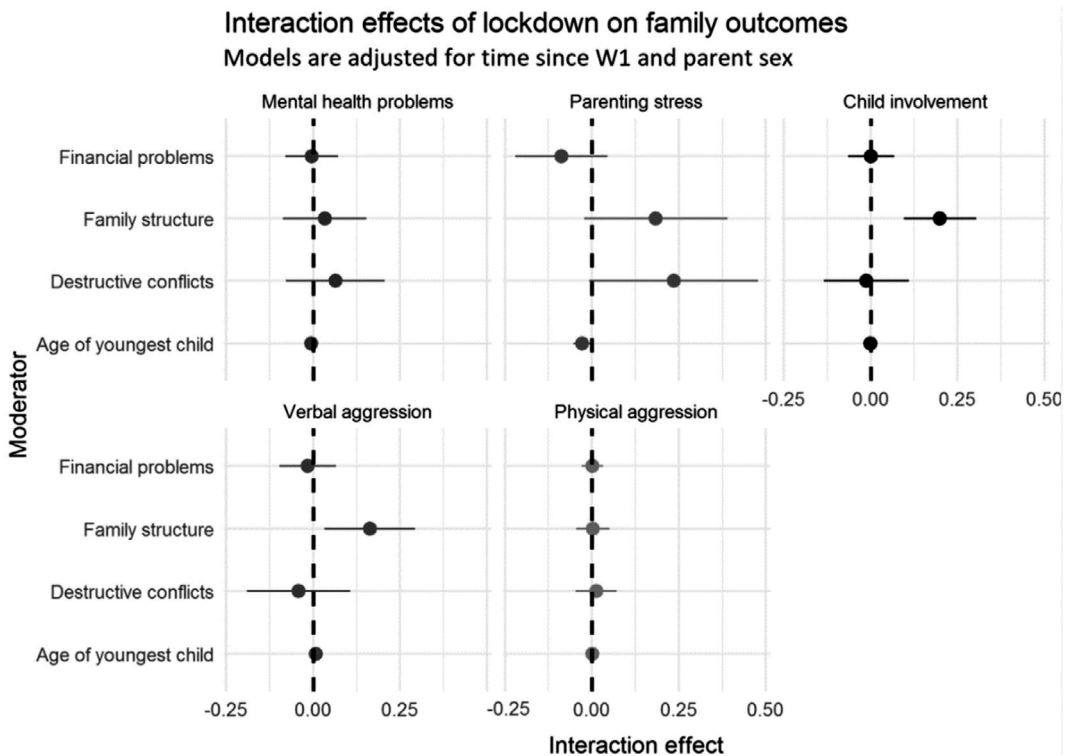
<sup>a</sup>Family structure: 1 = living together, 0 = living apart or about to move apart.



**FIGURE 2** Main effects of lockdown on psychological problems, parenting stress, and the three destructive conflict behaviors obtained from a mixed model specification.

Note: No sample restrictions. Time since W1 and parent gender is adjusted for

child involvement in conflicts, the result is less conclusive, but there is a slight effect indicating a lower parental propensity to involve children in their conflicts during, compared with prior to, lockdown. We found no effect on physical aggressive conflict behaviors. Sensitivity analyses including only the 237 families contributing with responses both to the lockdown and to the intervention group revealed a similar pattern of results to that found for the entire sample,



**FIGURE 3** Interaction effects (the interaction term coefficient) from models where a single moderator was included in the model obtained from the mixed model specification.

*Note:* No sample restrictions. Time since W1 and parent gender is adjusted for. Only one of the moderators had a significant influence on the lockdown effects. For the parental couples who live apart, lockdown effects on verbal aggression and child involvement in conflict were stronger than parental couples who live together

although no significant effects on mental health problems and child involvement were found due to larger standard errors with the substantially reduced sample size.

Results from the moderation analysis are reported in Figure 3. The plot shows the interaction effects (i.e., the interaction term coefficients) from models where a single moderator was included in the model, controlling for gender and time since baseline. Only one of the moderators, that is, family structure, moderated the lockdown effects: The decreased levels of verbal aggression and child-involvement, respectively, during lockdown were stronger for parents living apart than for those who live together. We found no gender interaction effects on any of the outcome variables.

## CONCLUSION

The aim of this paper was to investigate the impact of the initial Covid-19 lockdown on parental functioning in families with pre-existing relationship difficulties. Lockdown was associated with elevated levels of parenting stress, but no increase was detected in mental health problems or destructive conflicts. Indeed, the findings indicate that verbally aggressive and child-involving conflicts decreased during lockdown, particularly among parents living apart. No other interaction effects were found, suggesting that lockdown effects were similarly strong irrespective of the investigated moderators. The current findings expand our understanding of family resilience by showing prospectively and with a rigorous research design that, despite the



increase in parenting stress, mental health problems and interparental conflicts did not seem to increase in the specific context of the initial Covid-19 lockdown.

The findings give strong support for previous indications of increased parenting stress as a lockdown effect (Russell et al., 2020). Contrasting the findings by Russell et al. (2020) however, we found no moderating effects of pre-existing financial problems or age of youngest child on parenting stress levels, indicating that lockdown affected parenting stress with the same magnitude across family backgrounds.

One important reason why no adverse lockdown effect on mental health was detected may be that the sample consisted of parents. The finding was in line with notions by Prime et al. (2020) of attachment processes giving parents a sense of purpose and the underscoring of meaning-making as an important part of resilient processes for families during the pandemic. Caring for children may thus have buffered against mental health problems despite the general strong association between stress and poor mental health (House, 2002; Thoits, 2010).

The increased parenting stress documented by the current findings may be characterized as acute stress, as only the initial lockdown was investigated. If stress levels continued to be high throughout the pandemic, parental mental health is more likely to be affected, as chronic stress may more strongly affect health and wellbeing (House, 2002). Pertaining to child wellbeing, adding parental stress to a family dynamic where parents initially had high levels of mental health problems and conflicts may escalate the intergenerational transmission of mental health problems, as these processes appear to be mediated by several dimensions of parenting (Leinonen et al., 2003).

Elucidating the effect of lockdown on interparental conflict is a novel contribution from this study. It came as a surprise that destructive conflict behaviors did not seem to increase during lockdown in a sample recruited from family counseling centers, as relationship difficulties and poor coparenting communication are main reasons for contacting these centers. Particularly the slight decrease in child-involvement in conflict was surprising, as protecting children from exposure to interparental conflict must have been particularly difficult with family members being constantly at home. Thus, it is likely that this slight reduction reflects a general reduction in interparental conflicts. The finding also contrasted previous findings from natural disasters where destructive conflict behaviors increased (Cohan, 2010). Characteristics of the lockdown context may thus enable resilience to a stronger extent than natural disasters. However, more than half of the parental dyads in the current study lived apart, and the moderation analyses showed that these parents drove the lockdown effect on verbal aggression and child involvement in conflicts. We are not aware of other studies to mirror or contrast this finding, but one possible explanation may be that lockdown increased the intervals between children moving between homes, decreasing the contact points between parents. Another explanation may be that parents who miss spending time with their children under normal circumstances get their needs for contact more fulfilled as children spend more time at home, potentially decreasing fights over children as a "limited resource." Nevertheless, it is comforting that no aversive lockdown effects were found for interparental conflict in either group of parents, and that the effect of lockdown on destructive conflict levels was not moderated by pre-existing patterns of destructive conflicts. Still, increased time in homes with initially destructive communication patterns may have negatively influenced child wellbeing, even though conflict levels remained stable or decreased during lockdown.

Contrasting some previous findings (Achterberg et al., 2021; Li & Wang, 2020; Russell et al., 2020; Spinelli et al., 2020) and what was suggested in the conceptual model presented by Prime et al. (2020), we observed few significant moderator effects. The lockdown effect on parental stress was similarly strong for parents with children across different age groups. Still, the mechanisms may vary. For instance, for parents with younger children, constant distractions and difficulties focusing on work may have caused increased stress, whereas home-schooling may have challenged parents of school-aged children. Pertaining to financial

problems, the absence of moderator effects may be due to different struggles at different “ends” of the scale, as parents with higher socioeconomic status might have had to juggle home office with more child-care responsibilities, whereas parents who were outside the workforce experienced more financial problems but had more time to care for children. This may also explain the mixed findings about socioeconomic status and lockdown effects from previous studies (Russell et al., 2020; Spinelli et al., 2020; Witteveen & Velthorst, 2020).

We emphasize that the potential increases in parenting stress are alarming and indicate that the families were under an extreme pressure during the first lockdown. We need to keep in mind that even though other aspects of parental functioning did not seem to have been dramatically impacted in this short timeframe, prolonged parenting stress may be harmful for parents as well as children.

## Limitations

Generalizations of the findings should be done with caution. Living in the Norwegian welfare society, with a strong financial and social security-net and lower infection rates, may have reduced the uncertainty for parents and buffered against detrimental direct effects of lockdown as well as the investigated moderators on parental functioning. On the other hand, the sample consisted a high proportion of vulnerable families and the findings may thus be generalized to vulnerable families in other countries, although effect sizes may vary with cultures and contexts. Using a vulnerable sample is therefore an important strength of this study. Still, this may also limit potential generalization to the general population. Furthermore, the study only investigated parental functioning during the initial lockdown and the long-term effects on parental functioning as the pandemic continued to affect the economy and everyday lives of people are yet to be investigated. Moreover, gender differences were not investigated thoroughly. No interaction effects of parental gender were found, but this may change over time and should be devoted more focus in future studies. Finally, even though the investigated sample was relatively large, we cannot rule out that the missing moderation effects were related to statistical power.

## Contribution

The current study advanced on previous findings by investigating direct Covid-19 lockdown effects on parental functioning in a vulnerable sample. Investigating lockdown effects on inter-parental conflict is a particularly rare contribution. The use of a natural experiment design is innovative, overcoming potential methodological shortcomings of previous studies. This strengthens the reliability of the encouraging finding that mental health problems and inter-parental conflict did not seem to increase during the initial lockdown, giving substantial support to the notion by Prime et al. (2020) that lockdown effects may not be all negative. The findings also shed light on the former mixed findings about moderating effects of pre-existing vulnerability by showing that the effects (or lack of effects) were of the same magnitude irrespective of pre-existing risk factors such as financial strain and pre-existing conflict level.

Another contribution of the study was the use of a heterogeneous sample including parents with pre-existing relationship struggles. The vulnerability of the sample was underscored by the generally high level of mental health problems at baseline. The findings from the current study thus give strong support to the notion that resilient processes may be operating also in vulnerable families, including families with parents living apart.

Importantly, the findings underscore the potential harm of lockdown for children in vulnerable families. The parents in the sample had high levels of conflict and mental health problems

at baseline. By documenting the substantially increased levels in parenting stress in this group, the findings indicate that the family environment may have been increasingly harmful for children, highlighting the importance of keeping schools, childcare, and other services open if lockdowns are required in the future.

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