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FAMILY PROCESS

ORIGINAL ARTICLE

Parental burnout during the COVID-19 pandemic

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Abstract

Increased and long-term parental stress related to one's parental role can lead to parental burnout. In the early phase of the COVID-19 pandemic, families experienced intensified pressure due to the government-initiated contact restrictions applied to prevent the spread of the virus in the population. This study investigates the risk factors and predictors of parental burnout in a large sample of parents (N = 1488) during the COVID-19 pandemic in Norway. Demographic and psychosocial factors were assessed at two timepoints: at the beginning of the pandemic outbreak in March 2020 (T1) and at 3 months follow-up (T2). A hierarchical regression analysis was applied to identify the factors that contribute to parental burnout at T2. Parental burnout was additionally explored across subgroups. Findings revealed that younger age was associated with more parental burnout. Concurrent (T2) use of unhelpful coping strategies, insomnia symptoms, parental stress, and less parental satisfaction was significantly associated with the presence of greater parental burnout (T2). Additionally, parental stress and satisfaction measured in the earliest phase of the pandemic (T1) were associated with parental burnout 3 months later (T2) over and above concurrent parental stress/satisfaction. Unemployed parents and individuals with a mental health condition were identified as subgroups with substantially heightened levels of parental burnout.

KEYWORDS
COVID-19, family functioning, parental burnout, parental stress, professional interventions

INTRODUCTION

The spread of the acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has profoundly influenced families around the world and put parents at increased risk of experiencing parental burnout (Griffith, 2020), a chronic condition following prolonged and high levels of parental stress (Mikolajczak & Roskam, 2018). Parental burnout is a condition associated with detrimental long- and short-term effects on family functioning and parental mental health (Mikolajczak et al., 2018, 2019), thus underscoring the need to examine the potential risk factors associated with the condition during the COVID-19 pandemic. The aim of the study is two-fold in which it investigates several concurrent factors associated with parental burnout 3 months into the pandemic (T2), and additionally explores whether parent-related factors measured in the initial phase of the pandemic (T1) predicts levels of parental burnout at T2, beyond and above the predictors at T2 and demographic measures.

Parental burnout appears due to a discrepancy between the demands of being a parent and the resources available to meet those demands. The syndrome encompasses three dimensions: (1) emotional exhaustion related to one's parental role, (2) emotional distancing with one's children, and (3) lack of parental accomplishment (Mikolajczak & Roskam, 2018). Parental burnout has recently been highlighted in the literature as a construct that differs from ordinary parental stress and job-related exhaustion (Mikolajczak et al., 2019), and that it emerges from prolonged stress accompanying the parental role along with parents experiencing that they lack the resources to deal with the elevated stress. Studies have identified that parental stress is a robust determinant of parental burnout (Lebert-Charron et al., 2018; Mikolajczak et al., 2018) in nonpandemic periods. A growing number of studies have revealed elevated levels of perceived parenting stress during the pandemic (Brown et al., 2020; Hiraoka & Tomoda, 2020; Johnson, Ebrahimi, et al., 2020; Johnson, Skjerdingstad, et al., 2020; Spinelli et al., 2020). However, to date, little is known about the long-term association between parental stress and parental burnout during the COVID-19 pandemic, thus requiring investigation in the present setting, given the intensity of lockdown measures that may have amplified these detrimental associations and presented novel challenges that necessitate empirical investigation.

Several government-initiated physical distancing protocols have been applied to impede the spread of viral infection in the population, including home confinement, contact restrictions, quarantine, and isolation, together with school and kindergarten lockdowns, and home office arrangements. The novelty, degree of unpreparedness, and uncertainty of the situation during the initial phase of the pandemic led to increased pressure on societies generally, and families especially, with potential consequences for the economy and physical and mental health (e.g. Duan et al., 2020; Xiang et al., 2020). Mothers and fathers experienced a new range of daily life stressors, including balancing full-time parenting, domestic workload, and homeschooling, many of them while simultaneously conducting their own work from home. Given the nature of the physical distancing protocols, children and parents were forced to spend considerably larger amounts of time together. Researchers have also stressed the potential harm the physical distancing protocols may cause in family environments, encompassing the serious implication of increased risk of family violence and parent-related exhaustion (e.g. Campbell, 2020; Fontanesi et al., 2020; Griffith, 2020; Lawson et al., 2020; Lee, 2020).

Drawing on theoretical considerations, several factors were included in the current research. Insomnia symptoms and self-efficacy have previously been associated with detrimental mental health conditions among parents, including parental burnout (Kwok & Wong, 2000;

Mikolajczak et al., 2019; Mouton & Roskam, 2015). We believe that parents who report greater perceived ability to deal with the rises in demands and stressors (self-efficacy) accompanied by viral mitigation protocols, would eventually experience less parental burnout later, considering that general self-efficacy has been identified as an important protective variable in explaining mental health outcomes (e.g., Andersson et al., 2014). To investigate potential factors involved in the interplay between pandemic stressors and parental burnout, variables aimed to explain cognitive mechanisms and coping strategies were included. Here, mechanistic variables refer to strategies that individuals use to cope with negative emotions or symptoms (Hoffart & Johnson, 2020). In this study, unhelpful coping strategies, negative metacognitions (e.g., "My thoughts can hurt me"), and positive metacognitions (e.g., "Worrying helps me cope") were explored. These factors are important to investigate as they are central mechanistic variables subject to change across psychological interventions, such as metacognitive therapy (MCT; Wells, 2009), which was developed to directly modify such underlying metacognitive beliefs. In MCT, metacognitive beliefs are prominent in the development and maintenance of psychopathological processes, and this study aims to investigate whether such beliefs are associated with parental burnout during the pandemic.

Unhelpful coping strategies refer to maladaptive strategies used to cope with negative thoughts or feelings, for example, by using alcohol, pills, or substances to distract oneself from difficulties. Negative metacognitions include the belief that one's worrying is uncontrollable, while positive metacognitions refer to beliefs concerning the benefits of worrying. Consequently, this study explores whether mothers and fathers who experience more uncontrollable thoughts, parents who believe rumination is a beneficial problem-solving strategy, and those who use maladaptive strategies to deal with difficult thoughts and emotions experience greater parental burnout.

In sum, a multifactorial approach is employed to assess a wide range of relevant factors, including demographic information, coping strategies, parental stress and satisfaction, insomnia symptoms, and self-efficacy, in order to reveal the most substantial and central factors associated with parental burnout. Factors are assessed across two time-points (in the initial phase and at 3 months follow-up) to reveal both contemporaneous and preceding risk factors associated with parental burnout.

METHODS

Participants and study design

This research is a part of a larger project, the Norwegian COVID-19, Mental Health and Adherence Project. Ethical approval for the study was granted by the Regional Committee for Medical and Health Research Ethics and the Norwegian Centre for Research Data. The pre-registered protocol of this study is available at Clinicaltrials.gov (Identifier: NCT04442386), where the study was pre-registered prior to data collection. All components of the submitted study adhere to its pre-registered protocol, with the exception that the measure of marital quality had to be excluded from the regression analysis, as including this variable would exclude a large proportion of the sample (i.e., single parents).

The present paper involves two data collections. The first wave of data (T1) was collected between March 31 and April 7, 2020, during the strictest government-initiated physical distancing protocols. The second wave of data (T2) was obtained between June 22 and July 13, 2020, more than 3 months after the pandemic outbreak in Norway, and during a time with partial opening of the society, encompassing fewer social restriction measures and reduced infection among the population. The data collection periods involved a stopping rule to ensure

that the protocols were held constant for all respondents throughout the measurement periods. Parental burnout was measured only at the second wave (T2).

At the first data collection, the dissemination procedure involved providing information about the online survey through broadcasting on national, regional, and local information platforms (i.e., television, radio, and newspapers). The survey was also disseminated to a random selection of Norwegian adults through a Facebook business algorithm, thus ensuring that a representative sample of parents residing in Norway were invited to participate in the study. For the second data collection, all the initial parents who participated in the first round were invited to participate in the second wave. Of the 2868 respondents at T1, 1489 (51.9%) responded in at T2. The reason for some respondents' nonparticipation in the second data collection remains unknown. The survey was administered in a random order to the parents who had provided informed consent to participate in the second data collection. Eligible participants for the present investigation involved (a) adults (18 years and above), (b) currently residing in Norway and thus experiencing similar physical distancing restrictions, and (c) being a parent and currently living together with one child or more.

MEASURES

Demographic variables

Demographic variables included sex, age, education level, number of children in the household, civil status, ethnicity, and current work situation. Additionally, the presence of a preexisting psychological diagnosis was assessed in which the participants were asked to report whether they currently had a formal psychiatric diagnosis given by a health care professional.

Parental burnout

Parental burnout was assessed by the *Parental Burnout Inventory* (PBI; Roskam et al., 2017). The PBI consists of 22 self-report items related to three subscales of parental burnout: Personal Accomplishment (six items: e.g., "I accomplish many worthwhile things as a parent"), Emotional Exhaustion (eight items: e.g., "I feel emotionally drained by my parental role"), and Emotional Distancing (eight items: e.g., "I sometimes feel as though I am taking care of my children on autopilot"). All items were rated on a seven-point Likert-scale ranging from never (0) to every day (6). The items from the Personal Accomplishment factor were reverse-scored, and thus altogether a higher score on the PBI indicates greater parental burnout severity. Scores using the PBI have shown good psychometric properties (Blanchard et al., 2021; Roskam et al., 2017). In this study, the internal reliability of the PBI was given by a standardized Cronbach's α of 0.88 for the Emotional Distancing factor, 0.90 for the Emotional Exhaustion factor, and 0.85 for the Personal Accomplishment factor. Cronbach's α was 0.93 for the total PBI scale.

Parental stress and satisfaction

The *Danish Parental Stress Scale* (Danish PSS; Pontoppidan et al., 2018) was used to measure parental stress. This scale is divided into two subscales, namely, the parental stress subscale (e.g., "I feel overwhelmed by the responsibility of being a parent," "The major source of stress in my life is my child(ren)") and the parental satisfaction subscale (e.g., "I enjoy spending time with my children," "I feel close to my children"). The subscales were included as separate factors in the analysis to untangle the beneficial effects of being satisfied in the

parental role and the harmful effects of parental stress. The two constructs are demonstrated to be unidimensional and not very strongly correlated (Pontoppidan et al., 2018). Three items from each subdivision were chosen by a panel of clinical experts through a discussion and consensus process prior to any data collection. The participants were asked to rate the statements on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Higher scores on the two subscales indicate more parental stress and more parental satisfaction, respectively. At T1, the parental stress subscale's Cronbach's α was 0.78 and for parental satisfaction it was also 0.78. Additionally, for the second data collection (T2), Cronbach's α was 0.81 for the parental stress items and 0.80 for the parental satisfaction items.

Metacognitions and unhelpful coping strategies

The *Cognitive-attentional Syndrome Questionnaire* (CAS-1; Wells, 2009) was used to obtain measures of positive metacognitive beliefs (four items; e.g., "Worrying helps me cope"), negative metacognitive beliefs (four items; e.g., "Worrying too much could harm me"), and unhelpful coping strategies (eight items; e.g., "How often have you used alcohol, pills, or other substances to cope with negative feelings and thoughts"). The first eight items of the CAS-1 (unhelpful coping strategies) were scored on a nine-point Likert scale ranging from nothing (0) to all the time (8), and in the last eight items (negative and positive metacognitions), the participants were asked to score statements on an eleven-point Likert scale from do not agree at all (0) to strongly agree (100). Cronbach's α was 0.60 (T1) and 0.65 (T2) for positive metacognitions, and for negative metacognitions Cronbach's α was 0.69 (T1 and T2). Moreover, Cronbach's α was 0.90 (T1) and 0.91 (T2) for unhelpful coping strategies.

Insomnia

Insomnia symptoms were measured with the *Bergen Insomnia Scale* (BIS; Pallesen et al., 2008). This scale includes six items that map directly into the formal diagnostic criteria for insomnia (e.g., "During the past month, how many days a week have you been dissatisfied with your sleep?"). The BIS has been shown to have good validity (Pallesen et al., 2008). Each item was rated on an eight-point Likert scale ranging from 0 to 7 days per week, and the total scores ranged from 0 to 42. Cronbach's α was 0.85 for the BIS.

General self-efficacy

Self-efficacy was measured with two items from the *General Self-Efficacy Scale* (GSES; Schwarzer & Jerusalem, 1995): "I can always manage to solve difficult problems if I try hard enough" and "I am confident that I could deal efficiently with unexpected events." The GSES was scored on a four-point Likert-scale from *not at all true* (0) to *exactly true* (4). Cronbach's α was 0.69 at T1, and 0.73 at T2.

Statistical analyses

All statistical analyses were carried out in R (version 4.0.3). First, descriptive analyses were conducted to investigate the differences in the level of parental burnout across subgroups, reported using means and standard deviations. *T*-tests were used to test differences between

subgroups. Next, a hierarchical regression analysis was performed to evaluate the factors associated with parental burnout (criterion variable). In the first step, stable characteristics (demographic control variables), sex, education level, and age, were included. In the second step, parental stress, parental satisfaction, self-efficacy, positive metacognitions, negative metacognitions, unhelpful coping strategies, and insomnia, all measured at T2, were included. In the final step, parental stress, parental satisfaction, self-efficacy, positive and negative metacognitions, and unhelpful coping strategies, all measured at T1, were included to investigate the impact of the preceding pandemic outbreak levels of these variables on the criterion beyond their concurrent influences.

Part correlations were reported to reveal the most important variables associated with parental burnout. A part (semi-partial) correlation gives the least biased and easiest interpretable estimate of the strength of a predictive relationship (Dudgeon, 2016). It is the correlation between the criterion variable and the aspects of the predictors unique from all the other predictors. As a type of correlation, its size can be evaluated according to Cohen's (1988) criteria: small ≥.10, medium ≥.30, large ≥.50 effects. Furthermore, the assumptions of hierarchical models were checked, together with the assessment of multicollinearity diagnostics. These were checked upon consistent guidelines (VIF <5 and tolerance >0.20; Hocking, 2013). The significance level was pre-defined at the 0.01 level, given the large sample of the study.

Sensitivity analyses

Since participation in the online survey was voluntary, this study was susceptible to under- and oversampling of subgroups of participants, and thus to some extent deviation from the true population distribution of these subgroups. To deal with this issue, and subsequently apply the most accurate and conservative estimates concerning inference to the general parental population, post-stratification weights were used to match the over- and under-sampled subgroups to their precise population distributions. In this study, these subgroups included sex, ethnicity, and geographic region (see Appendix 1). Additionally, the differences between sampled subgroups of health care professionals were adjusted for in the weighting procedure to account for additional adverse impacts that parents with these occupations experience during the pandemic outbreak (Johnson, Ebrahimi, et al., 2020; Johnson, Skjerdingstad, et al., 2020). All overrepresented and underrepresented subgroups were assigned weights that were proportionate to their distribution and frequency in the population. The weighting procedure was conducted using the R-packages "anesrake" and "survey." An iterative algorithm (i.e., raking ration estimation) was utilized to avoid that the matching of the distribution of one factor unmatches the distribution of other variables. The weighted sample is thus applied to all analyses in the current research.

RESULTS

Sample descriptives

Demographic information of the sample is presented in Table 1. The sample consisted of 1489 parents, and a total of 1488 participants were employed in the hierarchical regression model, as two levels of the sex variable (i.e., intersex and transgender) contained too few participants (n = 1) to be included as separate factors in the regression analysis. The age of the parents ranged from 24 to 69 with a mean age of 40.70 years (SD = 7.27), with most participants falling within the age group ranging from 31 to 44 years (61.56%). The sample was predominantly female (n = 1195, 80.31%), in a relationship with a partner (n = 1282, 86.16%), and well-educated

TABLE 1 Demographic information and differences in parental burnout levels among subgroups

Subgroups	*N* (%)	Weighted *N* (%)	Mean PBI (SD)	*p*	*t*	Cohen's *d*
All participants	1488	1488	23.72 (18.62)			
Sex						
Female	1195 (80.31)	741 (49.80)	23.46 (18.07)	0.70	0.54	0.03
Male	293 (19.69)	747 (50.20)	23.98 (19.17)			
Age group, years						
18–30	120 (8.07)	105 (7.06)	19.22 (14.86)			
31–44	916 (61.56)	827 (55.58)	25.92 (19.87)			
45–64	449 (30.18)	550 (36.96)	21.22 (16.85)			
65+	3 (0.20)	6 (0.40)	29.00 (13.33)			
Civil status						
Single or divorced	206 (13.84)	194 (13.04)	25.81 (19.96)	0.22	1.68	0.13
Married/civil union/ relationship	1282 (86.16)	1294 (86.96)	23.41 (18.40)			
Number of children in household						
1	551 (37.03)	589 (39.58)	20.57 (16.61)			
2	706 (47.45)	689 (46.30)	25.29 (18.52)			
3	179 (12.03)	164 (11.02)	27.86 (23.64)			
4	28 (1.88)	21 (1.41)	29.45 (15.61)			
5 or more	4 (0.27)	2 (0.13)	26.18 (11.25)			
Responsible for disabled child	20 (1.34)	23 (1.55)	22.60 (21.31)			
Work status						
Employed	1179 (79.23)	1189 (79.91)	22.72 (17.97)	<0.01	2.97	0.26
Unemployed	309 (20.77)	299 (20.09)	27.71 (20.55)			
Vulnerable professional						
No	1137 (76.41)	1312 (88.17)	23.91 (18.74)	0.37	1.07	0.09
Yes	351 (23.59)	176 (11.83)	22.31 (17.69)			
Education level						
Completed Junior High School	21 (1.41)	27 (1.81)	15.41 (12.80)			
Completed High School	216 (14.52)	259 (17.41)	24.38 (21.21)			
Currently studying	63 (4.23)	66 (4.44)	20.02 (16.06)			
Completed University Degree	1188 (79.84)	1136 (76.34)	23.98 (18.19)			
Pre-existing psychiatric diagnosis						
No	1269 (85.28)	1292 (86.83)	22.22 (17.37)	<0.001	4.20	0.56
Yes	351 (23.59)	196 (13.17)	33.62 (23.06)			

Note: Post-stratification weights used to obtain weighted *N*.

(university or college degree; n = 1188, 79.84%). Most of the participants were also ethnically Norwegian (n = 1380, 92.74%). Moreover, 15.46% of the parents in this study reported that they had been angrier at their child than usual, and 20.90% of the parents said they had more disputes with their children. Furthermore, 315 (21.17%) parents reported that they had consumed more alcohol than usual. Lastly, 175 (14.64%) mothers and 44 (15.02%) fathers reported having worries regarding the economy on more than half the days during the last 2 weeks, whereas 74 (6.19%) mothers and 22 fathers (7.51%) said they were worried about losing their job more than half the time during the past 2 weeks. Altogether, 48 (3.23%) parents reported that they had lost their job as a direct cause of the coronavirus pandemic, leaving a total of 265 (22.18%) unemployed mothers and 44 (15.02%) nonworking fathers in the current sample.

Difference in mean level of parental burnout

Results from the mean level analysis are presented in Table 1. The mean level of parental burnout in the total sample was 23.72 (SD = 18.62). A significant difference (t = 2.97, Cohen's d = 0.27) was revealed in employed (M = 22.72, SD = 17.97) compared to unemployed parents (M = 27.71, SD = 20.55), and the largest effect size (t = 4.20, Cohen's d = 0.56) was found to be between those who reported having a preexisting psychiatric diagnosis (M = 33.62, SD = 23.06) as compared with those who did not (M = 22.22, SD = 17.37).

Factors associated with parental burnout

The results from the hierarchical regression analysis are presented in Table 2 and together explain 67.74% of the variance of the criterion variable parental burnout. With regard to the stable factors, the parents' age was a significant predictor of parental burnout in the first step of the hierarchical regression analysis, with younger age being associated with more parental burnout.

In the second step of the analysis, eight additional factors were included in the regression model. Here, stronger negative metacognitive beliefs and use of unhelpful coping strategies were associated with more parental burnout. Stronger positive metacognitive beliefs were associated with lower parental burnout. Furthermore, insomnia symptoms were positively associated with more parental burnout. More parental stress was associated with more parental burnout, whereas more parental satisfaction and more self-efficacy were associated with lower parental burnout.

Next, the aforementioned factors measured at T1 were included in the regression analysis to identify to what extent these preceding levels additionally explained the level on the criterion variable. At this final step, stronger positive and negative metacognitive beliefs were associated with more parental burnout, and more unhelpful coping strategies were associated with lower parental burnout. As for parental stress, more stress was associated with more parental burnout. More parental satisfaction was associated with lower parental burnout, and more self-efficacy was associated with lower parental burnout.

Taken together, the main factors associated with parental burnout were parental satisfaction at T2 (semi-partial correlation = 0.47), parental stress at T2 (semi-partial correlation = 0.39), and unhelpful coping strategies at T2 (semi-partial correlation = 0.20), all revealing small to medium effect sizes. Additionally, age (semi-partial correlation = 0.09), and insomnia symptoms (semi-partial correlation = 0.08) at T2 revealed significant effects. For the exploratory analysis of the T1 predictors, parental satisfaction (semi-partial correlation = 0.12) and parental stress (semi-partial correlation = 0.08) were significantly associated with parental burnout.

TABLE 2 A hierarchical regression model presenting the predictors of parental burnout during the COVID-19 pandemic (N = 1488)

Step	Predictor	*B*	SE	*p*	Semi-partial correlation	R^2
1	Stable factors					
	Age	−0.24	0.08	<0.01	0.09	0.01
	Sex	1.49	1.42	0.29	0.04	
	Education	0.68	0.84	0.42	0.03	
2	Risk factors at T2					
	Positive metacognitions	−0.001	0.01	0.88	<0.01	0.66
	Negative metacognitions	0.02	0.01	0.01	0.07	
	Unhelpful coping strategies	0.37	0.06	<0.001	0.20	
	Insomnia	0.13	0.05	<0.01	0.08	
	Parental stress	2.30	0.20	<0.001	0.39	
	Parental satisfaction	−4.16	0.40	<0.001	0.47	
	Self-efficacy	−0.43	0.39	0.26	0.04	
3	Risk factors at T1					
	Positive metacognitions	0.01	0.01	0.19	0.04	0.68
	Negative metacognitions	0.001	0.01	0.84	<0.01	
	Unhelpful coping strategies	−0.16	0.06	<0.01	0.06	
	Parental stress	0.49	0.19	<0.01	0.08	
	Parental satisfaction	−1.46	0.35	<0.001	0.12	
	Self-efficacy	−0.20	0.41	0.63	0.01	

DISCUSSION

The present paper investigates levels of parental burnout during the COVID-19 pandemic and potential risk factors associated with the condition. The study thus fills an important gap in exploring parental burnout during a pandemic and offers a multifactorial approach aimed at assessing the relative importance of each factor while controlling for all other variables.

Levels of parental burnout

Unemployed parents and parents with a preexisting psychiatric diagnosis experienced significantly more parental burnout compared to their counterparts and are thus identified as particularly vulnerable groups of parents during the ongoing pandemic. A variety of factors are likely to contribute to greater parental burnout among these subgroups, and these parents may have problems coping with the intensified pressure and increasing numbers of stressors experienced during this time. The pandemic has brought with it economic uncertainty, worry about financial instability, and risk of job loss. Since job loss rates are generally increasing around the world because of the COVID-19 pandemic (Lawson et al., 2020), this is a subsequent warning sign in line with previous research. People with mental disorders are recognized as being severely impacted by the psychosocial effects of the pandemic (e.g. Druss, 2020; Hao et al., 2020; Wang et al., 2020). Parents with a severe mental disorder are more likely to be socioeconomically disadvantaged, and thus suffer to provide sufficient educational and economic support for their children as the physical distancing measures are applied in the population.

A complicating factor is that practices and psychiatric services may be closed or downsized, thus impacting the treatment availability for mental disorders in the population. As this study has documented an increase in parental burnout symptoms among parents reporting to have a preexisting psychiatric disorder, attention should be drawn toward offering physical and online interventions to manage psychological symptoms in parents during this pressing time. Gaining more insight into how these parental subgroups function and cope during the pandemic will be a research area of immediate interest.

Risk factors associated with parental burnout

Age

The results concerning age and its relation to parental burnout were in line with previous research, showing that younger age is associated with increases in parental burnout, as in non-pandemic settings (Kawamoto et al., 2018; Sorkkila & Aunola, 2019). This finding could reflect the elevated stress among younger parents, as they may have younger children that require more care and attention, consequently being a hindrance in conducting their work from home and reducing their leisure time. Additionally, younger parents compared to older parents may have more concerns regarding economic and work-related matters, increasing the number of stressors in younger parents, which may elevate the risk of becoming exhausted. These results should however be interpreted with caution since the age of the children were not included in the hierarchical regression analysis.

Parental stress and satisfaction

As expected, this study reveals that more parental stress and less parental satisfaction at T2 (i.e., several months into the pandemic when infection rates decreased and pandemic protocols were subsequently lightened) were significantly associated with parental burnout at T2. Additionally, the results show that parental stress at T1, experienced during the early stages of the pandemic between March and April (i.e., a period of home confinement with strict physical distancing protocols), has a long-term association with levels of parental burnout, being linked to more parental burnout 3 months into the pandemic, even after these measures (i.e., lockdowns and closure of schools and kindergartens) were predominantly discontinued. This long-term association is revealed even after controlling for the concurrent (i.e., T2) association between parental stress and parental satisfaction with parental burnout, thus highlighting the unique impact of the severe stress experienced by parents during the initial stages of the pandemic.

Parental burnout arises due to a mismatch between parenting demand and stressors, parents' expectations of themselves, and the available resources to deal with these demands (Mikolajczak & Roskam, 2018). Since the beginning of the lockdown of schools and kindergartens, parents have experienced an increase in demands. They feel that they must provide sufficient educational support and care to their children, on top of everyday parental chores and their daily occupation. This is in line with the results presented, revealing that the increases in these changes in parents' lives and the subsequent parenting stress seem to have elevated this association with parental burnout several months into the pandemic, compatible with previous findings revealing that parental stress is associated with parental burnout in non-pandemic periods (e.g., Lebert-Charron et al., 2018; Mikolajczak et al., 2018).

The results of this study thus highlight that the present and past stress parents are experiencing during the pandemic is robustly linked to parental burnout, and therefore suggest

that the implementation of intervention programs aimed at reducing parental stress may be crucial to avoid parental exhaustion. In a recent study investigating potential treatment targets relevant for parental burnout, researchers revealed promising results for stress-reducing interventions during non-pandemic periods (Brianda et al., 2020). Some of the suggestions include psychoeducation and target exercises aimed at reducing key parental stressors, in addition to offering parents a space to share common difficulties (Brianda et al., 2020). Since the pandemic has led to reduced social contact and fewer common arenas for parents to share the difficulties and obstacles they encounter, clinicians and researchers working with parental burnout are likely to benefit from exploring the use of common digital meeting points during the pandemic. The creation of such online meetups may provide social support and mitigate the temporary unavailability of other community services.

Coping strategies

Increases in concurrent use of unhelpful coping strategies, such as use of alcohol, pills, or other substances to deal with problems and emotions, or focusing on threatening symptoms or danger, were found to be associated with parents feeling more exhausted. Since the research literature on parental burnout generally has urged the field to identify beneficial mechanistic variables that can be suitable for the development of an effective treatment of the condition (Brianda et al., 2020), these variables were included in the model to conduct investigations providing the preliminary grounds upon which such hypotheses may be investigated further. Although these findings are cross-sectional, the results provide directions toward possible viable targets for intervention, which should be further investigated in clinical studies not limited to the pandemic setting. Such mechanistic variables are subject to change across a variety of psychological interventions, such as MCT. These preliminary suggestions for treating parental burnout could be implemented in a pandemic setting, aiming to reduce the risk factors identified in this study (e.g., use of unhelpful coping strategies), but also highlight the importance of exploring these variables in a non-pandemic setting.

The results also reveal that such coping strategies measured at the initial phase of the pandemic are significantly associated with parental burnout at the 3-month follow-up, but in the opposite (negative) direction. A possible interpretation of this could be that the use of maladaptive coping strategies at T1 reduced parental burnout measured several months later. This could be explained by the fact that coping strategies that are used to immediately reduce stress and alleviate mood (e.g., avoiding negative feelings and emotions) at T1 could have a beneficial effect on parental burnout at T2, whereas by the time they are assessed again at T2, the same coping skills have lost their utility and are now positively associated with parental burnout.

Insomnia

Insomnia symptoms were significantly and positively associated with parental burnout. This is consistent with previous findings that sleep impairments have been found to be causal and maintaining factors behind exhaustion disorders (e.g. Grossi et al., 2015). Such association is particularly problematic, as maternal sleep problems have previously been found to have negative effects on the family environment (Gregory et al., 2012) and are associated with higher levels of stress and dysfunctional parenting (McQuillan et al., 2019). During the COVID-19 pandemic, studies have identified increases in sleep problems in both the general (Fu et al., 2020) and parental population (Brown et al., 2020). These findings highlight the important role of sleep in its association with burnout in an overburdened parental population, and that

interventions such as psychoeducative measures concerning sleep hygiene may be of benefit to alleviate parents from these burdensome symptoms.

STRENGTHS AND LIMITATIONS

This study investigated parental burnout during the COVID-19 pandemic (Griffith, 2020). This investigation thus fills an important gap in the COVID-19 literature and sheds light on the risk and protective factors associated with parental burnout. Another strength of this study is that it encompasses two waves of data collection and investigates the association of central risk factors across time. Additionally, a strength of this study is that it includes a range of factors, which in turn unveils the most important and robust associations, since all relevant variables are controlled for in the analysis.

A major strength of this study includes the use of weighting procedures that yield a sample that accurately matches population parameters. This was achieved for all slightly over- and underrepresented subgroups, including sex, geographical distribution, cultural ethnicity, and the number of professionals working in vulnerable professions. However, since the sample was missing one of the categorical groups of the education variable (i.e., those who did not complete junior high school), it was not possible to adjust the education subgroup to the exact population distribution. Consequently, although the sample was representative across all subgroups, it was slightly oversampled in terms of individuals with higher education, indicating that the results should be interpreted with caution with regards to the education variable. Although this investigation provides useful insights into factors associated with parental burnout during the COVID-19 pandemic, all variables obtained in this study are based on self-report measures. Parents may not answer some of the items genuinely, especially those concerning unfavorable thoughts and behaviors regarding their own children and parenting. The study does not include the possibility that extraneous variables give rise to the association between factors and parental burnout, and other related factors about participants such as ages of children, to what extent the participants manage household/work/homeschooling/childcare, and whether social support contributed to the overall variance in parental burnout.

CONCLUSION

The findings of this study reveal substantial factors associated with concurrent parental burnout during the COVID-19 pandemic, namely, parental stress and satisfaction, unhelpful coping strategies, insomnia symptoms, and younger age. Another important finding is that parental stress measured in the early stages of the pandemic was associated with parental burnout at 3 months follow-up, over and above the concurrent influence of stress, highlighting that the severe burden parents faced during the early stages of the pandemic is related to increased burnout 3 months into the pandemic. The COVID-19 pandemic poses increased demands and stress on parents and families across the globe, and it is suggested here that the increased and prolonged stress that parents have experienced could potentially lead to parental burnout, which in turn is associated with a range of negative outcomes for the individuals affected and for their children. This investigation thus provides a fraction of insight into what has taken place in family environments around the world, emphasizing the need to address the factors affecting parents and their children during the pandemic. Importantly, these results highlight the need for the development and implementation of preventive and interventive measures that may be utilized to reduce the burden on parents during these periods to reduce the risk of burnout and its adverse consequences.

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SUPPORTING INFORMATION

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APPENDIX 1

A table revealing the proportion of the sampled parents.

All oversampled and undersampled subgroups were assigned appropriate weights to reflect their known distribution in the population as precisely as possible. Sex, ethnicity, geographic region, and proportion of health care professionals were adjusted for in the weighting procedure.

	Sampled *N* (%)	**Weighted *N* (%)**	**% in the adult population**
Sex			
Female	1195 (80.31)	741 (49.80)	49.77
Male	293 (19.69)	747 (50.20)	50.23
Ethnic background			
Native	1380 (92.74)	1318 (88.57)	85.29
Europe	82 (5.51)	117 (7.86)	7.58
Asia	12 (0.81)	36 (2.42)	4.56
Africa	2 (0.13)	6 (0.40)	1.85
North-America/ Oceania	2 (0.13)	4 (0.27)	0.27
Middle-/ South-America	10 (0.67)	7 (0.47)	0.45
Region			
East Norway	921 (61.90)	870 (58.47)	58.32
West Norway	384 (25.81)	291 (19.56)	20.28
Mid-Norway	135 (9.07)	243 (16.33)	15.95
Northern Norway	48 (3.23)	84 (5.65)	5.45
Health care professional			
Yes	351 (23.59)	176 (11.83)	12.70
No	1137 (76.41)	1312 (88.17)	87.30