

Development of Parent-Adolescent Relationships During the COVID-19 Pandemic: The Role of Stress and Coping

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The extensive measures to prevent spread of COVID-19 have had a major impact on families' daily lives. Changes in family routines and experiences of COVID-19-related stress might negatively impact the quality of parenting and the parent-adolescent relationship. However, using active coping strategies might be associated with limited negative or even positive changes in the parent-adolescent relationship. This longitudinal, multi-informant, and pre-registered study used data of 240 mostly Dutch parents (85% mothers; $M_{\text{age}} = 44.2$ years old) and adolescents (50% girls; $M_{\text{age}} = 11.4$ years) from diverse SES backgrounds. Using Latent Change Score models, we examined how parent-reported parenting (i.e., positive parenting and discipline practices) and adolescent-reported relationship quality (i.e., support and negative interaction) changed from pre-COVID-19 (Fall 2019) to the COVID-19 period (Spring 2020). Moreover, we investigated whether parents' and adolescents' level of COVID-19-related stress was associated with the change in relationships, and whether active coping moderated the association between stress and changes in relationships. Results showed average decreases in support, positive parenting, and negative interactions between parents and adolescents. COVID-19-related stress was not a direct predictor of relationship changes and there was little evidence of moderating effects. Only adolescents' use of active coping strategies moderated the effect of stress on positive parenting. For high active coping adolescents, the link between stress and change in positive parenting was negative, whereas for low active coping adolescents this link was positive. The findings suggest that parent-adolescent relationships during a pandemic need attention, especially for adolescents with high stress levels and using active coping strategies.

Keywords: COVID-19, parenting, parent-adolescent relationships, stress, coping

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The coronavirus disease 2019 (COVID-19) pandemic and the extensive measures to prevent a further spread of the virus have had a major impact on the daily life of all citizens (Qiu et al., 2020; Wang et al., 2020). Especially families with (adolescent) children might have been affected by the restrictive measures (Brown et al., 2020; Keijsers & Bülow, 2020), because even in 'normal' times, adolescence is a turbulent period. Although

perceived support, guidance, and structure is still very important for healthy development of adolescents (Branje et al., 2002), relationships between adolescents and parents become more egalitarian, and this process is often accompanied by an increase in conflicts (Branje et al., 2012; Laursen & Collins, 2009) and a decrease in support during early adolescence (De Goede et al., 2009; Mastrotheodoros et al., 2019). Also, parents tend to gradually decrease their control to accommodate the increasing autonomy of their children (Keijsers et al., 2009). Given that early adolescence is a period with important changes in these three key aspects of the parent-child relationship, examining the role of COVID-19 on these aspects is crucial.

The current study examined changes in parenting and parent-child relationship quality from pre-COVID-19 to the COVID-19-period. The Netherlands was struck particularly hard by the pandemic, with worrisome incidence and death rates (see Figures S1 and S2 in online supplementary material). During the second wave of this study (Spring 2020), sharp restrictive measures were taken to combat the spread of the virus, including closing of schools, workplaces, cafes, restaurants, and parks. Therefore, in the Netherlands, as in many other countries, children could temporarily not attend school during the lockdown measures and had to do their schoolwork from home, had limited (face-to-face) contact with peers, and their structured leisure activities were often cancelled (Hale et al., 2020). At the same time, many parents had to work from home while taking care of and supervising the

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schoolwork of their children (Shockley et al., 2021). These changes in family routines might have impacted parenting and parent–child relationship quality (Masarik & Conger, 2017; Nelson et al., 2017).

However, not all families might be affected by the COVID-19 crisis to a similar extent (Ameis et al., 2020; Kalil et al., 2020). In particular, parents and adolescents who experienced high levels of stress resulting from the preventive measures, or worried about changes in their financial situation or the well-being and health of themselves and their relatives, might experience less resources for high-quality parenting or parent–child interactions (Brock & Laifer, 2020; Masarik & Conger, 2017). Nonetheless, effective coping strategies might make parents and adolescents more resilient against a negative impact of stress on their relationships (Masten & Motti-Stefanidi, 2020; Polizzi et al., 2020; Walsh, 2020). Therefore, we explored whether COVID-19-related stress was associated with changes in parenting and parent–child relationship quality, and whether coping moderated this association.

The Role of Parent-Child Relationships During a Pandemic

The COVID-19 pandemic fits the definition of a disaster, that is, circumstances that cause large-scale disruption in the lives of many people (Masten & Motti-Stefanidi, 2020). Disasters might especially affect families with adolescent children, who are already in a turbulent period of their life (Brock & Laifer, 2020; Finkenauer et al., 2019). Previous studies following up large-scale disasters or negative life events showed that contextual factors (e.g., support) explained who are resilient when facing life-changing situations (Bonanno et al., 2007). For example, parental support was an important protective factor against posttraumatic stress in adolescents after a natural disaster (Bokszczanin, 2008). This is in line with more general research suggesting that supportive relationships are associated with better health and well-being, also in adolescence (Branje et al., 2002; Finkenauer et al., 2019). On the contrary, dysfunction in the family system after disasters could lead to an increase in internalizing symptoms in children (McDermott & Cobham, 2012) and increased levels of interpersonal conflict and domestic violence (Harville et al., 2011).

Although supportive relationships might thus buffer the negative effects of disasters, the quality of these relationships within the family might change as a result of a pandemic as well (Brock & Laifer, 2020). It could be argued that the COVID-19 pandemic has distinct features compared to many other disasters (e.g., restrictive measures and lockdown), thereby having a stronger impact on within-family relationships (Masten & Motti-Stefanidi, 2020; Walsh, 2020). Natural disasters, like earthquakes or floods, are usually impactful, but relatively short events. After such disasters, people are working together to provide health care, to look for survivors, and later to rebuild homes and community services (Bava et al., 2010). The extended duration of the COVID-19 pandemic and the preventive contact-limiting measures against the spread of the virus, however, limited face-to-face social contacts and sources of support outside the family (Brock & Laifer, 2020; Gruber et al., 2021). This absence of supportive social networks might be detrimental for development especially during adolescence (Finkenauer et al., 2019; Holt-Lunstad et al., 2010). Although social media enabled long-distance connections with

friends and relatives, people are more isolated and constrained than before, which might impact the relations within the family.

The increased focus on the nuclear family could strengthen or weaken parent-adolescent relationships. On the one hand, families might enjoy having more time together, with fewer obligations outside the home and more time to invest in their relationship. Indeed, previous studies found that sense of cohesion was strengthened in many families which were affected by a tsunami (Lindgaard et al., 2009). Also, parents in that situation provided more support to their offspring and carefully monitored their children's reactions in the aftermath of the tsunami (Hafstad et al., 2012). On the other hand, the anxiety and insecurity associated with COVID-19, combined with factors such as working from home while homeschooling or supervising children, might negatively impact how parents and children interact (Masarik & Conger, 2017; Nelson et al., 2017). In the aftermath of a tsunami, it was found that parents who themselves were impacted by the disaster showed reduced ability to provide care for their children (Hafstad et al., 2012). Also, some families reported more conflict when they were not able to talk openly about their experiences within the family (Lindgaard et al., 2009). It is therefore important to investigate how parent-adolescent relationships change during the COVID-19 era.

In the current study, we examined changes in the quality of parenting and parent-adolescent relationships from before COVID-19 to the COVID-19-period. We focused on three main aspects of parent-adolescent relationships, reflecting warmth and involvement, behavioral control, and parent–child conflict (Baumrind, 1968; Branje et al., 2012). These constructs reflect the key dimensions of the parent-adolescent relationship (Branje et al., 2012), have been related to a broad range of child outcomes, including internalizing and externalizing problems (Pinquart, 2017a, 2017b), and are susceptible to change when facing large-scale natural disasters (Hafstad et al., 2012; Lindgaard et al., 2009). Given that parents and adolescents spend much time together in the COVID-19 period due to the social distancing measures, the parent-adolescent relationship might change on each of these three dimensions even more. To achieve a broad view of possible changes in parenting and parent-adolescent relationships, we included parent-reported measures of parenting and adolescent-reported parent–child relationship quality (Deković et al., 1997; Mastrotheodoros et al., 2020). We operationalized parental warmth as *Positive Parenting* (parent-report) and *Parental Support* (adolescent-report). Control was represented by a measure of *Discipline Practices* (parent-report) and conflict was represented by parent-adolescent *Negative Interactions* (adolescent-report).

The Impact of Perceived COVID-19-Related Stress

One important factor that could be associated with the extent to which parenting and parent–child relationship quality change during the pandemic is the experience of stress in the family (Masarik & Conger, 2017). Recent research from China showed that a large part of the population experienced high stress levels in response to COVID-19 (Qiu et al., 2020; Wang et al., 2020). Although fear of the dangerousness of (contamination with) COVID-19 appears to be the most central aspect of COVID stress, other facets of stress are the socioeconomic costs and xenophobic fears of foreigners spreading the virus (Taylor et al., 2020). Following natural

disasters, it has been found that a moderate amount of perceived stress might be related to future personal growth (Felix et al., 2015). However, too much stress has been negatively associated with health outcomes and family functioning (Harville et al., 2011; Masarik & Conger, 2017; Nelson et al., 2017).

Although COVID-19 could be regarded as a pandemic which affected people globally, large interindividual differences exist in the extent of worrying about the situation and the potential impact of COVID-19 on individual health, finances, and daily activities (Masten & Motti-Stefanidi, 2020; Walsh, 2020). According to the Transactional model of Stress and Coping (Lazarus & Folkman, 1984), how much stress an individual experiences is first of all guided by their subjective interpretation of the situation. Personal characteristics such as age and gender might thus affect the subjective experience of COVID-19-related stress (Taylor et al., 2020; Wang et al., 2020). For example, adolescents might experience stress mainly because of the restrictions in meeting with their friends, while parents might experience also financial and job insecurity, which causes stress. For both parents and adolescents, experiencing health problems in their nuclear family might have a huge impact on how stressful they find the pandemic. Because stress is a subjective experience, we included both parent- and adolescent-reported COVID-19-related stress. It could be argued that people experiencing high levels of COVID-19-related stress will have difficulty to deal effectively with the new parenting challenges, resulting in a deterioration of parent-child relationship quality (Brown et al., 2020; Masten & Motti-Stefanidi, 2020).

Coping as a Protective Factor

Although the COVID-19 pandemic goes together with high levels of stress and reduced wellbeing for many (Polizzi et al., 2020; Walsh, 2020), many people normally show resilience when facing disasters (Bonanno et al., 2007; Seery, 2011). Resilience has been defined as the capacity of a system to adapt to challenges that the system is facing (Masten & Motti-Stefanidi, 2020). A systematic review showed that educational resources and social support, as well as optimism and active coping of individuals, were identified as protective factors fostering resilience (Betancourt et al., 2013). As social support from outside the family might be restricted due to the COVID-19-measures, parents' and adolescents' preexisting coping skills might be an important moderator of whether and how COVID-19-related stress is associated with changes in relationship quality during the pandemic. This is in line with the Transactional model of Stress and Coping (Lazarus & Folkman, 1984), which suggests that after something has been judged as stressful, the evaluation of someone's resources (such as coping skills) will determine the eventual outcome.

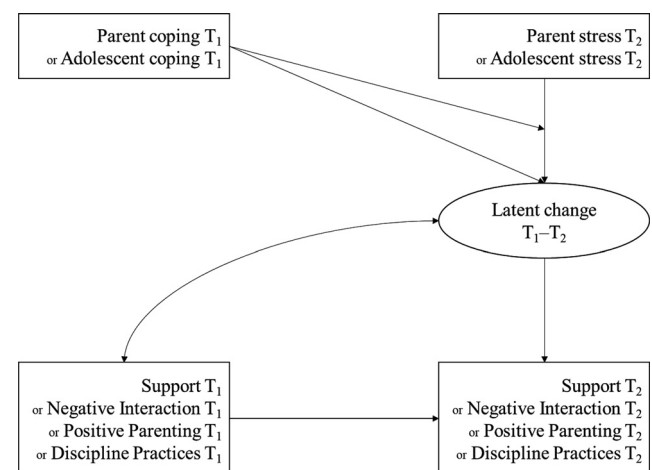
Coping refers to the person's cognitive and behavioral efforts to manage the demands of the situation that is appraised as taxing (Folkman et al., 1986). Three main categories of coping are active, internal, and withdrawal coping (Seiffge-Krenke et al., 2009). Most studies found positive effects of active coping, which includes strategies such as rethinking the situation and seeking social support. Adolescents' early use of active coping has been associated with lower levels of perceived stress in similar situations later on (Seiffge-Krenke et al., 2009). Lower levels of

perceived stress and positive coping were also found to predict less emotional and behavioral problems (Hampel & Petermann, 2006), and better adjustment to stressful situations (such as maternal cancer; Rodriguez et al., 2019). Students using active coping after wildfire disasters were more likely to experience posttraumatic growth (Felix et al., 2015). It could thus be argued that good coping skills might be a protective factor against adverse outcomes of stress on relationship quality (Masarik & Conger, 2017; Nelson et al., 2017). Specifically, for the COVID-19 pandemic, we expected that active coping skills might give families the resources to deal with the new (parenting) challenges, even when they are facing high demands (i.e., stress levels) as a result of the pandemic (Lazarus & Folkman, 1984).

The Present Study

The existing literature on disasters suggests that family functioning is an important protective factor against the development of problems (e.g., Bokszaanin, 2008), but parent-adolescent relationships can also be negatively affected by stress and the changing environment (Masarik & Conger, 2017; Nelson et al., 2017). It should be noted, however, that most previous studies only collected data at one moment in time, which makes it hard to draw conclusions on within-person or within-family processes. For the present study, we therefore examined changes in parenting and parent-adolescent relationship quality from before COVID-19 till during the COVID-19 pandemic in a sample of Dutch adolescents and their parents. Moreover, we investigated the prospective associations between perceived stress and these changes, as well as the potential moderating role of preexisting coping tendencies on the association between stress and changes in relationship quality. For an overview of the analytical models, see Figure 1. Three research questions were addressed. The research questions and hypotheses were preregistered (Donker et al., 2021) and are listed below.

Figure 1
Schematic Overview of the Constructs Included in the Present Study



Note. Separate models were run for each of the constructs (eight models in total). T_1 = Time 1; T_2 = Time 2.

(1) To what extent are there changes in parenting and parent-adolescent relationship quality over a six-month period, from the pre-COVID-19 to the COVID-19 period?

For adolescent-reported parental support and parent-reported positive parenting we expected increases during the COVID-19 period, as parents and adolescents are more at home and spend more time together. For adolescent-reported negative interactions and parent-reported discipline practices, we also expected an increase, because parents and adolescents have less freedom to go outside or spend time with friends, and stricter rules and disciplinary measures need to be applied in order for this close symbiosis to function for all. We expected small effect sizes, in line with extant research on changes in parent-adolescent relationships.

(2) Is parent- and adolescent-perceived COVID-19-related stress associated with changes in parenting and parent-adolescent relationships?

We expected that higher levels of parental and adolescent COVID-19-related stress will be associated with a weaker increase in parental support and positive parenting and a stronger increase in negative interaction and discipline practices.

(3) Does parent and adolescent active coping moderate the associations of stress with changes in parenting and parent-adolescent relationships?

We expected that parents and adolescents who use more active coping show more favorable changes in parent-adolescent relationship quality, that is, a stronger increase in parental support and positive parenting, and a less strong increase in negative interaction and in discipline practices (i.e., direct effect). Moreover, we expected that the link between COVID-related stress and changes in parenting would be attenuated under high levels of parent and adolescent active coping. In contrast, this association was expected to be stronger under low levels of active coping (i.e., moderating effect).

Method

Participants

Participants were 240 adolescents and one of their parents. Adolescents were in the final grade of primary school and were on average 11.4 years old ($SD = .50$) during the first wave of data collection in Fall 2019. The sample consisted of 120 (50%) girls and 118 (49.2%) boys. Parents were on average 44.2 years old ($SD = 5.04$) at Wave 1. Of the participating parents, 85% were mothers. Most adolescents (80.4%) reported living with both parents, whereas 12.9% reported not living with both parents (6.7% missing). Most adolescents (93.2%), fathers (90.4%), and mothers (89.2%) were born in the Netherlands.

The sample was relatively diverse in terms of family net income and self-reported SES. Monthly family net income was measured on a scale from 'less than 1000 euros/month' to 'more than 9000 euros/month' with intervals of 500 euros. Perceived SES was measured with the 10-point Cantril Ladder (Levin & Currie, 2014), where people were asked to compare themselves with the rest of the people in their country, with values ranging from 1 (doing the worst) to 10 (doing the best). In this study, the median monthly family net income was 4000–4500 euros/month

($SD = 4.44$, about 2220 euros) and perceived SES was $M_{adolescent} = 7.71$ ($SD = 1.12$) and $M_{parents} = 7.61$ ($SD = 1.26$).

Of the 240 adolescents and 236 parents who participated at Wave 1, 190 (80%) adolescents and 195 (82.6%) parents also participated at Wave 2. Comparisons between stayers and dropouts on background characteristics and Wave 1 target variables revealed only two small statistically significant differences, with families who dropped out reporting lower parental support. Comparisons between mothers and fathers revealed that fathers were older, reported higher SES and lower Wave 1 positive parenting compared to mothers (see Tables S1, S2, and S3 in online supplementary material).

Procedure

Data were collected as part of the InTransition project. The project follows adolescents for two years around their transition from primary school to secondary school. In the Netherlands, adolescents make this transition around the age of 12. The study design was approved by the faculty ethics board of Utrecht University. Participants were mostly recruited through their schools. Adolescents and their parents were asked to complete questionnaires both in Fall and Spring in the year before and after the transition. For the current study, only the first two waves of questionnaire data were available, collected in Fall 2019, before COVID-19, and Spring 2020, during the lockdown in the Netherlands.

In the Netherlands, schools were closed from halfway March till the beginning of May. Large gatherings were forbidden during the whole Spring. For children under the age of 12, there were less restrictions in terms of group size, but parents were mostly working from home during this period. According to data from the Blavatnik School of Government at Oxford University (Hale et al., 2020), during the time of data collection, the Dutch government had a strict, yet relatively more lenient approach to the pandemic compared to other European countries. However, the casualties were relatively low compared to other countries (see Figures S1 and S2 in online supplementary material).

Measures

Parent-Adolescent Relationships

Parent-Adolescent Relationship Quality. At both measurement waves, adolescents reported on two aspects of parent-adolescent relationship quality using two subscales of the Network of Relationships Inventory (NRI; Furman & Buhrmester, 1985): the Negative Interactions scale (6 items; $\alpha = .90$ and $\alpha = .91$ at Wave 1 and Wave 2, respectively) and the Parental Support scale (5 items; $\alpha = .77$ at both Wave 1 and Wave 2). An example item for Negative Interactions is 'How often do you disagree with your parents?' and for Parental Support 'To what extent do your parents teach you to figure things out and fix them?.' Adolescents answered the questions on a 5-point Likert scale, ranging from 1 (*never*) to 5 (*very often*).

Parenting. At both measurement waves, parents reported on their parenting using the Alabama Parenting Questionnaire (APQ; Frick, 1991). We administered all 42 items but left out the Poor Monitoring scale in the current study, as these items were often not applicable due to the COVID-19 lockdown measures. The remaining items were structured in two factors: Positive Parenting

(13 items; $\alpha = .76$ and $\alpha = .70$ at Wave 1 and Wave 2, respectively) and Discipline Practices (14 items; $\alpha = .74$ and $\alpha = .78$ at Wave 1 and Wave 2, respectively). In line with existing research (Zlomke & Hahn, 2010), we included the distractor items in the Discipline Practices scale. An example item for Positive Parenting is 'You compliment your child when they do something well' and for Discipline Practices 'The punishment you give your child depends on your mood'. Items were answered on a scale from 1 (*never*) to 4 (*always*).

Parent and Adolescent Stress

During the second wave, we asked parents and adolescents to rate to what extent they experienced COVID-19-related stress. A first set of four items focused on the amount of worrying because of the COVID-19 measures, namely 'Since the outbreak of the coronavirus, how much were you worried . . . 1) that you would get infected?, 2) that your friends or family would get infected?, 3) about the effect of the corona crisis on your physical health?, and 4) about the effect of the corona crisis on your mental/emotional health?.' Questions were answered on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). The answer options were recoded by subtracting one from the original scores, such that the answer option 'not at all' was coded as zero. The items were then combined in a sum score, representing the total amount of COVID-19-related worrying. Internal consistency of these items was good, $\alpha = .80$ for parents and $\alpha = .78$ for adolescents.

The second part of the stress scale was based on the Life Experience Survey (Sarason et al., 1978). Parents and adolescents answered whether they experienced a large range of life events, such as death or illness of close family members, changes in friendships or at school, or moving houses. The list consisted of 48 items for adolescents and 47 items for parents. Items were largely similar but adapted to the specific context of the respondent (e.g., changes at school vs. at work). When participants indicated that they experienced an event, they indicated how positive or negative the event was for them on a scale from -3 (*very negative*) to $+3$ (*very positive*). Additionally, they indicated whether the event was associated with COVID-19. We only used the negative valence scores (i.e., -1 and lower) of events that were associated with COVID-19. Valence scores were recoded, so higher scores represented experiencing the event as more negative. A sum score was calculated of all negative valence scores to represent the total valence of COVID-related changes. In this way, both the number of events as well as their negativity were taken into account. The z -scores of both stress measures were combined into one stress score, separately for parents and adolescents.

Parent and Adolescent Coping

During wave 1, we measured Active Coping, Internal Coping, and Withdrawal (Seiffge-Krenke et al., 2009) using the Utrechtse Coping Lijst (UCL; Schreurs et al., 1988). Parents and adolescents addressed the items on a scale from 1 (*almost never*) to 4 (*often*). Active Coping was measured using the subscales Active Tackling and Seeking Social Support. An example item is 'I think of different ways to solve the problem' and the reliability was good ($\alpha = .83$ for parents and $\alpha = .81$ for adolescents). Internal coping consisted of Reassuring Thoughts and Palliative Reacting. An example item is 'I realize that better times will come' and the reliability

was low ($\alpha = .62$ for parents and $\alpha = .67$ for adolescents). Withdrawal coping was measured using the Passive Reacting, Expression of Emotion, and Avoidance subscales. An example item is 'I avoid the problem as much as possible' and the reliability was low ($\alpha = .48$ for parents and $\alpha = .61$ for adolescents).

Analytic Plan

For the sake of space, the analytic plan is only briefly described here (for more information, see [online supplementary material](#)). As preliminary steps, we applied Confirmatory Factor Analyses (CFAs) on all scales (except for stress due to the nature of the scale) and tested for longitudinal measurement invariance of the target measures (parental support, negative interactions, positive parenting, discipline practices). After ensuring that the measurement properties of the items were acceptable (CFAs) and comparable across waves (longitudinal measurement invariance; see [Tables S4](#) and [S5](#) in [online supplementary material](#)), we calculated composite scores using the average of the observed items for each scale, and used them in the main analyses. The Internal and Withdrawal Coping subscales showed low alpha coefficients in all cases, as well as low CFI, and/or TLI, and/or RMSEA in some of the cases; therefore, those scales were excluded from further analyses.

Power analyses were ran using the *RAMpath v0.4* package (Zhang et al., 2016) for the first research question, and the *findRMSEApower* function of the *semTools v.5-3* package (Jorgensen et al., 2020) for the second and third research questions¹. Our sample size was well-powered to detect normative standardized latent change effects (research question 1), but less so to detect fine misspecifications when including direct and interactive effects (research questions 2 and 3).

We ran four univariate Latent Change Score models (LCS; Klopck & Wickrama, 2020; McArdle, 2009) in R, to answer our first research question and eight additional LCS models to answer the second and third research questions (see [Figure 1](#)). To test the moderating effect of active coping, we first standardized the stress and coping variables, and then we calculated their product, which was entered in the models, along with the standardized stress and coping variables. We applied the Johnson-Neyman technique using the *interactions v.1.1.3* (Long, 2020) package in R to get a better understanding of significant moderation(s), using simple slopes and by locating the regions of significance. In all models, adolescent gender, living situation (living with both parents: no-yes), and family income were controlled for. In each of the 12 LCS models False Discovery Rate was applied to adjust the p -values of all estimates in each model, to correct for multiple testing¹.

The code for the tests of longitudinal measurement invariance, the construction of the composite scores, and the LCS models is available in the Open Science Framework (Donker et al., 2021).

Results

Preliminary Analyses

Descriptive statistics and correlations are presented in [Table 1](#). All measures of parenting and parent-adolescent relationship

¹ This step was not preregistered and was added during the peer review process.

Table 1*Means, Standard Deviations, Intraclass Correlation Coefficients, and Bivariate Correlations*

Variable	<i>M</i>	<i>SD</i>	ICC	1	2	3	4	5	6	7	8	9	10	11
1. Parental Support W1	3.95	0.69	-.029	—										
2. Parental Support W2	3.57	0.77	-.142	.47**	—									
3. Negative Interactions W1	2.16	0.67	.062	-.14*	-.16*	—								
4. Negative Interactions W2	1.44	0.58	-.057	-.26**	-.22**	.36**	—							
5. Positive Parenting W1	3.02	0.34	.079	.12	.08	-.08	-.06	—						
6. Positive Parenting W2	2.93	0.31	-.004	.14*	.12	-.04	-.21**	.65**	—					
7. Discipline Practices W1	1.53	0.26	.135	-.08	-.07	.27**	.19*	-.14*	-.17*	—				
8. Discipline Practices W2	1.52	0.28	.060	-.22**	-.26**	.25**	.26**	-.23**	-.24**	.72**	—			
9. Active Coping Adolescent	2.36	0.48	.087	.32**	.30**	-.11	-.05	-.04	.03	-.06	-.10	—		
10. Active Coping Parent	2.59	0.41	.016	.05	.03	-.03	.02	.10	.03	.03	-.06	.16*	—	
11. COVID-Stress Adolescent	0.01	1.48	-.021	.03	.00	.03	.03	.08	-.01	.01	.05	.17*	-.03	—
12. COVID-Stress Parent	-0.01	1.51	.012	.03	.07	-.08	-.00	.03	-.00	.13	.10	.07	-.06	.15*

Note. W1 = Wave 1; W2 = Wave 2. *M*, *SD*, and ICC are used to represent mean, standard deviation, and Intraclass Correlation Coefficient, respectively. * $p < .05$. ** $p < .01$.

quality were positively associated across waves 1 and 2. Also, warmth of the parent-adolescent relationship (i.e., support and positive parenting) was negatively associated with the amount of parental control (i.e., discipline practices) and conflict (i.e., negative interaction). Parent and adolescent reports of both stress and coping were positively associated. Furthermore, higher active coping of the adolescent was associated with more parental support in both waves, as well as with higher levels of adolescent COVID-19-related stress.

Table 2 presents the fit indices for the 12 Latent Change Score models that answered the three research questions. Except for one model (i.e., model 5, for the interaction of adolescent active coping and COVID-19-related stress on the latent change of adolescent-reported parental support), all models showed good fit (CFIs and TLIs ranging from .918-1.062, RMSEA ranging from .000-.085).

Research Question 1: Changes in Parenting and Parent-Adolescent Relationship Quality

Our first research question focused on how parenting and parent-adolescent relationship quality changed from pre-COVID-19

to the COVID-19 period. Table 3 presents the coefficients of the latent change factors in those 12 models. Figure 2 shows that adolescents reported lower levels of parent-adolescent negative interactions during the pandemic, compared to before the pandemic. Compared to six months before the lockdown, parents reported lower levels of positive parenting and adolescents reported lower levels of parental support. Only the level of discipline practices (parent-reported) remained on average stable during the beginning of the COVID-19 pandemic.

Research Questions 2 and 3: The Effect of COVID-19-Related Stress on Changes in Relationship Quality and Moderation by Active Coping

For the second and third research questions, we investigated whether parents' and adolescents' experience of stress was associated with their (changes in) relationship quality, and whether active coping would moderate these associations. Table 3 shows that there were no main effects of perceived stress on the changes in relationship quality, neither for parents nor for adolescents.

Table 2*Fit Indices for the Latent Change Score Models*

Model number	χ^2	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA [90% CI]	Baseline RMSEA
Univariate Modeling							
1. Parental Support	3.56	3	.313	.989	.975	.028 [.000, .116]	.178
2. Negative Interactions	3.15	3	.369	.995	.987	.014 [.000, .111]	.129
3. Positive Parenting	1.04	3	.792	1.000	1.043	.000 [.000, .070]	.252
4. Discipline Practices	8.15	3	.043	.967	.922	.085 [.013, .157]	.303
Adolescent Coping and Stress Effects							
5. Parental Support	26.62	6	.000	.728	.410	.120 [.076, .168]	.156
6. Negative Interactions	6.44	6	.375	.983	.963	.018 [.000, .087]	.092
7. Positive Parenting	2.64	6	.853	1.000	1.053	.000 [.000, .058]	.194
8. Discipline Practices	9.44	6	.150	.978	.918	.064 [.000, .117]	.221
Parent Coping and Stress Effects							
9. Parental Support	4.82	6	.566	1.000	1.051	.000 [.000, .074]	.126
10. Negative Interactions	6.58	6	.362	.978	.952	.020 [.000, .088]	.092
11. Positive Parenting	3.36	6	.762	1.000	1.062	.000 [.000, .046]	.187
12. Discipline Practices	11.88	6	.065	.962	.951	.049 [.000, .105]	.224

Note. $N = 240$. Maximum Likelihood estimator was used, with Full Information Maximum Likelihood for handling missing data. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; 90% CI = 90% confidence intervals.

Table 3

Latent Change Scores on Dimensions of Relationship Quality and Parenting, From Wave 1 (Pre-COVID-19) to Wave 2 (During COVID-19)

Model	LCS	Coping	Stress	Coping × Stress
Univariate Modeling				
1. Parental Support	−0.581***			
2. Negative Interactions	−1.012***			
3. Positive Parenting	−0.338***			
4. Discipline Practices	−0.024			
Adolescent Coping and Stress Effects				
5. Parental Support	−0.564***	.169 [^]	−.027	−.007
6. Negative Interactions	−1.018***	−.011	.012	.056
7. Positive Parenting	−0.305***	.043	−.036	−.226**
8. Discipline Practices	−0.014	−.105	.066	−.049
Parent Coping and Stress Effects				
9. Parental Support	−0.582***	.036	.053	−.067
10. Negative Interactions	−1.016***	.053	.019	.033
11. Positive Parenting	−0.346***	−.036	−.021	−.143 [^]
12. Discipline Practices	−0.024	−.129	.004	−.042

Note. Standardized coefficients are shown. False Discovery Rate p-value correction has been applied on the estimate level for each model. Maximum Likelihood estimator was used, with Full Information Maximum Likelihood for handling missing data. All analyses were controlled for adolescent gender, parent-reported SES, and adolescent-reported living situation (living with both parents yes-no). Parental Support and Negative Interactions were adolescent reported. Positive Parenting and Discipline Practices were parent-reported. Adolescents and parents reported on Coping and Stress separately. LCS = Latent Change Score. *Coping*: Active Coping at Wave 1; *Stress*: COVID-19-related stress at Wave 2; *Coping x Stress*: Interaction of active coping with COVID-19-related stress.

* $p < .05$. ** $p < .01$. *** $p < .001$. [^]did not survive multiple testing correction.

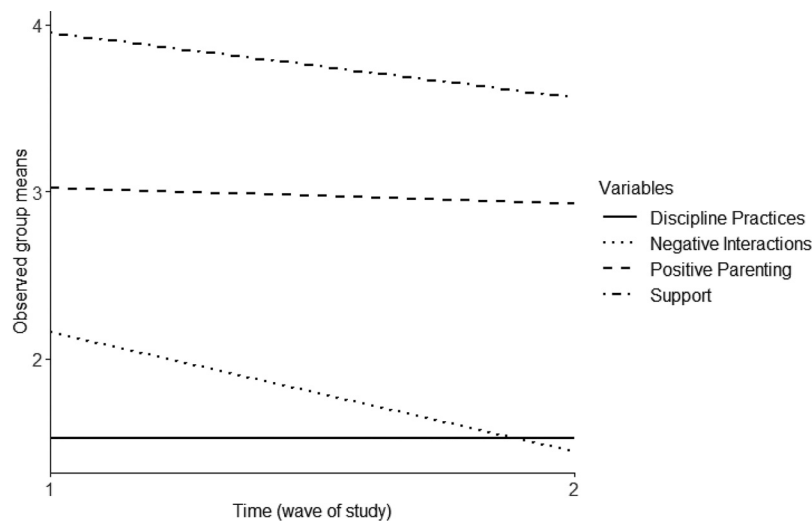
There was little evidence of direct or moderating effects of coping overall. Adolescent active coping was positively associated with changes in parental support ($\beta = .169, p < .05$), but this effect did not survive multiple testing correction. The only significant interaction effect was found for the interaction of adolescent-reported COVID-19-related stress with adolescent active coping in predicting changes in positive parenting ($\beta = -.226, p < .001$; see Figure 3). Simple slopes revealed that for adolescents with low active coping ($-1 SD$) the slope of change in positive parenting on stress was positive and significant ($B = .03, p < .000$), for adolescents with average active coping the slope of change in positive parenting on stress was nonsignificant ($B = -.01, p = .13$), and for

adolescents with high active coping ($+1 SD$) the slope of change in positive parenting on stress was negative and significant ($B = -.05, p < .000$). According to the regions of significance, the association between change in positive parenting and stress was significant for low (below $M - .44 SD$) and high (above $M + .07 SD$), but not average ($-.44 < M < .07$) levels of active coping.

Discussion

The COVID-19 pandemic has had a major impact on society in general, and family life in particular (Masten & Motti-Stefanidi, 2020; Walsh, 2020). Compared to other disasters, the COVID-19

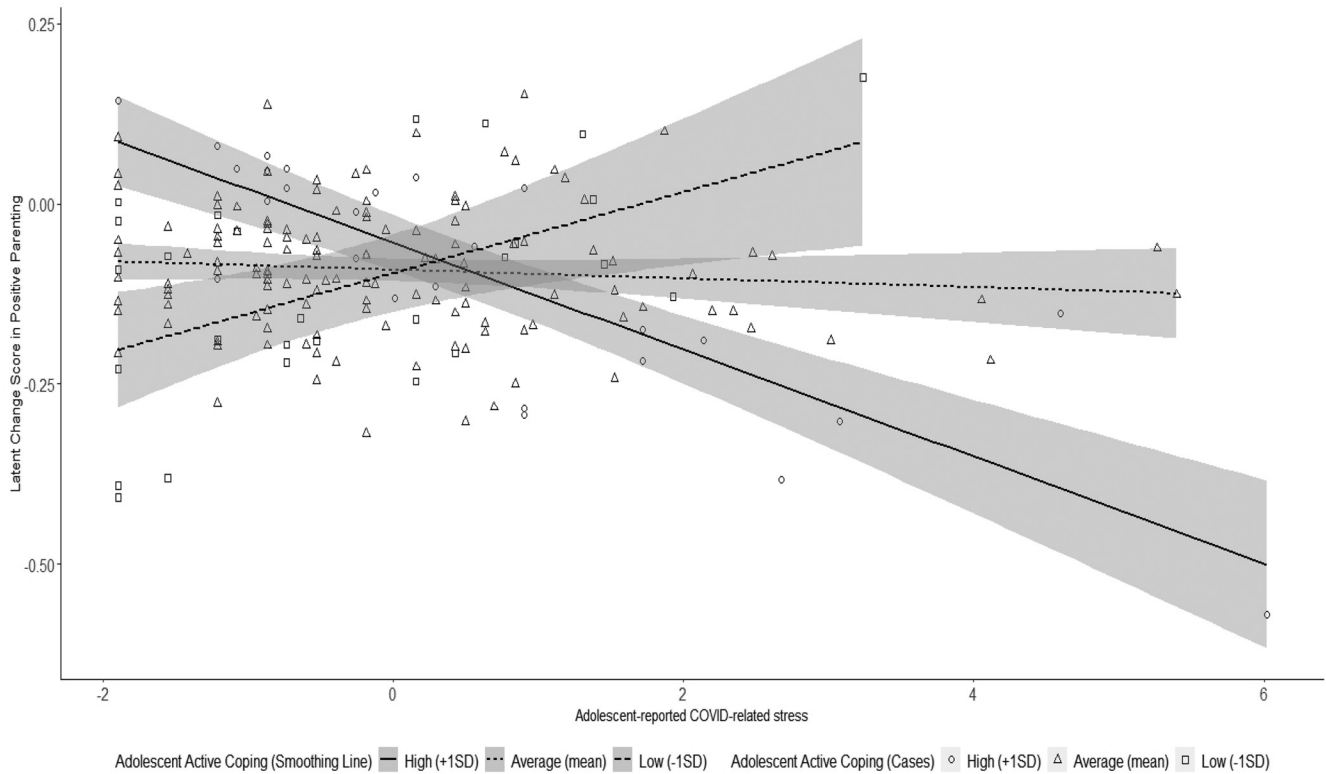
Figure 2
Observed Group Means for the Target Variables Across Wave 1 and Wave 2



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Figure 3

Interaction of Adolescent Active Coping With Adolescent COVID-19-Related Stress (z-Scores) in Predicting Latent Change Score in Positive Parenting



pandemic is unique in that extensive measures were taken to prevent the spread of the virus, including lockdown, homeschooling, and working from home (Brock & Laifer, 2020; Hale et al., 2020). This has put much pressure on the nuclear family and might have affected the relationships between parents and adolescents in particular. Many individuals experienced stress because of the long-term duration of the pandemic and the insecurity about its development (Polizzi et al., 2020; Taylor et al., 2020). We therefore examined to what extent parent-adolescent relationships changed from pre-COVID-19 to the COVID-19 period (research question 1), and whether parental and adolescent perceived stress was associated with these changes (research question 2). Furthermore, we explored whether an active coping style moderated the link between stress and relationship changes (research question 3).

Contrary to our expectations that spending more time together might increase relational warmth and involvement, we found that adolescents on average experienced less parental support during the COVID-19 period compared to before. Also, parents reported a decrease in their positive parenting. It thus seems that both parents and adolescents perceived their relationships as less warm and supportive, despite the extra time they spent together during the lockdown. This is worrying as previous studies in the aftermath of (natural) disasters found that especially parental support helped to protect children against adverse mental health outcomes (Bokszczanin, 2008; Bonanno et al., 2007; McDermott & Cobham, 2012). Perhaps spending more time together makes the daily hassles that characterize parent-child relationships in adolescence

less avoidable (Branje, 2018), resulting in an experienced decline in warmth. Moreover, both parents and adolescents might feel deprived of their usual escapes from these daily irritations when they cannot go to work or school due to the social distancing measures that were taken to slow down the spread of the virus (Keijsers & Bülow, 2020; Shockley et al., 2021). Most parents and adolescents normally would discharge from irritations by using their extended social network of peers and other parents. During the COVID-19 pandemic parents and adolescents were stuck in their homes with limited other (real-life) contacts. Although most youth probably had frequent contact with their friends via social media, parents might not be able to fully compensate for their children's need of real-life contact with friends and their extended support network (e.g., teachers or social workers) to support them during stressful times (Allen et al., 2018; Masten & Motti-Stefanidi, 2020). Also, the relatively long-term duration of the COVID-19 pandemic and the uncertainty about the end of the restrictive measures might explain the different results compared to the strengthened family bonds after other, more short-term, disasters.

We found no changes in parent reports of discipline practices and even a decline in negative interactions between parents and adolescents. Negative interactions during adolescence mainly concern daily hassles, and are thought to have an important function in the development of a more equal relationship between parents and adolescents (Branje, 2018; Branje et al., 2012). It could be that the lockdown measures have put the need to discuss frequent conflict issues, such as going out and spending time with friends,

temporarily on hold. Also, parents and adolescents might be more careful to engage in negative interactions about issues such as homework, irritating behavior and phone or computer time, because they have to spend so much time together and want to maintain a positive family climate (Fioretti et al., 2020). Also, there was probably less need to adhere to strict schemes of getting up early and going to school and sports, which might normally cause conflicts between parents and adolescents (De Goede et al., 2009). In a way, these findings suggest that the emotional climate in families has flattened; it has become less positive but also less negative.

The amount of stress that parents and adolescents experienced was not directly linked to changes in the quality of their relationship. Even though this lack of effects might be due to the relatively small sample size (granting low statistical power), this seems to suggest that also families with high levels of stress might be relatively resilient and seemed to cope as well with the situation as families with lower levels of COVID-19 related stress, or at least were able to avoid letting their stress affect their relationships. It should be noted that the data for the current study was collected during the first lockdown, only a few months after COVID-19 was first diagnosed. Parental and adolescent stress might increase with the longer duration of the pandemic, the wait for a vaccine, and new lockdowns in many countries (Gruber et al., 2021). Also, more families might have encountered sickness and death of family members themselves, which might have changed their perspective on the severity and impact of the pandemic on their lives, and thus their relationships.

Overall, there was only little evidence that adolescent or parent active coping moderated the link between stress and changes in parent-adolescent relationships, which is often the case in nonexperimental research (McClelland & Judd, 1993). We found only one specific instance in which active coping moderated the association between stress and relationship change. The link between adolescent-reported COVID-related stress and changes in parent-reported positive parenting was negative and significant among high levels of adolescent active coping, but positive and significant among youth with low levels of active coping. Adolescents using low levels of active coping might experience their parents' support as a good substitute for their decreased interactions with peers. These adolescents might receive more support from their parents and might be more open to parental efforts to comfort them. On the other hand, parents of adolescents who normally use active coping might have felt that they lacked the parenting resources to help their children who needed social support to cope with challenging situations (Armstrong et al., 2005). It could be argued that children in these families get less support from peers and other adults to deal with COVID-related stress, and thus experience less resources, which might consequently deteriorate their relationship with their parents (Masarik & Conger, 2017; Nelson et al., 2017). Nevertheless, it might be important for parents to first support their own well-being, before they can support the broader family (Hafstad et al., 2012). Social workers and the extended family should be sensitive to signs that parents need help to support their children to prevent a negative vicious cycle (Gruber et al., 2021; Masten & Motti-Stefanidi, 2020).

Strengths, Limitations, and Suggestions for Future Research

An important strength of the design of the present study is that we were able to follow parents and adolescents from pre-COVID-

19 till the beginning of the COVID-19 period. This enabled us to estimate *changes* in parenting and parent-adolescent relationships during the pandemic instead of asking participants to self-report experienced changes. Furthermore, our sample represented a large group of parents and adolescents with a relatively diverse background in terms of SES. The inclusion of both parent and adolescent reports helped to differentiate between their views. Findings showed that their experiences were largely in line with each other.

It should be noted that the adolescents in our sample were in the early stages of adolescence. Part of the changes in the relationship with their parents might thus be normal developments in this age period (De Goede et al., 2009). The lack of a control group not experiencing the pandemic made it impossible to separate normal age effects and effects associated with COVID-19. However, in our sample, we found a decline in negative interactions between parents and adolescents, while conflict normally increases in early adolescence (De Goede et al., 2009). This suggests that at least part of the changes were specific for COVID-19.

The families in our sample were relatively well-functioning families in an affluent country with good support measures. This might have affected the amount of stress in general, and the effect of stress on changes in the quality of relationships (Masarik & Conger, 2017). Results should therefore be generalized to other situations or countries with caution. International comparative studies seem important to investigate differences between countries in the effect of governmental regulations on family functioning. Moreover, some families might have to cope with more severe challenges, for example when other life changing events co-occurred with the COVID-19 pandemic, when parents and adolescents have preexisting personality and internalizing problems (Bonanno et al., 2007) or when children have autism spectrum disorders (Ameis et al., 2020). It would be interesting to dive further into specific family patterns to understand what they are going through and how different stressors interact, and most importantly, how these families could be supported to cope with the (stress resulting from the) pandemic.

In our sample, most parents were mothers, and this might be an additional limitation. However, although fathers reported lower levels of positive parenting than mothers in the current study, changes in parent-adolescent relationships are typically comparable for fathers and mothers (e.g., De Goede et al., 2009; Mastrotheodoros et al., 2020). As our study focused on change rather than levels of positive parenting, we do not expect this to have strongly affected our results. In addition, despite the multiinformant source of data in this study, we did not have multiinformant responses on the exact same constructs, a limitation that kept us from examining the effects of the pandemic on parent-adolescent discrepancies in perceptions of relationship change (e.g., Mastrotheodoros et al., 2020).

Another potential limitation is that schools were partly opening again during our second wave of data collection. This might have lowered the pressure on the family system. Also, the adolescents in our sample might have experienced relatively lower stress levels, because they were able to see their friends again and to spend time with them during and after school. On the other hand, other preventive measures such as working from home, were still in place, which might be stressful also when children come home after school (Shockley et al., 2021). Moreover, in the Spring of 2020, the search for a vaccine was in its beginning, so there was

no clear prospect for loosening of the measures in the near future, which might have caused insecurity and stress for many persons.

Furthermore, our sample might be underpowered to detect main effects and interactions on the latent change scores, even though power analyses suggested that our study was well-powered to detect change patterns. The lack of power to detect main and interaction effects is an important limitation, because even the effect(s) that were found could prove to be of different magnitude and/or different direction in the population (Gelman & Carlin, 2014). Also, we only had the chance to collect two waves of data, which limits our ability to detect change only to linear forms. As the pandemic continues, future studies may benefit from larger sample sizes and more waves during the pandemic, in the quest to understand possible nonlinear effects and to detect predictors and moderators of adolescent psychosocial adjustment to the pandemic. Also, larger samples would enable us to investigate parent- and adolescent-effects in one model, which is important to get insight into the resiliency of the family system and possible crossover effects (Masten & Motti-Stefanidi, 2020). Such information might also help to consequently investigate the best multisystem responses (Yoshikawa et al., 2020). Given the particularly long-term nature of the COVID-19 pandemic, understanding changes in parenting and parent-adolescent relationships across different phases of the pandemic is important. It would be important for future research to follow-up participants with multiple measures during the pandemic and see if relationships worsen when the pandemic continues or bounce back to normal again as people get used to the 'new normal'.

A final suggestion for future research is to include more diverse aspects of coping. Although we were not able to reliably measure internal coping and withdrawal, it would be interesting to include these aspects in future research. Especially internal coping might be more adequate in situations like the COVID-19 pandemic, as seeking social support and active tackling of problems (which are part of active coping) might be hard during these times.

Conclusion and Practical Implications

Our findings suggest that parent-adolescent relationship quality was experienced as less warm and supportive during COVID-19, but at the same time there were fewer negative interactions. It should be noted that the effects of COVID-19 might differ from family to family. Especially the relationships of adolescents who are used to employ active coping strategies suffer from the social distancing and lockdown measures in terms of parental involvement, when they experience much COVID-19-related stress. Policymakers should thus not generalize their approach but target those youth who are most at risk.

In line with the review of Smith and Carlson (1997), we suggest two types of possible interventions for families with adolescent children during a pandemic. A first strategy might be to reduce risk and stress. Although reducing the impact of the virus itself might be hard, parents could be careful in exposing their children to the wealth of information on the pandemic and the potential long-term duration of the restrictive measures. Also, normalizing the fact that adolescents feel stressed during a pandemic is advised. A second type of interventions focusses more on protective factors and coping. We found that especially adolescents who are usually active copers experienced less positive parenting in

high stress situations during the pandemic. Parents of those adolescents might help their children by providing opportunities to interact with peers (digitally), to visit youth organizations, or play sports. Parents who experience difficulty themselves might reach out to social workers or coaches to help them cope with the current challenges, in order to increase their feeling of control (Brown et al., 2020).

To conclude, this study showed that the first lockdown in Spring 2020 was significantly associated with changes in parent-adolescent relationships, precipitating decreases in parental support, positive parenting, and parent-adolescent negative interactions. Not all families reacted the same, though, with parents of adolescents who experienced high COVID-19-related stress while typically employing active coping strategies reporting stronger declines in parental support.

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