

What Changed During COVID-19? How the COVID-19 Crisis Changed Parental Perceptions and Practices Related to Children's Internet Use in Five European Countries

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Date submitted: 2022-09-26

¹ This study was supported by the Joint Research Centre of the European Commission and is part of the international project Kids Digital lives in Covid-19 Times. The data collection in Austria was funded by the Austrian Federal Ministry of Education, Science and Research. The data collection in Ireland was supported by Meta Ireland. The data collection in Norway and Staksrud's participation in the study was part of the "Living the Nordic Model," project funded by UiO:Norden. Tijana Milosevic has received funding from the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie grant agreement No. 801522, by Science Foundation Ireland and cofunded by the European Regional Development Fund through the ADAPT Centre for Digital Content Technology Grant No. 13/RC/2106_P2.

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The COVID-19 lockdown saw an increased reliance on digital technology for children, which might have called for changes in parental mediation practices. The present study aimed at analyzing the extent to which such changes took place, their predictors, and their differences across countries. Data were collected from 2,412 parents and 2,412 children in Austria, Ireland, Norway, Portugal, and Romania. Results showed that on average 48.3% of parents used mediation practices with the same frequency as before the lockdown, while 38% applied more mediation. Both active and restrictive mediation were predicted by children's time online, parents' worry about risks, parents' technology fatigue, and parent-child involvement. Furthermore, restrictive mediation was predicted by risks encountered online by children, while active mediation was predicted also by children's excessive Internet use. Differences in parental mediation changes were observed across countries.

Keywords: parental mediation, COVID-19, Internet use, adolescence, children, cross-country

The COVID-19 pandemic, and the subsequent lockdowns adopted in many countries, radically changed the media landscape and people's daily digital practices. People's confinement to their houses meant that digital media became a valuable resource for working, studying, socializing, being informed, entertainment, and many other activities. The use of digital media increased significantly worldwide, as well as the range of digital activities performed (De, Pandey, & Pal, 2020). Many parents had to juggle between their children's remote schooling, their own remote work, and other family activities that required the use of digital technology.

Adjustment in a challenging situation is the focus of the research presented here. By drawing on the data set of the Kids' Digital Lives during COVID-19 Times (KiDiCoTi) project, coordinated by the European Commission's Joint Research Centre (Joint Research Centre, 2020) in collaboration with the research office of UNICEF and national researchers, we investigated whether and how parents in five European countries (Austria, Ireland, Norway, Portugal, and Romania) adjusted their parental mediation strategies during the first phase of the COVID-19 pandemic in 2020 when most governments decided to close all nonessential activities and order a full lockdown in their countries.

The Concept of Parental Mediation

Parents/caregivers are the main mediators of children's digital media use in the family, deciding and/or negotiating about the presence of digital devices at home, whether children can access them, the terms of such access, and the content and activities children can engage in (Livingstone & Helsper, 2008). The act of regulating and monitoring children's digital media use is defined as "parental mediation," and it is aimed at enhancing the benefits and minimizing the risks of digital media for children (Livingstone & Helsper, 2008).

Parental mediation of digital media includes different strategies (Livingstone & Helsper, 2008): *Active mediation*, which consists of interacting with the child while he/she is engaging with digital media by commenting on and explaining the media content and by clarifying the child's doubts; *restrictive mediation*, which is based on limiting access to devices and media content and setting time limits, without necessarily

explaining the reasons for such limitations; and *co-using*, which includes engaging in the digital media together with the child, without necessarily discussing media. Livingstone and Helsper (2008) updated this categorization and identified two additional parental mediation strategies specific to digital media, namely *technical restrictions* (i.e., using digital filters or trackers to limit or monitor children's digital activity) and *monitoring* (i.e., checking the child's browsing history and private messages).

Despite this categorization, parental mediation strategies are not mutually exclusive as parents choose to adopt some or all the strategies at different times and in various measures (Livingstone et al., 2017). Most families combine actions that are characteristics of different parental mediation styles and also adjust their practices depending on the results of their interventions, the negotiations with their children and others, and circumstantial aspects (Nikken & de Haan, 2015; Nikken & Jansz, 2014). The conceptualization of parental mediation has in fact evolved from a static categorization to a dynamic and fluid process, which can be mapped to a certain moment in time but is in constant flux (Dias & Brito, 2021).

Predictors of Parental Mediation

Several studies have explored variables that might be predictors of parental mediation styles. Findings can be organized as child- and parent-related variables that could both be linked with children's and parents' sociodemographics, their online practices and attitudes (Nikken & Jansz, 2014; Page Jeffery, 2020), and cultural or contextual variables (Brito, Francisco, Dias, & Chaudron, 2017; Smahel et al., 2020).

Concerning the child, age and gender are considered important predictors of parental mediation although there are disagreements as to *how* they impact it. Some studies found that parental mediation tends to become more restrictive as children become older, with an increase in the number and variety of children's digital activities and parental fears about growing risks (Wright, Haddon, & Smahel, 2015). Conversely, other studies showed that parents are more restrictive with younger children, while they afford more autonomy when children become adolescents (Beyens & Valkenburg, 2019). With regard to gender, some studies showed no differences in parental mediation between boys and girls (Livingstone & Helsper, 2008), whereas others showed that parents were more restrictive with girls due to their perceived vulnerability (Wright, 2017). Parental mediation can also be predicted by variables related to the child's online experiences. Previous studies showed that when children reported more frequent daily Internet use and engaged in a variety of online activities, parents applied less restrictions and preferred to monitor the child's Internet use and be more enabling instead (Padilla-Walker, Stockdale, & McLean, 2019; Sonck, Nikken, & de Haan, 2013). Similarly, it could be expected that children's problematic Internet use, that is, a behavior characterized by addictive-like symptoms and/or lack of self-regulation in Internet usage (Marino, Gini, Vieno, & Spada, 2018), might predict parents' lack of restrictions and reliance on active mediation although no study has investigated this association to our knowledge. With regard to the relationship between children's experience of online risks and parental mediation strategies, research has shown mixed results. When children reported experiencing privacy-related online risks such as disclosure of sensitive personal information with people they met online, parents reacted by engaging in active mediation, talking to their children about the risks of such behavior (Wisniewski, Jia, Xu, Rosson, & Carroll, 2015). On the other hand, further research showed that experiencing other online risks, namely cyberbullying victimization, predicted higher restrictions from parents and lower active mediation and co-use (Wright, 2016).

With regard to parental characteristics that influence mediation, research showed that their previous digital experiences, practices, and attitudes toward digital media are the most influential variables, rather than the sociodemographic ones (Nikken & de Haan, 2015; Nikken & Jansz, 2014; Smirnova & Smirnova, 2019). Thus, parents with predominantly negative views about digital media and who believe that the Internet has a detrimental influence on their child's development are more restrictive, while parents with predominantly positive views and who recognize the Internet's opportunities are more enabling (Livingstone et al., 2017). Moreover, parents who worry about online risks to their children (e.g., cyberbullying, visiting inappropriate websites, excessive Internet use) usually mediate in their children's Internet use more often, by both talking to their child about their online activities and setting rules for their digital technology use (Nikken & Jansz, 2014; Sonck et al., 2013). Parental involvement in children's online activities is another relevant variable: Parents who spend more time with the child at home tend to co-use media with their child more often, for instance, by playing video games or using the device together (Connell, Lauricella, & Wartella, 2015). Furthermore, parents who believe that their involvement in the child's Internet use helps to improve the child's online experiences tend to be more present and apply more of both active and restrictive mediation (Sonck et al., 2013).

Cross-National Comparisons

Comparative research has uncovered differences in parental mediation strategies that are consistent with cultures and geographies, which also relate to specific perceptions and beliefs (Chaudron, Di Gioia, & Gemo, 2018; Dias et al., 2016). Previous studies have identified a relationship between cultures (defined by shared values or common national policies) and a preponderance of a more restrictive or enabling approach to children's use of digital media (Chaudron et al., 2018; Helsper, Kalmus, Hasebrink, Sagvari, & de Haan, 2013; Livingstone, Haddon, Görzig, & Ólafsson, 2011; Smahel et al. 2020; Trültzsch-Wijnen, Murru, & Papaioannou, 2017).

From an overall sample of 14 countries participating in the KiDiCoTi survey, we selected Austria, Ireland, Norway, Portugal, and Romania as cases for a cross-national analysis of parental mediation strategies in what is the first study to examine cross-national differences in parental mediation in Europe during the pandemic. In the following section, we provide an overview of the research on current trends in parental mediation strategies across these countries to examine whether and to what extent cross-country differences persisted during the pandemic.

Austria

The available data concerning the parental mediation strategies in Austria before the pandemic showed a tendency toward either low levels of mediation in general or high levels of restrictive mediation at the expense of active mediation (Helsper et al., 2013; Paus-Hasebrink, Bauwens, Dürager, & Ponte, 2013). However, more recent data showed that these trends are changing, with parents displaying increasingly more interest in their children's online activities (Market Institut, 2019).

Ireland

Cross-cultural studies including Ireland found that parents from this country tend to adopt high levels of parental mediation, both active and restrictive (Helsper et al., 2013; National Advisory Council for Online Safety, 2021; Paus-Hasebrink et al., 2013). Specifically, according to a recent study on a nationally representative sample, 72% of Irish parents engage in some form of active mediation often or very often; at the same time, 83% say they have rules as to how much time their child is allowed to spend online, and the majority also applies a range of restrictive mediation strategies in relation to their child's online activities (National Advisory Council for Online Safety, 2021).

Norway

The trends in parental mediation strategies in Norway seem to be consistent over the years. Research consistently describes high levels of active parental mediation among Norwegian parents, who report having frequent conversations with their children about their digital media use (Helsper et al., 2013; Kalmus, Sukk, & Soo, 2022; Paus-Hasebrink et al., 2013; Smahel et al., 2020). Furthermore, Norwegian parents also report not restricting access to digital devices as frequently as parents from other countries (Paus-Hasebrink et al., 2013; Kalmus et al., 2022; Smahel et al., 2020).

Portugal

Parental mediation strategies in Portugal seem to have changed over the years. Earlier studies reported mixed findings, with low levels of parental mediation in general or higher levels of active mediation rather than restrictive mediation or higher levels of restrictive mediation rather than active mediation (Helsper et al., 2013; Paus-Hasebrink et al., 2013). However, more recent studies reported a shift toward more active strategies, such as having conversations with children about their digital media use and discussing Internet safety, and a decrease in restrictive strategies (Kalmus et al., 2022; Smahel et al., 2020).

Romania

Studies regarding parental mediation strategies in Romania have also reported changes over time. Earlier research showed that Romanian parents, as later adopters of the Internet and, as such, unskilled (Paus-Hasebrink et al., 2013), were rather absent/passive in their mediation, with low levels of both active and restrictive mediation practices (Helsper et al., 2013). More recent data showed an increase in parental involvement and mediation of children's digital lives, especially with regard to active mediation for Internet safety and restrictive mediation through technical tools (Kalmus et al., 2022; Smahel et al., 2020; Velicu, Balea, & Barbovschi, 2019).

The COVID-19 Lockdown

When discussing parental mediation, it is of interest to examine its trends during the COVID-19 lockdown as during that period minors were inevitably more exposed to digital devices and Internet use due to the closing of schools and the ban on social gatherings (De et al., 2020). With regard to the countries examined

in the present article, all of them observed the closure of schools, shops, and social activities during the spring of 2020. However, there were some differences in terms of how much time children had to spend at home.

Lockdown in Austria

In Austria, all schools were closed on March 16, 2020. They gradually reopened between May 5 and June 6, observing 52 days of full closure, and 37 days of partial closure (Altrichter & Helm, 2022). Distance learning was implemented: Teachers employed digital learning platforms and synchronous teaching with mostly secondary school students, while they assigned pen-and-paper homework and e-learning tasks to primary school students (Altrichter & Helm, 2022). However, almost a third of all students experienced online classes never or less than once a week, and half of the primary school children reportedly did not have any online classes at all (Altrichter & Helm, 2022). Nurseries and after-school facilities were closed down, and the childcare was mainly shouldered by mothers (Berghammer, 2022).

Lockdown in Ireland

Schools in Ireland were closed on March 12, 2020 to reopen only in August. Preprimary and primary schools were closed for respectively 72 and 96 days, more than the European average; while lower-secondary and upper-secondary schools were closed for respectively 91 and 72 days (Organisation for Economic Co-operation and Development, 2021b). Online schooling was organized: Classes were mostly asynchronous, and only 19% of primary school pupils and 58.5% of secondary school students experienced live classes (Flynn et al., 2021). Childcare facilities were shut down, and parents experienced considerable stress supporting their children's schooling at home; working mothers were particularly affected by the lockdown, experiencing negative emotions and lower well-being as they were charged with additional childcare work disproportionately compared with their male partners (Clark et al., 2021).

Lockdown in Norway

The school closure period in Norway was among the shortest in Europe: Schools were closed on March 12, 2020 and they started reopening on April 27, thus remaining closed for 32 days in total (Johansen et al., 2020), while kindergarten reopened on April 20 (Organisation for Economic Co-operation and Development, 2021b). While schools were closed, teachers taught remotely and were mostly in touch with their students daily; however, the support that students received was limited, and they were mostly asked to complete individual tasks (Mælan, Gustavsen, Stranger-Johannessen, & Nordahl, 2021). Mothers in Norway were less likely to take on additional childcare work compared with the average of 25 Organisation for Economic Co-operation and Development (OECD) countries, with around 45% of Norwegian mothers reporting so compared with 61.5% of the OECD countries (Organisation for Economic Co-operation and Development, 2021a).

Lockdown in Portugal

Schools in Portugal closed on March 12, 2020; they reopened only for kindergarteners and for the last two years of upper-secondary school on May 18, after a total of 47 days of closure (OECD, 2021b). Online schooling was activated, with the percentage of teachers streaming online classes increasing from

22% in March 2020 to 89% in May 2020 (Conceição, Freitas, Lima, Catela Nunes, & Balcão Reis, 2021). However, the number of remote synchronous classes was between one and two per week, as reported by students' parents (Alves, Marques, Cruz, Mendes, & Cadime, 2022). Mothers shared a growing burden of childcare, more so than the OECD average: They were more than three times likely to report that they spent time in additional childcare during the first lockdown (Organisation for Economic Co-operation and Development, 2021a).

Lockdown in Romania

In Romania, schools closed on March 11, 2020 and reopened on June 2 only for students in the last year of lower- and upper-secondary school, thus observing 59 days of closure. Remote teaching was initially introduced as a recommendation, and it became compulsory in April 2020 (European Centre for the Development of Vocational Training, 2020). Although three-quarters of children reported daily online interactions with their teachers during the spring of 2020 (Vuorikari, Velicu, Chaudron, Cachia, & Di Gioia, 2020), contacts happened mostly via social media platforms and not education-dedicated platforms (Velicu, 2021). Qualitative data showed that during the lockdown women were more engaged in household and family care activities compared with men (Velicu, 2023).

The school closures and changes in lifestyle caused by the lockdown might have indirectly affected parental mediation practices. In fact, the increased digital technology use by children and adolescents imposed by the need to attend school, socialize, and entertain themselves might have called for changes in parental mediation practices. The existing literature does not explain the direction of these changes although it is possible to speculate. For instance, previous studies found an increase in the co-use of digital technologies when the parents spent more time with their child (Connell et al., 2015); therefore, a similar increase might be expected during the COVID-19 lockdown, when parents and children were asked to stay home and thus spent more time together. Furthermore, a general increase in parental mediation practices might have been observed in parents who are more involved in their children's school life and who perceive their involvement as useful (Sonck et al., 2013): Since schooling during the lockdown was provided online and thus was part of the child's digital life, parents who were more involved with the school life might have been more involved in the child's digital practices, too. On the other hand, previous studies highlighted the time-consuming efforts parental mediation implies (Symons, Ponnet, Walrave, & Heirman, 2017), which could predict a decrease in parental mediation practices for parents who had to undertake more roles during the lockdown. In sum, the conditions created by the COVID-19 lockdown might have affected parental mediation in different ways.

The Present Study

Against this background, and in the face of the new reality brought by the COVID-19 lockdown, our study set out to explore parents' perceptions of change in their parental mediation practices regarding children's digital media use during the lockdown and the predictors of the perceptions of such changes. Conceptualizing parental mediation as a dynamic process sets the scene for acknowledging some adjustments parents may have made in their parental mediation practices during the COVID-19 pandemic as a reaction to the new situation that required them and their children to stay at home and spend more time online.

The research gap our article aims to address goes beyond daily adjustments and negotiations toward possible perceived structural changes in parental mediation strategies when family life comes under extreme pressure regarding their digital life. In doing so, we also explore potential differences among Austria, Ireland, Norway, Portugal, and Romania, which were selected as they represent different ways of parental mediation in Europe according to the most recent data on parental mediation.

Analyzing the data from the KiDiCoTi project, the present study aims to answer the following research questions:

RQ1: Did parents perceive any changes in parental mediation practices during the lockdown as compared with the previous period?

RQ2: Did perceived changes in parental mediation vary among countries?

RQ3: Which factors predicted perceived changes in parental mediation during the lockdown across countries?

Method

Procedure

Data were collected through the KiDiCoTi project (JRC, 2020), which used a mixed methodology and aimed at investigating children's and parents' experiences during the first COVID-19 lockdown.

The present study analyzed the quantitative data from Austria, Ireland, Norway, Portugal, and Romania. The survey was developed in English, and it was subsequently translated by the team members of each participating country into the official language of each country. Participants were recruited by a commercial research agency via online panels. The online survey was administered to participants (a parent and a child aged 10–18 years old in each family) in each country's official language between July and August 2020. Informed consent/assent was obtained from both children and parents. Participants were informed that their participation in the study was voluntary and that they could interrupt the survey at any time. Parents were encouraged to let the children answer autonomously, and children were informed that they could ask parents for help if necessary. Ethical guidelines pertaining to the international as well as national and institutional regulations in each country were adhered to. Ethical approval was obtained by the Joint Research Centre at the European level and by the authors' universities at the national level when required.

Participants

The questionnaire was completed by 2,566 parents and 2,566 children in total. Caregivers other than parents were not recruited. Parent participants younger than 25 years of age and child participants older than 18 were deleted from this data set, in accordance with the United Nations' definition of "child" (United Nations International Children's Emergency Fund, 1989). Therefore, only answers from 2,412 parents and 2,412 children were retained for the analyses. Country distribution included 506 parent/child

dyads from Austria, 471 from Ireland, 461 from Norway, 459 from Portugal, and 515 from Romania. The parents' sample consisted of more fathers (51.2%) than mothers (48.2%). Parents' age went from 25 to 73 years old [$M(SD)$: 44.25(7.86)]. Most parents (46.3%) reported their household income as average, while 31.1% reported it as above average, and 22.6% reported it as below average. The children's sample included more boys (55.2%) than girls (44%), and their ages varied from 10 to 17 years [$M(SD)$: 13.78(2.13)].

Instruments

The survey included both measures developed specifically for the KiDiCoTi project and existing measures obtained from other surveys. The questionnaire was divided into two parts, of which the first was answered by parent participants, and the second by their participating child. Both parent and child participants were asked about their age and gender, and parents about their household income. When parents were given questions about their child, they were asked to refer to the child taking part in the survey.

Children's Time Spent Online

Children reported the number of daily hours spent using digital technology, answering the question: "On a typical weekday during the lockdown, how many hours did you spend on the Internet or using digital technology?"

Children's Excessive Internet Use

For measuring children's excessive Internet use, children were asked about changes in their engagement in certain practices compared with the period before the lockdown. Namely, children evaluated three statements: "I have gone without eating or sleeping because of the time I spent on the Internet," "I tried unsuccessfully to spend less time on the Internet," and "I felt like I spent too much time using the Internet or digital devices." The changes were reported on a Likert scale going from 1 (= it has never happened) to 6 (= it happened much more than before the lockdown). Higher scores on this measure indicated excessive Internet use ($\alpha = .73$).

Children's Experiences of Online Risks

Children reported the frequencies with which they encountered 16 potentially risky situations during the lockdown period as compared with the previous period. The online risks presented were regarding cyberbullying victimization, hate speech, user-generated content with a potentially harmful effect, threats to online safety (e.g., misuse of personal data), and fake news. A sample item was "I have seen people talk about or show ways of physically harming or hurting themselves." Children answered on a Likert scale that ranged from 1 (= it has never happened) to 6 (= it happened much more than before the lockdown). Higher scores indicated a higher frequency of online risk experiences during lockdown compared with before ($\alpha = .96$).

Parents' Perception of Technology Fatigue

Parents were asked to indicate their agreement with three statements regarding potential technology fatigue in their family during the lockdown: "Digital technology use has created new conflicts between family members," "Digital technology use has increased stress and anxiety levels in my family," and "My family is experiencing fatigue from overuse of digital technology." Parents answered on a Likert scale that went from 1 (= strongly disagree) to 5 (= strongly agree). Higher scores indicated a perception of higher technology fatigue ($\alpha = .84$).

Parents' Worry About Online Risks

Parents' worry was measured on seven types of online risks that their children could face during lockdown: Excessive use, dis- and misinformation, information disclosure, cyberbullying, sexting, harmful content, and hate speech online. Parents were asked to report how much they worried about these risks during the lockdown compared with the period before the lockdown. Answers were given on a Likert scale that ranged from 1 (= I didn't worry at all) to 6 (= I worried much more than before the lockdown). Higher scores indicated higher worry about online risks compared with before lockdown ($\alpha = .92$).

Parents' Involvement in Children's Technology Use

Parents were asked to state their agreement regarding two statements about their involvement in their child's digital technology use: "I have learned more about my child's interests online since the lockdown began" and "I have spent more time playing or doing shared activities with my child during lockdown." Agreement was expressed on a Likert scale going from 1 (= strongly disagree) to 5 (= strongly agree). A higher score indicated higher involvement in their child's technology use.

Parental Mediation

The parental mediation measure was adapted from the EU Kids Online items (Zlamal et al., 2020). It was administered to the parents, who were asked how much more or less the provided statements applied to them during lockdown compared with the previous period. Sixteen items followed regarding different parental mediation practices. According to previous research, eight of these items group together to compose the active mediation factor (e.g., "I show an interest in what my child does online," $\alpha = .86$), and the remaining eight compose the restrictive mediation factor (e.g., "I limit the spaces for digital technology use," $\alpha = .88$; Sciacca, Laffan, O'Higgins Norman, & Milosevic, 2022). Answers were given on a Likert scale that went from 1 (= I didn't do it at all) to 6 (= I did it much more than before). Higher scores indicated a more frequent use of the practice compared with the period before the lockdown.

Data Analysis

The present study adopted a cross-sectional design. Data were analyzed using SPSS 27. Average scores were computed for all variables, except for children's time spent online (which was provided in the number of hours children spent online). When available, the "don't know" option was coded as a missing

value. Four new categorical variables were computed for the country of residence, comparing Austria, Ireland, Norway, and Portugal with Romania, which served as the reference group, as it had the highest number of participants. Descriptive and bivariate correlations were calculated.

To answer RQ1, frequencies of the different parental mediation strategies were calculated by country and compared.

With regard to RQ2, two one-way analyses of variance (ANOVAs) were calculated by comparing the parental mediation strategies (dependent variables) among countries (independent variable).

Two multinomial logistic regressions were performed to answer RQ3, investigating the relationship between parents' and children's demographics, country of residence, parent-related variables, and child-related variables (predictors), and parental mediation strategies (outcome variables). To do so, two categorical variables were previously created (one for active-type and one for restrictive-type mediation) based on the averaged variables for active and restrictive mediation. The new variables included three categories: One including parents who reported applying no or less active/restrictive mediation during the lockdown ("less" category, $n = 387$ for active, $n = 818$ for restrictive), one for parents who reported applying as much active/restrictive mediation as before lockdown ("as much" category, $n = 1,364$ for active, $n = 1,189$ for restrictive), and one for parents who reported using more mediation during lockdown than before ("more" category, $n = 654$ for active, $n = 400$ for restrictive). The "less" and "more" groups were compared with the "as much" group, which served as the reference category.

Results

RQ1: Changes in Parental Mediation Strategies During the Lockdown

Descriptive analyses and bivariate correlations were performed for all the considered variables and are displayed in Table 1. All variables showed scores above the midpoint, except for the child's experiences of online risks. Bivariate correlations showed that increases in both restrictive and active mediation were negatively correlated with child age and parent age. Moreover, an increase in restrictive mediation showed a negative relationship with time spent online by the child. An increase in both restrictive and active mediation was positively related to the child's experiences of online risks, the child's excessive Internet use, parental perception of technology fatigue, parental involvement in the child's technology use, and parental worries about online risks.

Table 1. Descriptive Statistics and Bivariate Correlations.

| | M(SD) | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|--------------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-----|
| 1. Child age | 13.78 (2.13) | — | | | | | | | | | |
| 2. Parent age | 44.25 (7.86) | .33** | — | | | | | | | | |
| 3. Time spent online by child | 7 (2.97) | .18** | .04* | — | | | | | | | |
| 4. Child's experiences of online risks | 2.37 (1.23) | .01 | -.19** | .11** | — | | | | | | |
| 5. Child's excessive Internet use | 3.55 (1.46) | .04 | -.07** | .20** | .49** | — | | | | | |
| 6. Parental perception of technology fatigue | 2.75 (1.16) | -.14** | -.22** | .03 | .41** | .30** | — | | | | |
| 7. Parental involvement in child's technology use | 3.56 (.97) | -.14** | -.18** | -.05* | .17** | .12** | .29** | — | | | |
| 8. Parental worries about online risks | 4.25 (1.06) | -.10** | -.13** | .01 | .26** | .24** | .35** | .27** | — | | |
| 9. Restrictive mediation | 3.99 (1.01) | -.22** | -.22** | -.12** | .26** | .16** | .40** | .35** | .52** | — | |
| 10. Active mediation | 4.41 (.84) | -.17** | -.16** | -.04 | .17** | .17** | .27** | .44** | .52** | .70** | — |

Frequencies for each parental mediation item were run by country. Item frequencies were added up separately by parental mediation type, and average percentages were calculated by country and in total (see Figure 1).

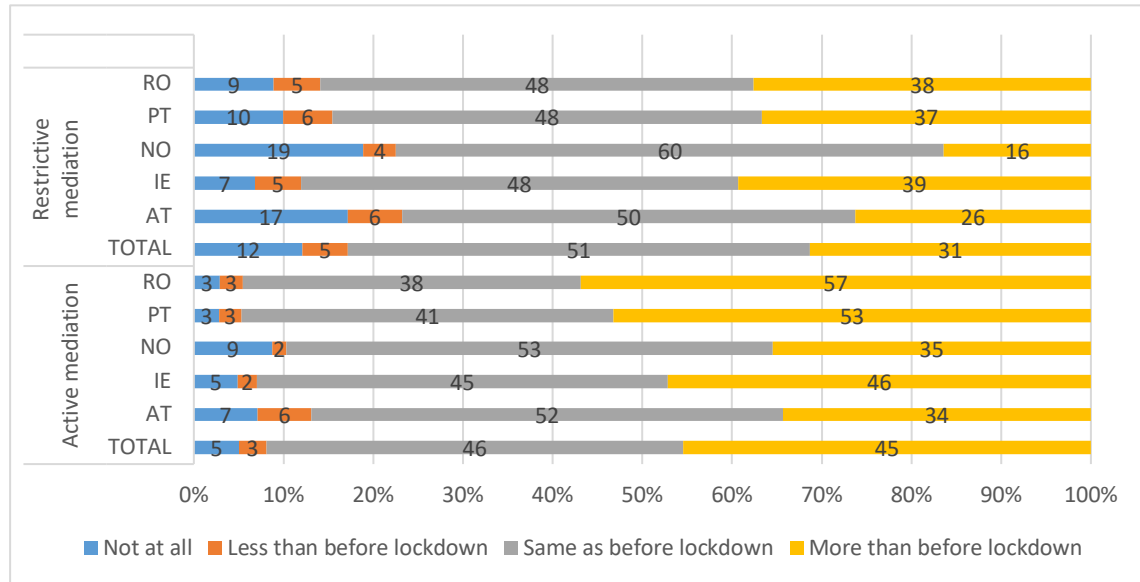


Figure 1. Perceived changes in parental mediation during the lockdown by country and style.
 Note. AT, Austria; IE, Ireland; NO, Norway; PT, Portugal; RO, Romania.

RQ2: Cross-National Differences in Changes in Parental Mediation

Two ANOVAs were conducted to compare active and restrictive mediation across countries.

In the first ANOVA, the country of residence was entered as the independent variable, while active mediation was entered as the dependent variable. Results revealed significant statistical differences among countries in terms of active mediation ($F(4,2400) = 43.01, p = <.001$; see Figure 1). Analysis of the post hoc comparisons showed that parents in Austria ($M = 4.16, SD = .88$) and Norway ($M = 4.16, SD = .80$) reported significantly lower levels of increase in active mediation compared with parents in Ireland ($M = 4.48, SD = .82$), Portugal ($M = 4.60, SD = .73$), and Romania ($M = 4.67, SD = .81$). Moreover, Ireland displayed a significantly lower increase in the levels of active mediation compared with Romania.

The second ANOVA tested the differences among countries in terms of restrictive mediation. Results showed a significant effect of the country of residence on restrictive mediation ($F(4,2402) = 43.92, p = <.001$). The post hoc Tukey test showed that the perceived increase in restrictive mediation was significantly lower in Austria ($M = 3.75, SD = 1.08$) and Norway ($M = 3.59, SD = .97$) compared with that in Ireland ($M = 4.30, SD = .91$), Portugal ($M = 4.11, SD = .91$), and Romania ($M = 4.19, SD = .98$). Finally, Ireland displayed a higher increase of restrictive mediation compared with Portugal.

RQ3: Predictors of Perceived Changes in Parental Mediation Practices

Two hierarchical multinomial logistic regressions were performed with the same predictors but different outcome variables (namely active mediation and restrictive mediation). The predictors were demographic variables (parent's gender, parent's age, child's gender, child's age, socioeconomic status), and country of residence to control for them. Country of residence was entered in the second step using Romania as the reference group as it had the highest number of participants. In the third step, we entered child-related variables (experiences of online risks, excessive Internet use, time spent online), while in the fourth step, we inputted parent-related variables (worry about online risks, involvement with the child's technology use, perception of technology fatigue).

Predictors of Restrictive Mediation

Findings from the multinomial regression showed that being older, being a mother (odds ratio [OR] = 1.30, confidence interval [CI] = 1.06–1.61, $p = .013$; see Table 2), having children who experienced lower online risks (OR = 0.88, CI = 0.79–0.99, $p = .027$) and spent more time online (OR = 1.13, CI = 1.09–1.67, $p < .001$), being less worried about online risks (OR = 0.60, CI = 0.53–0.67, $p < .001$), being less involved in the relationship with the child's technology use (OR = 0.86, CI = 0.77–0.96, $p = .007$), and experiencing less technology fatigue (OR = 0.86, CI = 0.77–0.95, $p = .004$) were more common in the "less restrictive mediation" group compared with the "as much restrictive mediation" group. Moreover, participants from Austria (OR = 0.67, CI = 0.49–0.93, $p = .017$) and Norway (OR = 0.70, CI = 0.50–0.96, $p = .027$) were less likely to belong to the "less restrictive mediation" group compared with participants from Romania.

On the other hand, having younger children (OR = 0.93, CI = 0.86–0.99, $p = .028$), experiencing more worry about online risks (OR = 2.76, CI = 2.26–3.39, $p < .001$), being more involved in the child's technology use (OR = 1.73, CI = 1.43–2.08, $p < .001$), and experiencing more technology fatigue (OR = 1.61, CI = 1.40–1.86, $p < .001$) were more common in the "more restrictive mediation" group compared with the "as much restrictive mediation" group. Furthermore, participants from Ireland (OR = 0.67, CI = 0.46–0.98, $p = .038$) were less likely to apply more restrictive mediation compared with participants from Romania.

Predictors of Active Mediation

Results showed that being a mother (OR = 1.88, CI = 1.43–2.47, $p < .001$; see Table 2), having older children (OR = 1.11, CI = 1.04–1.19, $p = .002$) who spent more time online (OR = 1.07, CI = 1.03–1.12, $p = .002$), having less worry about online risks (OR = 0.54, CI = 0.47–0.62, $p < .001$), being less involved in the child's technology use (OR = 0.73, CI = 0.63–.84, $p < .001$), and experiencing more technology fatigue (OR = 1.17, CI = 1.02–1.34, $p = .021$) were more common in the "less active mediation" group compared with the "as much active mediation" group. Participants from Austria (OR = 0.54, CI = 0.35–0.83, $p = .005$) were less likely to belong to the "less active mediation" group compared with participants from Romania.

It also emerged that having children who experienced excessive Internet use (OR = 1.10, CI = 1.00–1.21, $p = .049$), being more worried about online risks (OR = 2.64, CI = 2.23–3.13, $p < .001$), being more involved with the child's digital life (OR = 2.45, CI = 2.09–2.86, $p < .001$), and experiencing more technology fatigue (OR = 1.14, CI = 1.02–1.28, $p = .028$) were more common in the "more active mediation" group compared with the "as much active mediation" group. Finally, participants from Ireland (OR = 1.74, CI = 1.24–2.44, $p = .001$) and Norway (OR = 1.64, CI = 1.10–2.43, $p = .014$) were more likely to belong to the "more active mediation" group compared with participants from Romania.

Table 2. Multinomial Logistic Regression Analysis for Restrictive and Active Parental Mediation.

| Predictors | Restrictive Parental Mediation | | Active Parental Mediation | |
|-------------------------------------|--|--|--|--|
| | Less than before the lockdown vs. as much as before the lockdown | More than before the lockdown vs. as much as before the lockdown | Less than before the lockdown vs. as much as before the lockdown | More than before the lockdown vs. as much as before the lockdown |
| | OR (95%CI) | OR (95%CI) | OR (95%CI) | OR (95%CI) |
| Demographic characteristics | | | | |
| Parent's age | 1.02 (1.00–.03)* | 0.99 (0.97–1.00) | 1.01 (0.99–1.03) | 0.99 (0.97–1.00) |
| Parent's gender (mother vs. father) | 1.30 (1.06–1.61)* | 0.95 (0.72–1.27) | 1.88 (1.43–2.47)*** | 0.83 (0.66–1.06) |
| Child's age | 1.04 (0.99–1.10) | 0.93 (0.86–0.99)* | 1.11 (1.04–1.19)** | 0.96 (0.91–1.02) |
| Child's gender (girl vs. boy) | 1.09 (0.89–1.33) | 0.87 (0.65–1.15) | 0.89 (0.69–1.16) | 0.89 (0.71–1.13) |
| SES (low vs. average) | 0.93 (0.72–1.21) | 0.93 (0.66–1.33) | 0.95 (0.68–1.31) | 1.14 (0.85–1.53) |
| SES (high vs. average) | 1.13 (0.90–1.44) | 1.17 (0.85–1.61) | 0.89 (0.66–1.21) | 1.27 (0.97–1.65) |
| Country | | | | |
| Austria (vs. Romania) | 0.67 (0.49–0.93)* | 0.94 (0.59–1.50) | 0.54 (0.35–.83)** | 1.35 (0.94–1.96) |
| Ireland (vs. Romania) | 1.03 (0.73–1.45) | 0.67 (0.46–0.98)* | 0.70 (0.44–1.09) | 1.74 (1.24–2.44)** |
| Norway (vs. Romania) | 0.70 (0.50–0.96)* | 1.37 (0.78–2.39) | 0.65 (0.43–1.01) | 1.64 (1.10–2.43)* |
| Portugal (vs. Romania) | 0.74 (0.52–1.04) | 0.78 (0.53–1.18) | 0.94 (0.57–1.55) | 0.94 (0.67–1.33) |
| Child-related variables | | | | |
| Online risks | 0.88 (0.79–0.99)* | 1.06 (0.94–1.20) | 1.07 (0.93–1.23) | 0.96 (0.86–1.07) |
| Excessive use | 1.03 (0.95–1.12) | 0.95 (0.84–1.06) | 1.05 (0.95–1.17) | 1.10 (1.00–1.21)* |
| Time online | 1.13 (1.09–1.17)*** | 1.00 (0.95–1.05) | 1.07 (1.03–1.12)** | 0.99 (0.95–1.04) |
| Parent-related variables | | | | |
| Worry about online risks | 0.60 (0.53–0.67)*** | 2.76 (2.26–3.39)*** | 0.54 (0.47–0.62)*** | 2.64 (2.23–3.13)*** |
| Parent-child involvement | 0.86 (0.77–0.96)** | 1.73 (1.43–2.08)*** | 0.73 (0.63–0.84)*** | 2.45 (2.09–2.86)*** |
| Technology fatigue | 0.86 (0.77–0.95)** | 1.61 (1.40–1.86)*** | 1.17 (1.02–1.34)* | 1.14 (1.02–1.23)* |
| Cox & Snell R^2 | .33 | | .35 | |
| Nagelkerke R^2 | .38 | | .41 | |
| χ^2 (df) | 883.49 (32)*** | | 936.94 (32)*** | |

Discussion and Conclusions

Results showed that the lockdown, which brought an increased digitization of professional/school and family lives, has also triggered changes in existing parental mediation practices, according to parents' reports (RQ1). Furthermore, the positive correlation between active and restrictive mediation demonstrates how active and restrictive mediation practices did not exclude each other but increased hand in hand, as it happens with the so-called "all-rounders" parents (Helsper et al., 2013; Livingstone & Helsper, 2008).

Although we found a perceived increase in parental mediation in all five countries during lockdown, its amount differed significantly by country (RQ2). Two main groups of countries emerged: In Ireland, Portugal, and Romania we identified a higher perceived increase in both restrictive and active mediation practices when compared with the previous period, whereas in Norway and Austria, such perceived increase in mediation practices was lower. Moreover, within the first group, Ireland significantly differed from Romania with respect to self-reported changes in active mediation and from Portugal with respect to restrictive mediation.

It is worth noticing that countries in previous studies (Helsper et al., 2013; Paus-Hasebrink et al., 2013) that scored high on restrictive mediation (i.e., Ireland and Portugal) and countries that scored high on active mediation (i.e., Romania), reported an increase in both parental mediation styles during the lockdown, in an all-rounder approach. From the perspective of the sociology of value, Portugal and Romania are classified as collectivistic countries, which means that they emphasize the interdependence between the individual and the society, while Ireland is classified as an individualistic country, where the independence of the self is prioritized above the group belonging (Hofstede, 2001). In countries with collectivistic values, parents usually favor restrictive strategies in line with their risk-averse attitudes and values, while in countries that are predominantly individualistic, parents prefer to adopt active mediation, to allow children to be autonomous and express themselves (Kirwil, 2009; Mertens & d'Haenens, 2014). However, it seems that during the lockdown, some collectivistic and individualistic countries adopted both parental mediation styles possibly because mediation was required in many more situations compared with before, and thus more strategies were necessary. Austrian parents, instead, scored low in both parental mediation practices in previous studies and exhibited fewer perceived changes during the lockdown possibly because the cultural values that underpin their mediation practices are more stable and not so amenable to change even in a crisis situation. With regard to Norway, few perceived changes in active parental mediation could be understood as a result of both the reduced number of days that Norwegian children spent at home doing online schooling and the already high level of active mediation observed in this country (Helsper et al., 2013).

Another possible explanation for our results could be found in parents' worries and involvement in children's educational activities. During the lockdown, parents from Portugal and Romania were the most involved in their children's educational activities and the most worried about the negative impact of school closure on their education, whereas the Norwegian and the Austrian parents were the least involved and the least worried compared with the other examined countries (Vuorikari et al., 2020). Therefore, parents from Portugal and Romania might have mediated in their children's digital technology use more as they were also more involved in their school life, which took place online during the lockdown, although this does not explain the middle position of Irish parents that was found in the present study.

Finally (RQ3), we looked at the factors that predicted perceived changes in parental mediation practices during the lockdown across the examined countries. The analyses showed that mothers reported a decrease in both active and restrictive mediation when compared with the period before the lockdown. Potential explanations could be that mothers more than fathers were overwhelmed by family and professional obligations and had to renounce some mediation practices. It could also be that having the children at home and in sight increased the feeling of overview and control, making it less important to actively intervene or enforce device restrictions. Another interpretation is that the burden of parental mediation practices was shared with a partner in a different way during the lockdown than before. Furthermore, older children reportedly received less mediation than before, regardless of parental strategies, possibly because they were perceived by their parents as mature and independent enough (Beyens & Valkenburg, 2019).

Our results showed that parents who reported applying less restrictive mediation during the lockdown have children who encountered more online risks, in line with previous studies (Livingstone et al., 2017). Moreover, the more time children spent online, the less active and restrictive mediation parents reported applying. These findings resonate with previous literature that found that children's frequent Internet use is hard to monitor for parents, who therefore loosen their mediation practices (Page Jeffery, 2020). This might have been an issue, especially during COVID-19, when children spent considerably more time online than usual (De et al., 2020).

With regard to parental variables, our findings showed that both active and restrictive mediation practices increased when parents were more concerned about online risks. These findings are in line with previous research that found that parents who worry about online risks tend to apply more mediation in general (Nikken & Jansz, 2014; Sonck et al., 2013). A possible explanation is that worried parents feel more in control of their child's Internet use when they supervise it by both imposing restrictions and having open conversations with their child, especially during a time like the lockdown when parental worries about online risks were particularly high (Laffan, Kaldas, Sciacca, Milosevic, & O'Higgins Norman, 2023). Similarly, parents' digital fatigue predicted higher restrictive mediation, in line with previous studies (Livingstone et al., 2017), while findings for active mediation were mixed. Furthermore, parents engaged more in both mediation practices when they were more involved in their child's digital life during the lockdown than before it. Due to the social distancing imposed by the lockdown, parents spent more time at home with their children, thus learning more about their technology use. Knowing more about their online activities, parents might have applied more overall mediation to tell the children which websites they should avoid and at the same time to offer them advice and express interest in their Internet use. Or, it could be that the situation gave rise to an opportunity for parents to observe their children in a new way while using digital media, and this might have made parents less worried about the potential negative impact.

The present study is not exempt from limitations. First of all, the study design was cross-sectional, hence causal relationships among the variables cannot be drawn although we can state that significant associations do exist; future studies should analyze them longitudinally. Second, we did not control for children's age when comparing parental mediation frequencies among countries as we were interested in exploring differences in parental mediation in general. Future studies might consider including this variable. Furthermore, the measurements used relied on parental perceptions of change and not the actual change

in parental mediation strategies as we did not collect data before and during the pandemic. Finally, most of the measurements used for this study were created specifically for the KiDiCoTi survey, and therefore they lack validation.

Despite these limitations, our study showed that when established parental mediation practices come under sudden and extreme pressure and family life undergoes structural changes, parents will adapt their strategies. Furthermore, the direction of these changes is dependent on both cultural, demographic, and contextual variables.

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