Article

'Maybe I can go back to school in a few weeks': Children's experiences of everyday life during the COVID-19 lockdown in Norway

by

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Abstract

This study explores everyday life from the perspective of children during school lockdown in Norway. The outbreak of Covid-19 greatly impacts societies on all levels. Studies have revealed a drastic change in children's routines through home-schooling and reduced access to physical activities, as well as increase in contact with parents with subsequent potential friction or positive interactions. Children's own perspective of their experiences during Covid-19 restrictions, nevertheless, appear to be scarce. This study provides a unique insight into ten children's experiences through examination of their diary entries during lockdown. Our theoretical approach is based Bronfenbrenner's ecological model of child development, and protective factors and risk factors in child development. Our findings indicate that children's everyday life experiences during Covid-19 lockdown can be sorted into three different arenas: *The home and family life*, *The school and learning activities,* and *The social and digital interaction with friends*. These three arenas represent important micro-systems in the children's lives. However, the shutting down of school and society has disrupted the overall ecological systems surrounding the children, increasing the potential weight of risk factors such as loneliness and stress. All arenas and system levels moved inside the children's primary micro-arena; their homes and family life. Further, all forms of social interaction, both at school, among friends and in family life seem to depend on digital platforms, as the children respond to the new situation by using digital meeting places. Utilizing Bronfenbrenner's systematic approach, the digital arena appears to manifest a new khrono-system in the children's lives. The digital screens being what binds all eco-systems together. An important question for further studies is what consequences this has for the future development of childhood, and how do the children cope with this kind of disruption of their everyday lives.

Keywords: childhood, children, COVID-19, child development, schools, diary studies, Bronfenbrenner, risk and protective factors

Introduction

Imagine a typical neighbourhood during springtime in Norway. You can hear laughter and birds singing, children playing in the community playground, teenagers talking. Pure joy is in the air, the soundtrack of a Norwegian spring. However, the spring of 2020 brought a muted version, from which the sounds of social interactions, play and joy were absent. A walk in the community park was quiet and careful, rather than joyful. All schools were closed. There was no room for gatherings with friends, and warnings were issued about sitting on public benches or playing in community playgrounds. Everyone had to be careful and avoid physical contact with others outside their immediate household. This study addresses everyday life during those days, from the perspective of school children aged 10-14 years old.

The novel Corona virus (COVID-19) did spread rapidly across the globe. The World Health Organization (WHO) identified the virus as a pandemic at the end of January 2020 (WHO, 2020). The outbreak of COVID-19 greatly impacted societies at all levels around the world, posing a severe health threat for large demographic groups, and constituting a significant challenge for healthcare systems. The rapid spread of the virus and the consequent high number of deaths, led to drastic measures of mass quarantine, the closure of communities and social distancing. According to the UN Educational Scientific and Cultural Organization, 107 countries implemented national school closures during March 2020. This affected roughly half the student population, approximately 862 million children and young people (Viner et al., 2020). This was no different for Norwegian society, as the spring of 2020 was the time when the Norwegian government initiated the most severe control measures on Norwegian citizens since World War II. Measures taken to prevent and handle COVID-19 infections such as lockdowns, closing schools and social distancing came with consequences in the forms of economic recession, mental health issues, increase in domestic violence, challenges in family life and difficulties in making important welfare services available for users (Cheng et al., 2020; Chu et al., 2020; Viner et al., 2020). Studies addressing the conditions for children and adolescents in particular reveal a drastic modification in children's routines through home-schooling and reduced access to sports activities, as well as an increase in contact with parents with a subsequent potential friction or positive interactions (Miranda et al., 2020; Daks et al., 2020). However, contributions to knowledge about how children

themselves experienced life under COVID-19 restrictions appear to be scarce (Uzun et al., 2021). Viewing children as subjects, rather than objects, of research is important to gain a proper understanding of their experiences (Beazley et al., 2009). This study aims to provide both the unique empirical knowledge of children's perspectives on COVID-19 lockdown, and a methodological contribution to research with children during times of crisis. Our research question is therefore:

How did children experience everyday life during COVID-19 school closures in Norway?

We rely on Bronfenbrenner's (1977) model of ecosystems in human interaction and the transactional theory of risk and protective factors in childhood development (Bronfenbrenner, 1996; Buchanan, 2014; Sameroff, 2009) for understanding children's experiences, and the impact of the environmental changes during the COVID-19 lockdown.

Before elaborating on the theoretical perspectives of this study, we will provide a short review of research on the social and emotional impact of COVID-19 on children and adolescents.

Research on the impact of COVID-19 on children and adolescents
The coronavirus pandemic poses challenges beyond the risk of infection, illness and death (Cheng et al., 2020; Chu et al., 2020). Although during the initial stages of the pandemic, governments focused on infection control, it was not long before one could sense the severity of the social consequences of these measures. A failure to respond to social needs and problems in the midst of the pandemic can create long-lasting societal consequences (Chu et al., 2020). Furthermore, this crisis can have an impact on families, adolescents and children in multiple ways (Ares et al., 2021; Cheng et al., 2020; Dong et al., 2020; Marques de Miranda et al., 2020). A good childhood and child development are dependent on functioning institutions such as family, schools, neighbourhoods, peers, leisure and sports activities, and religious arenas (Bronfenbrenner, 1977; Buchanan, 2014). During the COVID-19 pandemic, each of these institutions' functions were severely disturbed. Pandemic isolation disrupted the interaction among families, friends, peers and communities – an

interaction crucial to healthy child development (Cheng et al., 2020). While stay-at-home orders and lockdowns are efficient infection control measures, the home is not necessarily the safest place for all children (Daks et al., 2020; Fraser, 2020; Griffith, 2020).

Miranda et al. (2020) studied the impact of the pandemic and social distancing on mental health among adolescents and children. They found that anxiety, depression and post-traumatic stress occurred at all developmental stages during this pandemic crisis. This is supported by a large study on children in Wuhan in China, which found that the pandemic affected the mental health of school children in the same way as other traumas (Xie et al., 2020). This may be linked to children's exposure to vulnerabilities in family and community conditions, for example, family stress, financial challenges, parental illness or mental problems and upbringing practices (Marques de Miranda et al., 2020). The support systems that families rely on were not available during a pandemic lockdown and, thus, the children and their parents were deprived of arenas for refuge from troubled home environments (Cheng et al., 2020). The review study from Marques de Miranda et al. (2020) further supports that children's mental health during a pandemic is contingent on the degree of social support, early psychological intervention for families in distress, access to open-air physical activities, daily routines and consistent bedtime routines. Further socialization with peers through social media or online games may also be useful. Schools have emerged as important arenas for upholding the structure, nutrition and daily activities for children. Home-schooling and the digitalizing of peer interaction have had some advantages, such as increased parental involvement in schoolwork - yet there is a need to explore the potential consequences of extensive screen use (Marques de Miranda et al., 2020).

Parents had already raised concerns about children's increased access to the Internet and digital devices (e.g. iPad and mobile phones, etc.) and questions about optimal screen time for children during pre-COVID times (Livingstone, 2018). However, the closing down of important childhood institutions pushed children's activities from an offline to an online world (Hantrais et al., 2021). Quinones and Adams (2021) studied the role of digital technologies in supporting and sustaining children's friendships during the COVID-19 lockdown. They found that children

maintained their friendships by moving to the virtual world, which provided them with an opportunity for both emotional and visual connections. These virtual connections were enabled and encouraged by their parents. This study highlights the importance of digital technology in children's lives for maintaining their social and emotional development, and the supporting role of their parents in achieving this. Nevertheless, lockdowns also exposed the challenges of the digital divide that exists in society (digital exclusion). While children living in poverty were already at a disadvantage, the shifting of teaching to the online space combined with some families' inability to afford access to the Internet and digital devices would further enhance this gap (Holmes & Burgess, 2020).

In their systematic review of school closures and management practice during COVID-19, Viner et al. (2020) found that school closures generate serious conflicts between family and work, especially for healthcare workers and personnel in critical societal functions. Another review of the social consequences of community-based quarantine (Chu et al., 2020) found several negative consequences, such as psychological distress, heightened communication inequalities, food insecurity, diminished access to healthcare, the alternative delivery of education and gender-based violence. Altruism was identified as a positive consequence. However, the authors also raised a concern about the unintended negative impacts of preventive measures, and the potential undermining of public trust in governments (Chu et al., 2020). They recommended a heightened attention towards contextual factors in policy interventions during pandemics or other societal crises.

Aares et al. (2021) studied the experience of social distancing among families with children and adolescents in Uruguay. They found that the pandemic and subsequent safety measures elicited negative feelings of worry, fear, anxiety and uncertainty among participants. Social distancing caused a disruption in daily life and habits, both due to closed educational institutions, work-related changes and insecurities. Moreover, there were changes in children's mood and behaviour towards boredom, agitation and restlessness. The study concludes that there is a need to provide people with emotional and psychological support, as well as community campaigns and intervention during social distancing measures.

Daks et al. (2020) studied the impact of COVID-19 on children and families through a path analysis based on Family Systems Theory. Their findings indicate that parental flexibility promotes resilience and positive family functioning during a pandemic, while inflexibility appears to be linked with an increase in COVID-19-related stress. The authors suggest that parental inflexibility constitutes a key risk factor for family and co-parenting discord during the pandemic. Increased stress levels among parents are potential predictors of child abuse and neglect (Cheng et al., 2020). On the other hand, parental flexibility does not directly lead to a decrease in COVID-19-related stress. Yet, family cohesion and constructive parenting are linked to parental flexibility and, thus, this trait appears to be relevant in reducing the risk of family and child distress. The authors conclude that, while parental inflexibility is a risk factor, parental flexibility may represent a form of resilience among families during a pandemic crisis. Nevertheless, changes to family lives during pandemics should be further investigated. Children and their interactions are an understudied phenomenon, and a deeper understanding of protective and risk factors, as well as how to encourage children's well-being, is important to improving policy practice in crisis management (Uzun et al., 2021).

Children's bio-ecological environment and risk and protective factors
Our review indicates that children's safety and well-being is highly dependent on their environment. The importance of access to diverse arenas for social interaction is at the core of Bronfenbrenner's ecology of human development (Bronfenbrenner, 1977), as this theoretical approach emphasizes the importance of person-environment interaction in human development. The transactional view on development distinguishes between a proximal and distal impact of environment on human development (Kvello, 2015; Sameroff, 2009). Proximal factors have a direct impact on the child, whereas distal factors have an indirect impact on children's lives. In the case of school children during lockdown, this implies that the school lockdown and demands for social distancing are a proximal factor, while the increased insecurity in the economy and difficult working situation for parents are distal factors. We argue that the difference between the pandemic's proximal and distal impact on children's lives can be explained by applying the Bronfenbrenner model.

Bronfenbrenner proposed that different arenas with an environmental impact on children's lives and development can be sorted into five ecosystems that mutually affect each other: the micro-, meso-, exo-, macro- and chrono-systems (see Figure 1):
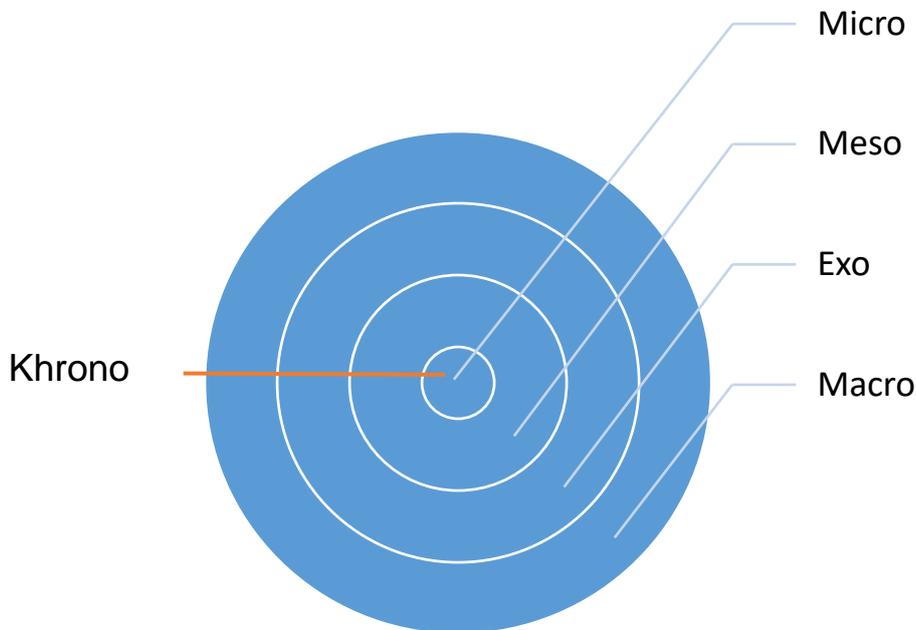
Figure 1 Bronfenbrenner's eco-systems (Bronfenbrenner, 1979)

The micro-system involves arenas and relationships, in which children participate directly; the mesosystem refers to the interaction between two or more micro-systems in a child's life, while the exo-system encompasses arenas and interactions that can affect children's lives - without the children's direct presence. The macro-system depicts the macro-levels of society and how political processes, cultural values and societal development can affect children (Bronfenbrenner, 1979). Finally, the chrono-system displays a dynamic part of the ecosystem model: how the different systems develop through time and interaction, each impacting the other and making up an ecological model of the social and psychological environment of children. Children's lives under school closures were confined to the micro-system of their homes. Thus, a study on children's experiences during lockdown will most likely display narratives from micro-level interactions. Even so, the chrono-level may also be relevant through the changes in infection rates and the impact this has on measures and decisions made at the macro-level (governmental decisions) to control the spread of the virus.

Transactional models have gained criticism for being abstract, and therefore lacking a precise conceptualization and practical relevance (Kvello, 2015). Hence, to further theorize on the practical impact that disruptions had on person-environment interactions during COVID-19 lockdowns, we include knowledge about the risk and protective factors in children's lives in our theoretical approach. According to research on childhood development, there are several factors that can affect children's lives (Rutter, 1989). Risk and protective factors can be integrated into all of Bronfenbrenner's levels, as they emphasize both the person (the child) and the person's environment. Examples of potential physical risk or protective factors in child development can be pollution, noise, housing, access to- and the quality of school and childcare and neighbourhoods (Ferguson et al., 2013). Yet, the environmental and individual capacities and characteristics of the child, the family and/or other supporting relationships have proven to be sources of risk, protection, or resilience in childhood development (Buchanan, 2014; Flouri & Buchanan, 2004). As a result, the main risk and protective factors in children's lives are linked to their parents, their family ties and access to steady relationships (Buchanan, 2014; Kvello, 2015; Rutter, 1989).

A simplified way to describe the integration of risk and protective factors into the eco-model of development is to view the different systems as layers, including the child and their genetics, family, school, community and wider environment - including policy and societal structures and institutions (Buchanan, 2014). Still, this does not fully account for the dynamic dimensions of the transactional model, such as how interaction (or a lack thereof) between the different layers of the system can constitute specific risk or protective factors. For example, this indicates that the complexity in transactions at the chrono-level, and its potential effect on children's lives is not sufficiently covered in a 'risk and protective factor approach' to children's development. As a result, this approach has been criticized for relying heavily on the individual psychological effects of adverse environments in both research and practice, as well as its tendency to separate the child from the surrounding environment (Bronfenbrenner, 1979). Furthermore, recent research suggests moving beyond a 'deficit model', and viewing children's adaptive interaction with adverse environments as resilient (Ellis et al., 2017). For this reason, combining the two approaches can contribute to an analysis of children's experiences from individual

micro-level transactions, toward an elevated understanding of how the experiences of the child and risk and protective factors within singular families are related to transactions on all levels in society. We will now proceed to explain the methods applied in this study.

Methods

The data for this study were collected in April 2020 during school closures in Norway, as Norwegian schools were closed for nine weeks. During this study, neither the children who participated nor their parents knew when schools would be open again. The schools remained open only for young children with parents in occupations critical for societal functions. In addition to schools being closed, workplaces were strongly advised to close and make use of home offices. Our data comprises diary entries written by 10 children aged 10 to 14 years old. The mean age of our sample was 11.9, and we collected 10 diaries. Eight of the children delivered diaries with entries from three days in a row. One child wrote for one day, while another chose to write for seven days in a row (see Table 1). We decided to include all dairies in the study, as we find the data important for gaining insight into the children's experiences, and we wish to respect their freedom in the sharing of experiences for one day, three days and an entire week. We do not believe this divergence has created problems for the reliability of our analysis because we are neither focused on comparing the diaries nor analysing by timeline.

Name	Alice	Elsa	Anna	Tom	Penelope	Alejandro	Samson	Sajib	Jesper	Ingvild
Gender	F	F	F	M	F	M	M	M	M	F
Age	12	12	10	14	10	13	12	12	11	13
Entries*	3	3	3	3	3	7	3	1	3	3

Table 1: Overview of participants and number of days the children wrote diary entries from. All diary entries were made on consecutive days during weeks 17 and 18, 2020.*

The data were collected through purposeful procedures.[1] Our approach with diary notes as data source made it possible to gain insight into the participants' lives without elevating the risk of infection. We did not set any tasks or boundaries, other

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[1] The study was approved by the Norwegian Centre for Research Data (Reference number: 398529) before data collection was initiated. The children's' parents, and the children themselves received information about the project and gave their written consent to participate.

than asking the children to write about their days during school closure for three days in a row. Hence, the children's diary notes are solely based on their own judgement of what felt important to write about at that point in time. Considering the confidentiality of third parties, children were asked not to include other people's names. None of the diary entries shared any narrative that might have raised concerns.

Diary studies offer several advantages compared to cross-sectional designs or longitudinal studies. Through diary studies, we were able to capture everyday changes that the respondents were expected to experience, such as variations in mood, motivation and stress (Ohly et al., 2010; Santiago et al., 2017). By employing this method, we were also able to collect data in the children's natural contexts, such as their homes, without any risk of COVID infection. According to Bolger et al. (2003), daily diary methods are useful in studying transitions and events to better understand the impacts they have on individuals and their environments. Our data were collected in a period characterized as an exception from normality (during COVID-19 lockdowns), and we assume that our respondents were more prone to mood fluctuations while adapting to the new situation. For the aforementioned reasons, we chose a time-based design with single-day units (Bolger et al., 2003). Another advantage to the time-based design is the reduction of retrospective bias (Bolger et al., 2003). We chose to limit the length of our data collection to three consecutive days for two primary reasons. Firstly, diary studies demand a lot from the participants through repeated entries, and drop-out is always a risk. Secondly, our respondents are young and in a more vulnerable situation than normal due to the huge changes in their environment brought about by the pandemic, so we wanted to prevent additional stress for the participants by limiting the time we asked them to commit to the study.

The data were analysed using a thematic analytic process in six steps (Braun & Clarke, 2012), combined with abductive reasoning, which includes the continuous dialectical examination of theory and data, thereby allowing plausible research conclusions based on both data and theory (Timmermans & Tavory, 2012). In the first stage of analysis, the first and second authors read and re-read the diary entries separately, with the goal of familiarizing themselves with the data. Codes were developed and named, based on the aspects of data related to children's

experiences of lockdown. In the next phase, we compared our codes and refined our analysis based on our separate readings. The codes that were developed in our discussion represented patterns of recurring themes partially visible and latent in the children's diaries. The following stages of analysis included reviewing these themes by cross-checking codes and patterns with the initial data sets, followed by the refinement of initial themes, insofar as defining and naming them. The themes were related to classical childhood arenas and descriptions of person-environment interactions, such as children-school, children-friends and children-family, yet they also included patterns of disruption and portrayals of the children's emotions and concerns due to lockdown. Theoretical approaches (Bronfenbrenner, 1979; Buchanan, 2014) were applied in the last stage of analysis. The findings and analysis are reported with the overarching themes of: 'Changes in home and family life', 'Changes in school and learning activities' and 'Changes in social interactions'.

Findings and analysis

The children's diaries include rich tales of their everyday lives and activities during lockdown. They wrote about family lives, school, interaction with friends and thoughts about the pandemic. Furthermore, they described interactions and lack thereof, important social arenas and thoughts and concerns about changes in their life situations. The social arenas included home and family life, school and learning activities, and social and digital interactions with peers. The reflections about life during lockdown addressed increased digital activities, concerns about grandparents getting ill and changes in interaction with peers and classmates:

> When I wake up, I clean up and then I have some time for myself. Afterward, I go downstairs for breakfast and start my schoolwork. Today I had a group session in math with my teacher. It is alright to have group sessions in hangouts, but I don't talk so much. I answer when the teacher asks me questions. Afterward, I did some math, Norwegian and arts and handicraft. I liked arts and handicrafts the best because it is fun. And then I have fun without the iPad. My mum read through my Norwegian. I get a bit stressed out when my mum has a strict voice when she is checking my work. I get more done at school than at home. At school, I don't always finish my work, but at home I must finish because there is a deadline for delivering the work. I miss my friends. I haven't seen my friends while I have been at home [in lockdown], but I talk to them through messages and chat in games. I don't speak to them that often. It is good to be able to take breaks when it suits me. I think it is nice to go for a hike/walk with my mum and dad. Also, it is nice that I am allowed to make more food at home. I have been a bit worried that grandma and granddad could get ill from COVID-19. I was sad when we had to cancel a trip to my uncle during Easter.
>
> (20 April 2020. Elsa, 12 years old)

Changes in home and family life

The micro-systems

During the closure of Norwegian schools and workplaces, the home became a centre for learning, playing, teaching, working and conferencing, in addition to normal everyday family activities. Many households comprised several family members engaged in different activities under the same roof at the same time. This, too, is evident in the children's writings. All interactions had been moved from the children's and parents' different micro-arenas into the home. Moreover, it seems that activities whereby children normally interacted with their friends were now more dependent on their parents' engagement, including sports, play and physical training. One child described this in the following way:

> Today, I finished my schoolwork early and as soon as my mum was finished working, I asked her to play some basketball with me. She said yes and we went to the basketball hoop. We played a bit and I stayed a bit longer to practice some more. When I came home, I played Fortnite on the TV until dinner was ready. After dinner, I read Donald duck until bedtime.
>
> (23 April 2020. Alejandro, 12 years old)

Alejandro describes a situation in which his physical play was with his mum, while he met his friends digitally through *Fortnite*. This matches Elsa's (and others') notes about only meeting up with friends through digital arenas, and Elsa's description of enjoying going for a walk with her parents. This depicts a change, whereby physically playful activities became a part of parent-child interaction within the family micro-system. Meanwhile, the micro-system of peer and friendships was dependent on access to digital platforms.

The exo-system

Some of the children described a home situation in which parents were employed in critical jobs, and had to go to work during lockdown. Among our respondents, older children took on responsibility in these situations. One example of this is:

> I woke up, as normal, at 20 past 8. It took me a long to get going but, finally, I started working at 11 o'clock. I worked on my homework until 12.45. Today, I helped my parents with vacuum cleaning, picking up my little brother from school and mowing the lawn. My parents came home late, so I made some pizza for my brothers. Me and my youngest brother saw a movie together and I ended my evening with some Call of Duty. Tonight, I will go to bed around 10 o'clock.
>
> (29 April 2020. Tom, 13 years old)

Children taking responsibility and helping with chores, whether alone or with adults, at home was a reoccurring theme in the diaries. These activities can be said to fall under normal day-to-day activities independent of the pandemic and subsequent lockdowns, yet it is interesting to see how this is emphasized the children's writings. This may indicate that the lockdown situation with parents working from home (or under pressure in critical occupations) caused disruptions in family life and increased the need for children to help at home. Tom's notes are an example of how the exo-system, combined with changes in the micro-system and decisions made at the macro-level, had an impact on children's lives.

The macro-system

Other impacts from the macro-system on the children's lives were the recommendations to keep physically distant from older family members, as well as restrictions on travel and gatherings. Some of this was handled through digital meetings with relatives - or, as Sajib (aged 12) described it:

> Suddenly my aunt and uncle started to call me in a call, I joined and from there it got very exciting because it was somehow already 10 at night and I got excited due to the fact they said we can wait till 12 and then sing happy birthday for my aunt. [...]Then when the time came, we all got into the mood by 12, so we started happily singing birthday songs to her.
>
> (23 April 2020)

However, many of the children write about missing their grandparents, missing hugs and physical closeness with friends and relatives, and worrying about someone close to them becoming ill.

Changes in school and learning activities

The micro-system

Many of the notes indicate an ambivalence towards home-schooling. This is illustrated in the first quote, where Elsa mentioned that she gets more done, but does not always finish her work at school. In another note, she described her home-school day like this:

> Today I have had gymnastics, which was very tiring. Me and my dad had to bicycle very far and take selfies in different places, so the teacher could see that I actually had gone on a bicycle tour. Really, I would have preferred to bicycle with my friends but that was not possible. In music, I made a simple melody online. I made fish, potatoes and vegetables for dinner. And then I had to take a picture of what I had made so the teacher could see that as well. I'm totally ok to deliver schoolwork to the teachers. And the workload is ok too. Maybe I can go back to school in a few weeks.
>
> (23 April 2020. Elsa, 12 years old)

Elsa's note shows that digitalizing school is challenging for children, and places an additional burden on parents. Normally, school comprises an entire micro-system of its own. Yet, during the months of school closure, this micro-system was integrated into each child's home and family life.

During school hours, the children met up with their teachers and classmates through digital group meetings, Google Hangouts and chats. However, aside from occasional group sessions with 'learning friends', it appears that schoolwork was conducted either in solitude or with the help of parents. Parents were involved in practical tasks such as gym, home economics, arts and handicrafts, and they also read and assisted their children in subjects such as mathematics and Norwegian. Some of the children found it easier to ask their parents for help than from school staff, as Anne, for example, wrote:

> Today, I have done math, Norwegian and gymnastics. I liked the Norwegian free task because then me and my mum created funny sentences. It is nice to get help from mum and dad at home. At school, my assistant helps me or my friend. At school, I don't like to ask for help. My mum nags about the schoolwork at home [...]
>
> (23 April 2020. Anne, 10 years old)

Anne's note shows how home-schooling could be experienced as positive for some children, at least when their parents were involved. It also reveals that children who had an assistant at school were dependent on their parents' help at home during lockdowns.

Macro-system

Closing schools was a governmental decision to slow or stop the spread of COVID-19 in Norwegian society. Many of the participants were explicit about missing school and their classmates, pointing out that schools being closed represented a major disruption in their lives. For example, Alice wrote:

> What is a bit different today, compared to ordinary days before corona, is that I can't be with all my friends and that I can't go to school. It is very weird not to be able to go

> to my school and hang out with whoever I want to. Normally, I hang out with a lot of friends and sit together in the classroom answering the teacher's questions.
>
> (27 April 2020. Alice, 12 years old)

The longing for friends and classmates, and lack of physical interaction, was emphasized as a great challenge by all the children.

Changes in social interactions

Digitalizing the micro-system of peer interaction

Most of the children wrote about missing physical social interaction with friends and classmates. Some met a couple of their friends outside, but most described peer interaction through digital arenas. Penelope worded her concerns about the increased use of digital media on 28 April 2020:

> Before the virus came, I thought everything was much easier and there was no stress. We could hug and didn't need to keep our distance, and could have sleepovers etc. Now I think things are a bit more stressful, and I get stressed over stuff that I really shouldn't get stressed about. Some things are good - like, school is much easier. But it is really nice to have someone to hug and have a sleepover with, and not keep distant all the time […]
>
> (28h April 2020. Penelope, 10 years old)

The peer arena became digitalized, and children met in games such as *Fortnite* and *Roblox*. Additionally, they kept in touch with their friends via social media such as *TikTok* and *Instagram*. These digital platforms provided multiple opportunities to keep in touch with friends, though not without complications. Some of the children did not like digital hangouts and felt uncomfortable on camera, while others were worried about their own use of- and addiction to digital media. Some described stress and being tired of using screens. Penelope described an episode that illustrates some of the vulnerabilities exposed in the digitalization of the micro-system of peer interaction:

> Also, I feel that everyone has become a bit moody. When I was with a friend and put it out on my [Instagram] story- she kept leaving comments all the time. It felt like she was envious, and I did not know how to handle it. So, I just put my phone away. I wanted to sit a bit with my iPad but I couldn't focus, because my eyes just kept staring at one and the same thing, so I put that away and tried drawing instead; I can feel that I have started having a lot of feelings. Everything has changed so much since last summer. I miss last year and last summer.
>
> (27 April 2020. Penelope, 10 years old)

Macro-system decisions: digitalization and economic consequences

The rapid digitalization of children's main arenas of activity - namely school and play - entailed a higher demand for digital devices and equipment among children. While

children might have postponed buying new devices, the lockdown made such procurements impertinent:

> After school hours we went to the town. Because I needed to buy a new telephone. I had saved money for a new telephone since last year. It is a bit silly that I could not deposit money I had saved because of COVID-19… Mum and dad bought me a new telephone, so they got my money.
>
> <div align="right">(22 April 2020. Elsa, 12 years old)</div>

Some children were already stressed due to a lack of contact with friends and stimulating activities during lockdowns. The absence of means such as iPads and mobiles to sustain and develop their friendships in the virtual world left children sadder and lonely. It also made children reassess their priorities for saving and spending money.

To develop our understanding of what the children's experiences mean for their everyday lives under COVID-19 restrictions, we will further discuss our findings in the following section.

Discussion and implications

The children's diaries described everyday life in middle-class families in Norway during COVID-19 school closures. These contained descriptions of changes in the children's central micro-systems and activities, such as home and family life, school and learning activities, and social and digital interaction with peers. All these arenas are important for children's development and well-being (Buchanan, 2014). However, the COVID-19 preventive measures during spring 2020 placed pressure on the ecosystems in children's lives. The children in our study voiced their concerns, and showed signs of vulnerability in relation to the lockdown.

An important finding in our study is how the 'new' digital arena seems to permeate all the system layers in the children's lives during lockdown. It appears to be present in almost every interaction between children and friends, teachers and family. This arena is an important source of knowledge and information, encompassing the interaction between all levels in Bronfenbrenner's (1977) model. Therefore, we propose that the digital arena is a new contribution to the chrono-system. The micro-, meso-, exo- and macro-systems seem to be dependent on digital arenas for interaction and development during this pandemic.

With the pandemic forcing children's activities from offline interaction in parks, classrooms and playgrounds on to digital arenas (Hantrais et al., 2021), the risk of mental health issues (Miranda et al., 2020) and feelings of worry, fear and uncertainty increases (Ares et al., 2021). The children in our study reported some experiences of discomfort related to stress, sleep deprivation, sadness and boredom. They also expressed concerns over increased digitalization, loss of physical contact with friends and fatigue with digital interaction. One of the children raised concerns about the number of hours spent online. The digitalization of childhood interactions can be viewed as an example of how macro-level decision-making has a direct impact on micro-level interaction. The school closure appears to have led to a severe alteration and disruption in children's social interaction with peers. The deprivation of access to alternative micro-systems, combined with a lack of meso-level interaction, may have reduced protective factors - or even heightened the risk factors in some children's lives. This could also be the case with the increase in digital interaction. Digital arenas are not always safe for children (Hantrais et al., 2021), and their frequent presence in digital channels can heighten the risk of negative experiences such as bullying, grooming and unwanted attention.

According to our data, schooling and all teaching activities were digitalized. Home-schooling had the advantage of increased parental involvement in schoolwork. Yet, access to the internet, digital technology and digital competence in the home are important for the children's maintenance of peer interaction and learning during lockdowns. According to Holmes and Burgess (2020), this exposed a digital divide and exclusion for families with limited financial resources and digital competence. Thus, politics and societal structures at the macro-level, such as poverty and inequality, impact the family's ability to cope with the consequences of the lockdown at the micro-level. Finally, earlier research on the impact of coronavirus-related measures on children and families emphasizes the importance of safeguarding normal interaction and access to important arenas in children's lives (Cheng et al., 2020). Others have noted that the home is not necessarily the safest place for all children (Daks et al., 2020). Nonetheless, our findings indicate that children in well-functioning families have the capacity to adapt to ground-breaking changes in their ecosystems. This is in accordance with knowledge about the family being the most

important protective and proximal factor in children's development (Buchanan, 2014; Kvello, 2015; Rutter, 1989). Yet, our findings show that the school lockdown led to a situation in which all arenas and system levels moved into the children's homes and family life. This appears to have disrupted micro-level interaction between family members, friends and classmates.

We observe a complete absence of any references to interactions on the meso-level in the children's notes. This could be caused by their unawareness of such interactions, for example, between school and parents. However, other studies have also revealed limited access to support systems for children and their families during the pandemic (Cheng et al., 2020). Our findings indicate that, to a large extent, children were dependent on their parents' capacity to help with schoolwork and leisure activities during the lockdown. For this reason, the absence of parents' support systems could be a potential risk factor. A lack of interaction with peers and teachers could make it harder for children to let someone know if something is challenging at home, or if the child is feeling distressed or depressed. Daks et al.'s (2020) study on family systems during the pandemic suggests that parental flexibility promotes resilience, while parental inflexibility can cause coronavirus-related stress. The situation whereby all micro-systems for one family are integrated into the home demands a high psychological flexibility from both children and parents (Daks et al., 2020; Buchanan, 2014), as well as a good physical environment, such as good housing (Ferguson et al., 2013).

Limitations and implications for practice and further research
There were no descriptions of serious family conflicts in our material. This could be linked to the fact that our respondents come from relatively well-resourced families. Even so, it may also be indicative of both the children's and their families' ability to cope with the situation that emerged in spring 2020. Another limitation is that the data were collected over a limited time-span during a relatively short lockdown of nine weeks. Also, our data comprises a limited number of diary entries from each child, for reasons elaborated on under the methods section. The research was also conducted in a Norwegian context. Norwegian welfare systems are known to be well-functioning and child-oriented, which could provide a distal protective factor for the participants in this study.

Although our findings do not reveal severe negative consequences, as with some of the earlier COVID-19 research (see, Chu et al., 2020; Ares et al., 2021), there is need for an evaluation of the consequences of digitalized schools for children's learning and social development. Furthermore, a heightened consciousness of the impacts of lockdowns on the families and homes of school children could be crucial to future decision-making processes regarding crisis management. Potential future lockdowns should include suitable systems for safeguarding families with specific social and financial needs, and to ensure access to appropriate support services.

Future research could explore children's experiences with digitalization post-lockdown, and include diary entries from their parents. Another useful research area would be to investigate how children cope with sudden changes in their ecosystems.

References

Ares, G., Bove, I., Vidal, L., Brunet, G., Fuletti, D., Arroyo, Á. & Blanc, M. V. (2021). The experience of social distancing for families with children and adolescents during the coronavirus (COVID-19) pandemic in Uruguay: Difficulties and opportunities. *Children and Youth Services Review, 121*(105906). https://doi.org/10.1016/j.childyouth.2020.105906

Beazley, H., Bessell,S., Ennew, J & Waterson, R (2009) The right to be properly researched: research with children in a messy, real world, *Children's Geographies, 7*(4), 365-378, https://doi.org/10.1080/14733280903234428

Bolger, N., Davis, A. & Rafaeli, E. (2003). Diary Methods: Capturing Life as it is Lived. *Annual Review of Psychology, 54*(1), 579-616. https://doi.org/10.1146/annurev.psych.54.101601.145030

Braun, V. & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf & K. J. Sher (Ed.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (p. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Bronfenbrenner, U. (1977). Toward an Experimental Ecology of Human Development. *American Psychologist, 32*(7), 513-531. https://doi.org/10.1037/0003-066X.32.7.513

Bronfenbrenner, U. (1996). *The ecology of human development: Experiments by nature and design.* Harvard University Press.

Buchanan, A. (2014). Risk and Protective Factors in Child Development and the Development of Resilience. *Open Journal of Social Sciences, 2*(4), 244-249. https://doi.org/10.4236/jss.2014.24025.

Cheng, T. L., Moon, M., Artman, M. (2020). Shoring up the safety net for children in the COVID-19 pandemic. *Pediatric Research, 88*(3), 349-351. https://doi.org/10.1038/s41390-020-1071-7

Chu, I., Alam, P., Larson, H. & Lin, L. (2020). Social consequences of mass quarantine during epidemics: A systematic review with implications for the COVID-19 response. *Journal of Travel Medicine, 27*(7), 1-14. https://doi.org/10.1093/jtm/taaa192

Daks, J. S., Peltz, J. S. & Rogge, R. D. (2020). Psychological flexibility and inflexibility as sources of resiliency and risk during a pandemic: Modeling the

cascade of COVID-19 stress on family systems with a contextual behavioral science lens. *Journal of Contextual Behavioral Science, 18*, 16-27. https://doi.org/10.1016/j.jcbs.2020.08.003

Dong, C., Cao, S. & Li, H. (2020). Young children's online learning during the COVID-19 pandemic: Chinese parents' beliefs and attitudes. *Children and Youth Services Review, 118*(105440). https://doi.org/10.1016/j.childyouth.2020.105440

Ellis, B. J., Bianchi, J., Griskevicius, V. & Frankenhuis, W. E. (2017). Beyond Risk and Protective Factors: An Adaptation-Based Approach to Resilience. *Perspectives on Psychological Science, 12*(4), 561–587. https://doi.org/10.1177/1745691617693054

Fraser, E. (2020). *Impact of the COVID-19 pandemic on violence against women and girls.* VAWG Helpdesk. (Helpdesk Research Report, 284)

Ferguson, K. T., Cassells, R. C., MacAllister, J. W. & Evans, G. W. (2013). The physical environment and child development: An international review. *International Journal of Psychology, 48*(4), 437-468. https://doi.org/10.1080/00207594.2013.804190

Flouri, E. & Buchanan, A. (2004). Early father's and mother's involvement and child's later educational outcomes. *British Journal of Educational Psychology, 74*(2), 141-153. https://doi.org/10.1348/000709904773839806

Griffith, A. K. (2020). Parental burnout and child maltreatment during the COVID-19 pandemic. *Journal of Family Violence, 37,* 725-731. https://doi.org/10.1007/s10896-020-00172-2

Hantrais, L., Allin, P., Kritikos, M., Sogomonjan, M., Anand, P. B., Livingstone, S., Williams, M. & Innes, M. (2021). Covid-19 and the digital revolution. *Contemporary Social Science, 16*(2), 256-270. https://doi.org/10.1080/21582041.2020.1833234

Holmes, H. & Burgess, G. (2020). *'Pay the wi-fi or feed the children': Coronavirus has intensified the UK's digital divide.* Cambridge Centre for Housing and Planning Research. https://www.cam.ac.uk/stories/digitaldivide

Kvello, Ø. (2015). *Barn i risiko: Skadelige omsorgssituasjoner* (2. ed.). Gyldendal akademisk.

Liu, J. J., Bao, Y., Huang, X., Shi, J. & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet Child & Adolescent Health, 4*(5), 347-349. https://doi.org/10.1016/S2352-4642(20)30096-1

Livingstone, S. (2018). iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy – and completely unprepared for adulthood. *Journal of Children and Media, 12*(1), 118-123. https://doi.org/10.1080/17482798.2017.1417091

Marques de Miranda, D., da Silva Athanasio, B., Sena Oliveira, A. C. & Simoes, E. S. A. C. (2020). How is the COVID-19 pandemic impacting the mental health of children and adolescents? *International Journal of Disaster Risk Reduction, 51*(101845). https://doi.org/10.1016/j.ijdrr.2020.101845

Ohly, S., Sonnentag, S., Niessen, C. & Zapf, D. (2010). Diary studies in organizational research: An introduction and some practical recommendations. *Journal of Personnel Psychology, 9*(2), 79-93. https://doi.org/10.1027/1866-5888/a000009

Quiñones, G. & Adams, M. (2020). Children's virtual worlds and friendships during the COVID-19 pandemic. *Video Journal of Education and Pedagogy, 5*(1), 1-18. https://doi.org/10.1163/23644583-bja10015

Rutter, M. (1989). Pathways from Childhood to Adult Life. *Journal of Child Psychology and Psychiatry, 30*(1), 23-51. https://doi.org/10.1111/j.1469-7610.1989.tb00768.x

Sameroff, A. (Ed.). (2009). *The transactional model of development: How children and contexts shape each other.* American Psychological Association. https://doi.org/10.1037/11877-000

Santiago, C. D., Brewer, S. K., Fuller, A. K., Torres, S. A., Papadakis, J. L. & Ros, A. M. (2017). Stress, Coping, and Mood Among Latino Adolescents: A Daily Diary Study. *Journal of Research on Adolescence, 27*(3), 566-580. https://doi.org/10.1111/jora.12294

Timmermans, S. & Tavory, I. (2012). Theory Construction in Qualitative Research: From Grounded Theory to Abductive Analysis. *Sociological Theory, 30*(3), 167–186. https://doi.org/10.1177/0735275112457914

Uzun, H., Karaca, N. H. & Metin, Ş. (2021). Assessment of parent-child relationship in Covid-19 pandemic. *Children and Youth Services Review, 120*(105748). https://doi.org/10.1016/j.childyouth.2020.105748

Viner, R. M., Russell, S. J., Croker, H., Packer, J., Ward, J., Stansfield, C., Mytton, O., Bonell, C. & Booy, R. (2020). School closure and management practices during coronavirus outbreaks including COVID-19: A rapid systematic review. *The Lancet Child & Adolescent Health, 4*(5), 397-404. https://doi.org/10.1016/S2352-4642(20)30095-X

WHO (2020). Note from the editors: World Health Organization declares novel coronavirus (2019-nCoV) sixth public health emergency of international concern. *Eurosurveillance, 25*(5), 200131e. https://doi.org/10.2807/1560-7917.ES.2020.25.5.200131e

Xie, X., Xue, Q., Zhou, Y., Zhu, K., Liu, Q., Zhang, J. & Song, R. (2020). Mental Health Status Among Children in Home Confinement During the Coronavirus Disease 2019 Outbreak in Hubei Province, China. *JAMA Pediatrics, 174*(9), 898-900. https://doi.org/10.1001/jamapediatrics.2020.1619

Ye, B., Wu, D., Im, H., Liu, M., Wang, X. & Yang, Q. (2020). Stressors of COVID-19 and stress consequences: The mediating role of rumination and the moderating role of psychological support. *Children and Youth Services Review, 118*(105466). https://doi.org/10.1016/j.childyouth.2020.105466