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**INTERNALIZING AND EXTERNALIZING
SYMPTOMS IN CHILDREN:
FAMILY FACTORS UNDERLYING
RESILIENCE DURING COVID-19**

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ABSTRACT

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The COVID-19 pandemic can be seen as an adversity affecting the lives of families all around the world, and it has been suggested to affect the mental health of children in a deteriorating way. Although not all children experience the negative effects of adversity and can be seen as resilient. Resilience is characterized by displaying a positive outcome despite experiencing adversity. Previous resilience research has displayed multiple family-related protective and risk factors which have an impact on resilience. The aim of this study was to investigate the effect of parental distress, dysfunctional parent-child interaction, parent's satisfaction to social support, and financial difficulties on resilience displayed by the child during the pandemic. Resilience was measured by internalizing and externalizing symptoms displayed by the child during the pandemic, while previous levels of symptoms were controlled for. The hypothesis was that all family factors investigated would have an impact on internalizing and externalizing symptoms displayed by the child during the pandemic so that parental distress, dysfunctional parent-child interaction, and financial difficulties would be seen as risk factors associated with higher amounts of symptoms, whereas satisfaction to social support would act as a protective factor associated with lower amounts of symptoms experienced during the COVID-19 pandemic.

The study population consisted of 258 children and their caregivers, and it was derived from a longitudinal study called Vitamin D Intervention in Infants (VIDI) in Finland. Parents filled in questionnaires regarding their child's internalizing and externalizing symptoms when the children were 2 years old using the Infant-Toddler Social and Emotional Assessment (ITSEA) questionnaire and again when the children were 6-8 years of age using the Child Behavior Checklist version for school-aged children (CBCL/6-18). At the second follow-up when the children were 6-8 years of age, parents also filled in a questionnaire called Parenting Stress Index Fourth Edition Short Form (PSI-4-SF) measuring parental distress and dysfunctional parent-child interaction as well as the Social Support Questionnaire Short Form (SSQSR) measuring the parent's satisfaction to social support. In addition, parents were asked one question regarding the family's financial difficulties. The COVID-19 pandemic took place during the second follow-up when the children were 6-8 years old. The influence of family factors on resilience measured by internalizing and externalizing symptoms were analyzed using linear regression.

This study found multiple associations between family factors and the resilience of the child during COVID-19 when looking at internalizing and externalizing symptoms. Parental distress and parent-child dysfunctional interaction were associated with increased internalizing and externalizing symptoms in the 6-8-year-old children during the pandemic when previous symptoms were controlled for. In addition, the family's financial difficulties were associated with increased internalizing symptoms in 6-8-year-old children during the pandemic when previous symptoms were controlled for. The study thus found partial support for the hypotheses and offered new valuable information on factors affecting resilience in Finnish children during the pandemic. These results may help guide future family interventions during adversity and help identify risk factors to look out for. Topics for further research include looking at the effect of the child's temperament and child's social support on resilience during the COVID-19 pandemic.

Keywords: internalizing symptoms, externalizing symptoms, resilience, COVID-19, developmental psychology, children

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1. INTRODUCTION

The COVID-19 pandemic has affected the lives of people around the world drastically and can thus be seen as an adversity impacting individuals, societies, and nations. On an individual level people might have lost their jobs, suffered from loneliness, been unable to meet the people closest to them, and had to adjust to a new way of living (Cardenas, Bustos, & Chakraborty, 2020; Kumar & Nayar, 2021). Children have also experienced several changes in their social environments, and it has been suggested that the pandemic has affected their mental health in a deteriorating way (e.g. Racine et al., 2021). Research regarding the influence the pandemic has had on children is just emerging.

Though not all children react to adversity in the same way: some display resilience, which means they adjust to stressful situations with minimal negative impacts (Rutter, 2006). Several factors including the family environment and social support have been recognized to enhance resilience during adversity (e.g. Pérez-González, Guilera, Pereda, & Jarne, 2017; Meng, Fleury, Xiang, Li, & D'Arcy, 2018). Some research regarding the factors underlying resilience during the pandemic has surfaced abroad (e.g. Coulombe et al., 2020), though such research is still scarce in a Finnish population and more insight is called for especially regarding children. This study aims to uncover especially family factors that might act as protective or risk factors regarding resilience in terms of children's internalizing and externalizing symptoms during the pandemic. More specifically, the aim of the current study is to look at how factors such as parental distress, parent-child dysfunctional interaction, the parent's social support, and the family's financial difficulties influence resilience seen in the amount of children's internalizing and externalizing symptoms during COVID-19.

1.1 Adversity and implications of COVID-19

Adversity is an inevitable part of human life, and every person will most likely experience some level of adversity during their lifespan. Adversity is defined as a situation which usually leads to challenges in adjustment due to negative life conditions (Luthar & Cicchetti, 2000). Adversities may vary in severity ranging from minor daily hassles to life-altering major life events (Fletcher & Sarkar, 2013). Some family related adversities may include abuse, conflict, psychopathology of a family member,

the separation from, or the death of a parent (Luecken, Roubinov, & Tanaka, 2013). Adversities can also be situations like natural disasters, serious injuries, unemployment, or financial worries. Such events may have long-lasting multiple effects on one's mental health (e.g. Gershon, Sudheimer, Tirouvanziam, Williams, & O'Hara, 2013; Benjet, Borges, & Medina-Mora, 2010).

A virus later coined COVID-19, caused by a coronavirus called SARS-CoV-2, was first found in a city called Wuhan in China in late 2019 (World Health Organization, 2020a). The virus quickly spread worldwide and in March 2020 the World Health Organization (2020b) declared COVID-19 a pandemic. Finland's first COVID-19 case was reported in January 2020 (Kajander, 2020). On March 16th, 2020, the Finnish Government in co-operation with the president declared a state of emergency in the country and many restrictions were put to place including limiting public gatherings to a maximum of ten people and closing many public facilities (Government Communications Department, Ministry of Education and Culture, & Ministry of Social Affairs and Health, 2020).

There is no doubt that the COVID-19 pandemic has affected the society, and thus has functioned as an adversity. The pandemic has had a vast impact all over the world as people have had to adapt to new ways of living whilst avoiding unnecessary social situations. During the most critical times of the pandemic people have had to socially distance, children have possibly had to adjust to remote school, and recreational facilities may have been shut down leading to minimal social contact with people outside one's household (Cardenas et al., 2020). Some have even lost their jobs leading to financial challenges and uncertainty, which in turn might possibly have had even more harmful consequences on the individual, like for instance self-harm (Kumar & Nayar, 2021). Other possible mental health impacts of the pandemic may include fear, anxiety, depression, worry, insomnia, loneliness, and harmful substance use (World Health Organization, 2022; Kumar & Nayar, 2021).

The pandemic has affected families as a whole and this raises the question about the pandemic's impact on family functioning and family factors like parental distress, interaction within the family, financial difficulties, and social support. In one study, most parents were found to experience symptoms of depression and anxiety during the pandemic, which was found to be associated with greater perceived stress by the parent (Brown, Doom, Lechuga-Peña, Watamura, & Koppels, 2020). In addition, a higher number of stressors related to the pandemic (e.g. changes in mood, health, relationships or sleep, or knowing someone who tested positive for COVID-19) were found to be associated with increased perceived stress, whereas social support and perceived control of the parent during COVID-19 were seen to be associated with lower perceived stress (Brown et al., 2020). Another study also found out that the more the pandemic impacted one's life (e.g. changes in finances and employment, psychological health, and access to resources), the higher the measured parental stress was (Chung, Lanier, & Wong, 2020). The pandemic has also been suggested to impact

family interactions in a negative way as increased parental stress was found to be associated with increased harsh parenting practices (like spanking or yelling) and decreased closeness in the parent-child relationship (Chung et al., 2020). Dysfunctional family interaction has also been suggested to have manifested in extreme forms like domestic violence in some families, as studies have found increased amounts of domestic violence incidents emerging during the pandemic (Piquero, Jennings, Jemison, Kaukinen, & Knaul, 2021; Petrowski, Cappa, Pereira, Mason, & Daban, 2021). Many parents might have faced financial difficulties during the pandemic if they have been, for instance, left unemployed (Kumar & Nayar, 2021), and being a recipient of financial assistance during the pandemic has been suggested to increase the probability of child abuse in the family (Brown et al., 2020). Altogether it seems that the pandemic might have had worsening effects on family functioning, although there is great variety in the effects of the pandemic, as the financial and social consequences of the pandemic differ from family to family.

Children's mental and physical health may have been impacted by the pandemic. In a longitudinal study looking at 3- to 5-year-old children in 14 different countries during the pandemic, children were found to spend less time outdoors, go to bed and wake up later, and have increased screen time per day when compared to the time before the pandemic (Okely et al., 2021). Children in the U.S. also generally engaged in more sedentary activities and less physical activity while restrictive policies were in place, possibly having deteriorating effects on future health and well-being (Dunton, Do, & Wang, 2020). A meta-analysis conducted on children and youth including studies from for instance China, the U.S., and Italy demonstrated elevated levels of clinical depression and anxiety symptoms during the pandemic (Racine et al., 2021). Research on the pandemic's effects on childhood mental health and the role family functioning plays in it is still scarce especially in a Finnish population, and more research is still called for.

1.2 Childhood mental health

Mental health in childhood includes learning social capacities for solving problems in life and reaching developmental and emotional milestones of childhood whilst functioning positively in multiple environments, like for instance at school and at home (Centers for Disease and Prevention, 2022). Mental health disorders in childhood may manifest in multiple differing ways depending on the disorder, but one might notice some of the following: changes in the child's abilities to cope with daily activities, changes in school performance, irritable mood, changes in sleeping or eating patterns,

worrying excessively, or losing interest in activities previously enjoyed by the child (American Psychiatric Association, 2013). All children sometimes experience negative emotions like worry, anxiety, and anger as a part of their normal development, but if symptoms persist, are severe, occur at an unusual age, or interrupt the child's ability to function, the child might have a mental health disorder (American Psychiatric Association, 2013). The possible impacts of a mental health disorder may include struggle with the child's ability to face difficulties in relationships and education (Collishaw & Sellers, 2020). The most common mental health disorders in childhood are anxiety disorders, behavior disorders being the second most common, followed by mood disorders and substance disorders (Merikangas, Nakamura, & Kessler, 2009). The onset of these disorders differs, as ADHD and anxiety disorders typically begin earlier in childhood, whereas conduct disorders and mood disorders usually present themselves typically in adolescence (Merikangas et al., 2009).

Mental health disorders are quite common in children and adolescence as the prevalence rate has been estimated to be around 13% in a systematic review considering 41 studies from around the world (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Mental health problems which have started in childhood might persist to adolescence and adulthood, and disorders in childhood may precede the onset of certain disorders in adulthood (Hofstra, Van Der Ende, & Verhulst, 2002). Research has found that many adults diagnosed with schizophrenia or bipolar disorder have showed signs of either anxiety disorders or ADHD in childhood (Meier et al., 2018). In addition to clinically diagnosed mental health disorders, also subthreshold levels of symptoms are common in children, and these symptoms may also impact the functioning of children in everyday life (Balazs & Keresztesy, 2014; Wesselhoeft, Sørensen, Heiervang, & Bilenberg, 2013).

1.2.1 Internalizing and externalizing symptoms in children

Most mental health symptoms in childhood can be differentiated into internalizing and externalizing symptoms (American Psychiatric Association, 2013). These symptoms manifest and impact the individual and their surroundings in different ways, as internalizing symptoms are characterized by anxiety, depression, and somatic manifestations, whereas externalizing symptoms are characterized by displays of for instance impulsive and disruptive conduct, substance use, and antisocial behavior (American Psychiatric Association, 2013). In a way internalizing symptoms are experienced by the individual internally, whereas externalizing symptoms are displayed more clearly as disruptive behavior and can be often noticed in an individual's overt behavior. In children, internalizing

symptoms may be displayed as sadness, somatic complaints, and withdrawing socially, whereas externalizing symptoms can be observed as for instance hyperactivity, conduct problems, aggression, difficulties in focusing, and noncompliance with rules (Willner, Gatzke-Kopp, & Bray, 2016). Internalizing symptoms are suggested to be more prevalent among girls and externalizing symptoms more prevalent amongst boys (Martel, 2013). Both internalizing and externalizing disorders show comorbidity with other disorders of the same cluster and are thought to have shared genetic and environmental risk factors as evidenced by twin studies (American Psychiatric Association, 2013).

Though, internalizing and externalizing symptoms are not mutually exclusive either and can both be demonstrated at the same time in the same individual, as mental health problems from one internalizing or externalizing cluster can have high comorbidity with the other cluster (Gilliom & Shaw, 2004; Willner et al., 2016). In a longitudinal study carried out in a sample of disadvantaged boys, a connection was found between internalizing and externalizing symptoms, as the increase in one often meant the increase in the other (Gilliom & Shaw, 2004). It has been identified that children displaying externalizing symptoms in childhood may be at heightened risk to present internalizing symptoms as well (Willner et al., 2016; Gilliom & Shaw, 2004). Though externalizing symptoms have been suggested to more often decrease with age, whereas internalizing symptoms may contrarily increase with age (Gilliom & Shaw, 2004).

Experiencing internalizing or externalizing symptoms in childhood may have differing impacts on future life. For instance, externalizing symptoms which persisted from childhood to adolescence were found to be associated with an increased risk of developing a cannabis use disorder at age 21 (Hayatbakhsh et al., 2007). The display of physical aggression which did not decline after childhood was also associated with risky health behavior such as substance use in adolescence (Timmermans, Van Lier, & Koot, 2008). Different types of externalizing symptoms in childhood have also been found to be associated with for instance anxiety and mood disorders in adulthood (Reef, Diamantopoulou, Meurs, Verhulst, & Ende, 2011). Researchers have found that especially difficult externalizing symptoms in childhood might predict both internalizing and externalizing disorders as an adult (Reef et al., 2011). Individuals experiencing avoidant personality and depressive problems at age 27 were found to have an increased risk of having an increasing trajectory of internalizing problems from childhood to youth (Korhonen, Luoma, Salmelin, Siirtola, & Puura, 2018). Though at the same time this kind of internalizing trajectory decreased the risk of externalizing problems and antisocial problems as an adult (Korhonen et al., 2018). On the other hand, a trajectory of high externalizing problems as a child were associated with behavioral problems and a poorer life quality in adulthood (Korhonen et al., 2018). Since internalizing and externalizing symptoms

displayed in childhood might have even far-reaching impacts on later life, understanding the etiology behind them is important.

1.2.2 Etiology of internalizing and externalizing symptoms

Genetic, environmental, and individual factors are known to possibly impact the development of internalizing and externalizing symptoms in children. For instance, heritable temperamental qualities like behavioral inhibition has been suggested to be associated with anxiety disorders (Biederman et al., 2001; Fang & Gagne, 2018). Research has also found negative affect, fearfulness, and negative emotionality of a child to be associated with increased levels of internalizing symptoms (Crawford, Schrock, & Woodruff-Borden, 2010; Gilliom & Shaw, 2004). On the other hand, temperament traits like extraversion and surgency in preschool aged children were associated with increases in externalizing symptoms reported by peers and teachers (Berdan, Keane, & Calkins, 2008). Low fearfulness and negative emotionality displayed by the child together with high negative maternal control was also found to be associated with increases in externalizing symptoms (Gilliom & Shaw, 2004). The sex of the child also has an impact on the manifestation of symptoms as third grade aged girls displayed worse internalizing symptoms than boys, and the growth rate of these symptoms was faster for girls than for boys (Wu & Lee, 2020). In addition, parental psychopathology has been suggested to increase the risk of psychopathology also in their children (Rasic, Hajek, Alda, & Uher, 2014).

Furthermore, multiple family factors and life experiences of the child may have an impact on displaying internalizing and externalizing symptoms. Research has suggested that for instance early insecure attachment styles (Groh, Roisman, van Ijzendoorn, Bakermans-Kranenburg, & Fearon, 2012), poor family functioning (Crawford et al, 2010), hostile parenting during infancy (Edwards & Hans, 2015), and negative affect demonstrated by the mother (Fang & Gagne, 2018) might increase the risk of internalizing symptoms in children. On the other hand, the quality of the parent-child relationship measured by strong parental support, parental knowledge, and a low level of conflict in the family protects against the manifestation of internalizing symptoms in children especially at a young age (Wu & Lee, 2020). In terms of externalizing symptoms, a longitudinal study has suggested maternal stress and harsh parenting discipline during the initial three years of childhood to be predictors, whereas for internalizing symptoms maternal stress, being a single parent, having no older siblings, and harsh parenting discipline were predictive (Bayer, Hiscock, Ukoumunne, Price, &

Wake, 2008). Family conflict as well as maternal anxious and depressive symptoms (Edwards & Hans, 2015), paternal depression (Kane & Garber, 2008), and instabilities in family structure and residential mobility in early and middle childhood (Womack, Taraban, Shaw, Wilson, & Dishion, 2019) were found to be associated with both internalizing and externalizing symptoms in children.

Early life adversities are known to increase the risk for psychiatric disorders and symptoms later on in life (Gershon et al., 2013; Benjet et al., 2010). Children who were exposed to domestic violence were found to be 3.7 times more likely to demonstrate internalizing and externalizing symptoms than those not exposed to domestic violence (Martinez-Torteya, Bogat, von Eye, & Levendosky, 2009). Prenatal stressful events have also been found to be associated with a risk of demonstrating externalizing symptoms in childhood (MacKinnon, Kingsbury, Mahedy, Evans, & Colman, 2018). It has also been suggested that for instance depressive symptoms may occur over time especially in children who have experienced adversity, although individual vulnerability factors have been suggested to also have an influence (Gazelle & Ladd, 2003). It is probable that multiple risk factors lead to the development of childhood mental disorders instead of one factor alone, as for instance facing an adversity may trigger the onset of mental health symptoms in those with personal vulnerabilities (e.g. Gazette & Ladd, 2003).

1.3 Resilience

Some level of adversity is an inevitable part of human life affecting most people at some point in their lives, but it seems that different people adjust and cope with adversity in different ways. Adversity may lead to severe negative outcomes in others, whereas other individuals are more resilient and experience minimal negative consequences (Bonanno, 2004). According to Rutter (2006) resilience is a positive outcome despite experiencing even severe adverse events. In resilience research there has long been debates about whether resilience is a trait, process, or an outcome (Fletcher & Sarkar, 2013). Even though there are numerous differing definitions on how resilience as a construct has been operationalized, adversity and positive adaptation are two core concepts most definitions abide to (Fletcher & Sarkar, 2013). Early on resilience was seen as rare and unordinary, but Masten (2001) emphasizes the commonness of resilience and how it stems from basic human adaptational systems including factors such as brain development, engaging in the environment, cognition, emotional regulation, caregiver-child relationships, and motivation for learning. Resilience has been proposed to actually be very common and in reality, a vast number of individuals adjust to

adversity in a healthy functioning way (Bonanno, 2004). In one study 54 % of children who had experienced domestic violence were classified to be resilient, which indicates how common it is even when experiencing adversity (Martinez-Torteya et al., 2009).

Resilience has been differentiated from the construct of recovery (Bonanno, 2004). Recovery refers to normal functioning in which the levels of psychopathology, for example depressive symptoms, may temporarily dip lower for a couple of months or years due to adversity and then return to previous levels gradually (Bonanno, 2004). As opposed to recovery, resilience is characterized by a stable trajectory throughout the adverse event in which the individual adjusts with healthy levels of psychological and physical functioning (Bonanno, 2004). Resilience is clearly different from recovering from adversity, as in resilience the initial dip in psychopathology is not as great and is more stable. Displaying resilience has also been seen to account for a better life as it reduces the risk of psychopathology, develops adaptive skills, increases subjective psychological wellbeing, and decreases the probability of being traumatized by an adverse event (Meng et al., 2018). As a quality it seems that resilience protects individuals in face of hardships and allows them to adapt to adversity positively, and this naturally raises the question of which qualities and factors underlie resilience.

1.3.1 Protective factors

Research in the past few decades has been frantically searching for qualities aiding resilience, and has come up with many *protective factors*, which increase the likelihood of an individual displaying resilience once facing adversity in life (Meng et al, 2018). Due to the focus of this study, childhood and parental themes will be the center of focus here, although also some factors of resilience in adulthood have been included.

Research has found multiple social and family-related protective factors which aid the resilience displayed by a child when facing adversity. For instance, in sexually victimized children who displayed internalizing symptoms, the availability to peers was shown to act as a resilience boosting protective factor, whereas in those displaying externalizing symptoms connectedness to family and school were found to be protective factors (Pérez-González et al., 2017). In systematic reviews, a close mother-child relationship, social support, maternal care, family cohesion, school connectedness as well as peer and parental support were found to be associated with resilience in children facing adversity (Meng et al., 2018; Marley & Mauki, 2019). The relatedness to mother as well as the social and emotional resources of the child prompted better school functioning in children,

and maternal warmth and stable living conditions were associated with overall better functioning (Meng et al., 2018). Similar findings were also found in a systematic review looking at children of alcoholics in which social support, positive family climate, presence of other trustable family members, and secure attachment with parents were associated with resilience (Park & Schepp, 2014). A greater number of family-related protective factors like cognitive stimulation and emotional support from parents has also been found to be related to greater resilience in children in another study (Sattler & Font, 2017). In children whose parents suffered from bipolar disorder, reduced internalizing symptom levels were found among those whose parents were undergoing a prevention program aimed to improve interaction (Serravalle et al., 2021). This finding suggests that the quality of the parent-child interaction likely has an influence on children's symptoms.

Some research has already been conducted regarding resilience during the pandemic, though a lot of research has focused on adults and youth (e.g. Coulombe et al., 2020; Verdolini et al., 2021; Shanahan et al., 2022), with still more research needed on children. Higher family functioning measured by for instance problem solving, communication and affective involvement in the family, was associated with decreased risk of developing depressive symptoms in adolescents during the first COVID-19 lockdown (Vacaru, Beijers, & de Weerth, 2022). In regard to adults, researchers found family functioning, social support from friends, trust in the healthcare system, and social participation to be protective factors associated with meaning of life during COVID-19 (Coulombe et al., 2020). Protective factors like family functioning, trusting the healthcare system, exercise, positive reappraisal of the situation, and keeping a daily routine were found to be associated with lower stress levels in adults during the pandemic (Coulombe et al., 2020; Shanahan et al., 2022). An organized family environment and pursuing hobbies or home tasks during the COVID-19 pandemic predicted higher state resilience in psychiatric patients (Verdolini et al., 2021), and the amount of perceived social support from friends, exercising, and going outside more were found to be associated with resilience in adults in general (Killgore, Taylor, Cloonan, & Dailey, 2020).

1.3.2 Risk factors

Some factors protect against negative impacts of adversity, but there are also factors which do exactly the opposite and hinder adjustment to adversity, and these are so called *risk factors*. It has been suggested that protective and risk factors add up cumulatively, and that having multiple protective factors can diminish or in a way compensate the effect of risk factors (e.g. Turner, Hartman, Exum,

& Cullen, 2007; Hartman, Turner, Daigle, Exum, & Cullen, 2009; Zimmerman et al., 2013). Another way to look at it would be that the absence of protective factors is a risk itself. Again, the scope of themes introduced is mainly focused on family factors.

Multiple family-related risk factors have been identified to hinder resilience in the face of adversity in children. Having a negative relationship with a parent was recognized to be a risk factor hindering resilience as it was related to depressive symptoms in children of alcoholics as adults (Park & Schepp, 2014). A study also found maladaptive emotional regulation strategies used in parenting as well as poor parenting quality to be associated with increased internalizing symptoms in families facing homelessness (Palmer, Labella, Plowman, Foster, & Masten, 2020). Disrupted parenting, including parental withdrawal and parental intrusiveness (Reising et al., 2012) as well as harsh parenting including physical and verbal discipline techniques like smacking and shouting (Flouri & Midouhas, 2017), was associated with increased internalizing and externalizing symptoms in children experiencing adversity.

Research has already been conducted on risk factors hindering resilience during the COVID-19 pandemic, especially among adults. During the pandemic job insecurity and uncertainty of pay were associated with increased levels of stress influencing one's well-being in a negative way (Coulombe et al., 2020). The stress of uncertainty was also associated with feelings of vulnerability of contracting the virus and lack in confidence in avoiding contracting the virus (Coulombe et al., 2020). Of these factors, lacking confidence in contracting the virus, insecurity of one's job, and uncertainty of pay were associated with lower meanings of life (Coulombe et al., 2020). Though the study was conducted soon after restrictions took place, and the results only demonstrate the effects of a substantially short period of time when people were socially distancing (Coulombe et al., 2020).

Some research has already been conducted regarding the factors which may increase the amounts of symptoms in children during the COVID-19 pandemic. Higher levels of externalizing symptoms in children before the lockdown were related to more stress in the child during it and this was associated with increased externalizing symptoms during the lockdown (Achterberg et al., 2021). The researchers also found children's stress to be affected by current and previous parental overreactivity (Achterberg et al., 2021). The research indicates that negative coping strategies within a family as well as parental overreactivity might be risk factors during the lockdown (Achterberg et al., 2021). Parental factors such as expressing negative emotions in front of children and parental irritable attitudes were found to be associated with increased externalizing and internalizing symptoms in children during COVID-19 (Du et al., 2021). Parental irritable attitudes were in addition associated with increased screen time, decreased amounts of sleep, and worse sleep quality in children (Du et al., 2021). The child's frequency asking the parent pandemic-related questions and parents

explaining themes regarding the pandemic had an increase in externalizing symptoms (Du et al., 2021). Those children whose family displayed poorer parent-child closeness were found to exhibit more internalizing symptoms, worse sleep quality, and less physical activity, especially in families with lower parental educational levels (Du et al., 2021). Mental health problems in children during the pandemic were found to be positively correlated with parental stress (Buechel et al., 2022). An association was also found between a lower financial status in the family and increased parental stress, and between a lower financial status and higher amounts of psychological problems in children (Buechel et al., 2022).

1.4 Research questions and hypotheses

Not a lot of prior research has been conducted regarding the COVID-19 pandemic in association to children's internalizing and externalizing symptoms and which factors increase or decrease the display of these symptoms. As reviewed above, there is a clear need for more information on the role of *parental distress* (cf. Buechel et al., 2022), the quality of *parent-child dysfunctional interaction* (cf. Du et al., 2021; Serravalle et al., 2021), the family's *social support* (cf. Sattler & Font, 2017) as well as the family's *financial difficulties* (cf. Coulombe et al., 2020), especially on children's mental health.

The aim of this study is thus to investigate which family factors influence 6-8-year-old Finnish children's resilience during the COVID-19 pandemic. Resilience is conceptualized as stable mental health during adversity and is measured by parental reports of the child's internalizing and externalizing symptoms during the COVID-19 pandemic while the previous levels of symptoms at 2 years old are controlled for. The study aims to investigate the following family-related protective and risk factors: *parental distress*, *parent-child dysfunctional interaction*, *parent's social support*, and *family's financial difficulties*. The family factors are looked at all together in the same model, as previous research suggests that protective and risk factors affecting resilience may add up cumulatively in a way that multiple protective factors may compensate the effect of risk factors (e.g. Turner et al., 2007; Hartman et al., 2009; Zimmerman et al., 2013).

The specific research questions are:

- 1) Are parental distress, parent-child dysfunctional interaction, parent's social support, and the family's financial difficulties associated with children's internalizing symptoms during the COVID-19 pandemic?

Hypothesis: Higher parental distress, higher parent-child dysfunctional interaction, lower parental social support, and more financial difficulties are associated with increased internalizing symptoms during the COVID-19 pandemic.

- 2) Are parental distress, parent-child dysfunctional interaction, parent's social support, and the family's financial difficulties associated with children's externalizing symptoms during the COVID-19 pandemic?

Hypothesis: Higher parental distress, higher parent-child dysfunctional interaction, lower parental social support, and more financial difficulties are associated with increased externalizing symptoms during the COVID-19 pandemic.

As the sex of the child has been shown to be associated with internalizing and externalizing symptoms in children (Martel, 2013), the associations are studied controlling for the sex.

2. METHODS

2.1 Participants

The study population is derived from a longitudinal study called Vitamin D Intervention in Infants (VIDI) in Finland. Initially the sample consisted of 987 healthy newborns born between January 2013 and June 2014 in Kätilöopisto Maternity Hospital in Helsinki. The participants were recruited 1-2 days after delivery. All mothers participating in the study were Caucasians from Northern Europe and had a singleton pregnancy. The psychological follow-ups were carried out at 12-months, at about 24 months and when the children were 6-8 years old. All participating mothers gave informed written consent to take part in the study. The study and all follow-ups were approved by the Ethics Committees of the Helsinki and Uusimaa Hospital District.

This study uses data from two follow-ups: when the children were 2 years old and when they were 6-8 years old. The 6-8 years follow-up was conducted during years 2020–2021, when the COVID-19 pandemic took place. Of the initial 987 participants, 668 parents provided information on the child's internalizing symptoms and 667 parents on their child's externalizing symptoms at the 2-years follow-up. During the 6-8 years follow-up 346 parents reported information again on their children's internalizing and externalizing symptoms. In addition, at the later follow-up parents also filled in questionnaires regarding parental distress ($N = 304$), parent-child dysfunctional interaction ($N = 304$), satisfaction to received social support ($N = 311$), and financial difficulties ($N = 319$). This study only included families from which full information was obtained for all above mentioned measures, so thus $N = 258$ in this study.

2.2 Measures

2.2.1. Internalizing and externalizing symptoms

Internalizing and externalizing symptoms were measured using the Infant-Toddler Social and Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 2006) scale at the 2-year follow-up. Of the

study sample 207 (80.2 %) mothers and 8 (3.1 %) fathers filled in the questionnaire, and 17 (6.6 %) parents filled in the questionnaire together. There were 26 (10.1 %) values missing on who filled in the questionnaire. The items were replied to on a scale from 0 to 2 in which 0 illustrates no problems, 1 illustrates some level of problems, and 2 indicates high levels of problems. Internalizing symptoms were measured by 32 items measuring for instance anxiety (e.g. “Seems nervous, tense or fearful”), depression/withdrawal (e.g. “Has less fun than other children”), inhibition (e.g. “Is shy with new children”), and distress (e.g. “Cries or hangs onto you when you try to leave”). Externalizing symptoms were measured using 24 items measuring for instance activity/impulsivity (e.g. “Is restless and can’t sit still), aggression/defiance (e.g. “Has temper tantrums”) and peer aggression (e.g. “Teases other children”). The scales were built by the sum of the scores to the questions, maximum 64 for the internalizing scale and 48 for the externalizing scale. The psychometric qualities of both scales are good, as $\alpha = .81$ for the externalizing symptoms scale and $\alpha = .78$ for internalizing symptoms scale.

At the later follow-up when the children were 6-8 years old, internalizing and externalizing symptoms were measured using the Child Behavior Checklist version for school-aged children (CBCL/6-18; Achenbach & Rescorla, 2001). The checklist comprises of 118 questions related to psychiatric problems of the child and the questionnaire was filled in by a parent regarding the past six months. In this study 232 (89.9 %) mothers and 26 (10.1 %) fathers filled in the questionnaire. The items were rated from 0 to 2 in which 0 stands for “not true”, 1 for “somewhat or sometimes true”, and 2 for “very or often true”. The internalizing scale in the measure was acquired through combining the anxious/depressed (e.g. “Cries a lot” and “Fears going to school”), withdrawn/depressed (e.g. “Refuses to talk”), and somatic complaints (e.g. “Headaches” and “Stomachaches”) scores, whereas the externalizing scale combined rule-breaking (e.g. “Lying or cheating” and “Breaks rules at home, school, or elsewhere”) and aggressive behavior (e.g. “Stubborn, sullen, or irritable” and “Temper tantrums or hot temper”) scores. The scales were built by the sum of the scores to the questions, maximum 64 for the internalizing scale and 70 for the externalizing scale. The psychometric qualities of both scales are good, as $\alpha = .81$ for the internalizing symptoms scale and $\alpha = .88$ for the externalizing symptoms scale.

2.2.2. Parental distress and parent-child dysfunctional interaction

A measure called Parenting Stress Index Fourth Edition Short Form (PSI-4-SF; Abidin, 2012) was used to measure parental distress and parent-child dysfunctional interaction in this study at the second

follow-up, when the children were 6-8 years old. Both subscales were measured by 12 questions. In this study 228 (88.4 %) mothers and 30 (11.6 %) fathers filled in the questionnaire. The parental distress subscale included questions such as “Gave up own life to meet child’s needs” and “Cannot do new things since having this child”. On the other hand, the parent-child dysfunctional interaction included questions such as “Child smiles less at me than I expected” and “My child does not seem to be able to do as many things as I expected”. Each question was answered through a five-point Likert scale (1 = strongly agree, 2 = agree, 3 = undecided, 4 = disagree, 5 = strongly disagree). Thus, in this scale, a high number of points indicates low levels of parental distress and parent-child dysfunctional interaction, whereas a low number of points indicates more parental distress and more problems in the parent-child interaction. Both scales were built by the sum of the scores on the twelve questions (maximum 60). The internal validity of both subscales was good, as $\alpha = .81$ for parental distress and $\alpha = .80$ for parent-child dysfunctional interaction.

2.2.3. Social support

The parent’s satisfaction to social support was measured by the Social Support Questionnaire Short Form (SSQSR; Sarason, Sarason, Shearin, & Pierce, 1987) in the second follow-up when the child was 6-8 years old. In this study 229 (88.8 %) mothers and 29 (11.2 %) fathers filled in the questionnaire. In the questionnaire the parent was asked about people they felt they could receive social support from in a certain situation and more generally how satisfied they were with the social support available in that situation. Questions included were for instance “Whom can you really count on to care about you, regardless of what is happening to you?” after which the satisfaction regarding the people named was asked on a 6-point Likert scale (1 = very dissatisfied, 2 = fairly dissatisfied, 3 = a little dissatisfied, 4 = somewhat satisfied, 5 = fairly satisfied, 6 = very satisfied). In this study only the satisfaction scale of social support was used. There were altogether seven questions, each followed by a satisfaction question. The score to the satisfaction scale was built by the sum of the seven satisfaction questions (maximum 42). The psychometric quality of the scale is good ($\alpha = .96$).

2.2.4. Financial difficulties

Financial difficulties were measured by asking the parents about continuous financial difficulties with one question. The question was answered by 229 (88.8 %) mothers and 29 (11.2 %) fathers. The question originally included answering options on a 5-point Likert scale (1 = has not happened, 2 = not at all demanding, 3 = somewhat demanding, 4 = demanding, 5 = very demanding). The scale was recoded, where the original values 1 and 2 were combined to 1 = “no financial difficulties” and original values 3 to 5 were coded again as 2 = “financial difficulties present”.

2.3 Statistical analysis

The study was conducted using the IBM SPSS 28th version. The normal distribution of the variables was examined using the Kolmogorov-Smirnov test and histograms. Only the scales in the ITSEA measure and parental distress scale from the PSI measure were found to be normally distributed. First the internalizing and externalizing scales of CBCL were square root transformed to reach normality. Next the internalizing and externalizing scales from both ITSEA and CBCL were standardized to a mean of 0 and standard deviation of 1. The parent-child dysfunctional interaction scale of PSI and the SSQ score were also logarithm transformed to reach normal distribution. χ^2 -tests and independent variables *t*-tests were used to investigate characteristics of the sample and compare the study sample to those dropped out from the current analysis. Associations between the study variables were investigated using Pearson’s correlation coefficients.

The association between family factors (i.e. parental distress, parent-child dysfunctional interaction, social support, and financial difficulties) and children’s resilience during the COVID-19 pandemic were examined using linear regression analysis. The associations were studied in a two-step model, where sex of the child and child’s internalizing or externalizing symptoms at two years of age were added to the model in the first step, and all family factors simultaneously at the second step to predict children’s internalizing and externalizing symptoms at 6-8 years of age. The correlations between predictor variables were $r < .54$, thus multicollinearity was not assumed to impact the results. Associations with internalizing and externalizing symptoms were studied in separate models.

2.4 Characteristics of the sample

As presented in Table 1, 133 (51.6 %) of the children in the participating sample were boys and 125 (48.4 %) were girls. Of the mothers, 184 (83.3 %) had a higher-level education (university or university of applied sciences) and 37 (16.7 %) had a lower level of education. Almost half (47.5 %) of mothers were between 30 to 34 years of age at the time of the child's birth. About three out of four (75.2 %) families had not experienced any financial difficulties, whereas one out of four (24.8 %) had.

TABLE 1. Characteristics of the study participants and VIDI participants who were dropped out due to missing values in key variables studied.

Characteristics	Study participants (<i>N</i> = 258)		VIDI participants dropped out from study participants		<i>t</i> -test / χ^2 -test <i>p</i> -value
	<i>n</i>	<i>N</i>	<i>n</i>	<i>N</i>	
Sex of child, <i>n</i> (%)		258		729	.601
Boy	133 (51.6)		362 (49.7)		
Girl	125 (48.4)		367 (50.3)		
Mother's education, <i>n</i> (%) ¹		221		529	<.001
Lower education	37 (16.7)		157 (29.7)		
Higher education	184 (83.3)		372 (70.3)		
Mother's age, <i>n</i> (%) ²		257		633	.329
<20	1 (0.4)		1 (0.2)		
20-24	13 (5.1)		52 (8.2)		
25-29	64 (24.9)		169 (26.7)		
30-34	122 (47.5)		262 (41.4)		
35-39	49 (19.1)		135 (21.3)		
>39	8 (3.1)		14 (2.2)		
Child's age, first follow-up, mean (SD) ³	2.11 (0.20)	255	2.19 (0.26)	405	<.001
Child's age, second follow-up, mean (SD)	7.1 (0.44)	258	7.25 (0.42)	90	.004

ITSEA, mean (SD)					
Internalizing symptoms	15.42 (6.69)	258	15.29 (6.65)	410	.816
Externalizing symptoms	11.64 (5.17)	258	12.03 (5.49)	409	.353
CBCL/6-18, mean (SD)					
Internalizing symptoms	5.47 (4.8)	258	5.31 (4.0)	88	.771
Externalizing symptoms	6.70 (6.01)	258	6.61 (5.58)	88	.904
PSI, mean (SD)⁴					
Parental distress	48.83 (7.43)	258	46.96 (7.45)	46	.912
Parent-child dysfunctional interaction	51.32 (5.71)	258	52.17 (4.99)	46	.343
Financial difficulties, <i>n</i> (%)		258		61	.203
No	194 (75.2)		41 (67.2)		
Yes	64 (24.8)		20 (32.8)		
SSQSR, mean (SD)	33.20 (7.35)	258	35.09 (6.65)	53	.083

SD = standard deviation

¹ *N* = 221, 37 missing values

² *N* = 257, 1 missing value

³ *N* = 255, 3 missing values

⁴ higher values represent less parental distress and less parent-child dysfunctional interaction

As seen in Table 1, participants with a mother with lower education were more likely to be dropped out from the current analysis compared to participants selected to be in the study population. There was also a statistically significant difference in the age of the child, as children included in the study seemed to be younger than those dropped out of the study. The participants in the current study did not differ statistically significantly from the sample dropped out of the study on any other variables.

3. RESULTS

3.1. Descriptive statistics

Table 2 presents sex differences in internalizing and externalizing symptoms. Boys displayed more externalizing symptoms than girls when the children were two and 6-8 years old. Different measures were used to measure internalizing and externalizing symptoms in the two follow-ups, so the raw points of the measures across the two different follow-ups were not comparable with each other.

TABLE 2. Internalizing and externalizing symptoms divided by sex using raw scores on measures. $N = 258$.

	Girls ($N = 125$)	Boys ($N = 133$)	<i>t</i> -test
Mean of ITSEA scores, 2-years old, mean (SD)			
Internalizing symptoms	15.23 (6.57)	15.59 (6.83)	0.43
Externalizing symptoms	10.69 (4.74)	12.52 (5.41)	2.88**
CBCL/6-18 scores, 6-8-years old, mean (SD)			
Internalizing symptoms	5.39 (4.35)	5.55 (5.20)	0.26
Externalizing symptoms	5.24 (4.24)	8.08 (7.04)	3.94***

SD = standard deviation

** $p < .01$, *** $p < .001$

As seen in Table 3, boys displayed more dysfunctional interaction with their parent than girls. Children's higher internalizing symptoms at two years of age were associated with higher externalizing symptoms at two years old ($p < .01$), higher internalizing symptoms at the 6-8 years follow-up ($p < .001$), and with more dysfunctional interaction with their parent ($p < .05$). Further, higher externalizing symptoms at the two years follow-up were associated with higher internalizing and externalizing symptoms in the later 6-8 years follow-up (p -values $< .001$). In addition, higher externalizing symptoms at two years of age were associated with higher parental distress ($p < .001$),

more problems in parent-child interaction ($p < .001$), less satisfaction with social support ($p < .001$), and more financial difficulties ($p < .01$) within the family at the 6-8 years follow-up.

Children's internalizing symptoms at 6-8 years of age were positively associated with externalizing symptoms ($p < .001$) at the same age. Both higher internalizing and externalizing symptoms at 6-8 years were associated with higher parental distress ($p < .001$) and more dysfunctional interaction ($p < .001$), and externalizing symptoms only, with lower satisfaction with social support ($p < .001$). Higher levels of both types of symptoms at 6-8 years of age were also associated with financial difficulties ($p < .05$) at the 6-8 years follow-up.

A lower level of parental distress was associated with higher satisfaction with social support ($p < .001$) and less dysfunctional parent-child interaction ($p < .001$). Higher satisfaction with social support was also associated with less problems in parent-child interaction ($p < .001$).

TABLE 3. Pearson's correlation coefficients between the variables. ($N = 258$).

Variable	1	2	3	4	5	6	7	8
1. Sex of child ¹								
2. ITSEA internalizing (0 – 64)	-.027							
3. ITSEA externalizing (0 – 48)	-.177**	.179**						
4. CBCL internalizing (0 – 64)	-.011	.253***	.247***					
5. CBCL externalizing (0 – 70)	-.219***	.104	.479***	.512***				
6. PSI parental distress (0 – 60) ²	.034	-.107	-.248***	-.354***	-.451***			
7. PSI interaction (0 – 60) ³	.165**	-.140*	-.233***	-.466***	-.496***	.536***		
8. SSQ (0 – 42)	-.031	-.028	-.226***	-.110	-.304***	.535***	.220***	
9. Financial difficulties ⁴	-.072	-.012	.187**	.144*	.128*	-.075	-.017	-.101

SD = standard deviation

* $p < .05$, ** $p < .01$, *** $p < .001$ ¹ 1 = boy, 2 = girl² higher values represent less parental distress³ higher values represent less parent-child dysfunctional interaction⁴ 1 = no financial difficulties, 2 = financial difficulties present

3.2. Associations between family factors and children’s internalizing symptoms

Table 4 shows that when all the family factors were added simultaneously into the model adjusting for previous internalizing symptoms and the sex of the child, worse parent-child dysfunctional interaction ($p < .001$), higher parental distress ($p < .05$), and family financial difficulties ($p < .01$) were associated with higher internalizing symptoms at the 6-8 years follow-up. When all the variables were added to the model, 29.3 % of internalizing symptoms at 6-8 years old were explained by the model. After the covariates were controlled for, the added family factors explained 22.9 % of the internalizing symptoms displayed by the child.

TABLE 4. Internalizing symptoms during the 6-8 years follow-up explained by previous internalizing symptoms at age 2, sex of child, parental distress, parent-child dysfunctional interaction, parent’s satisfaction to social support, and financial difficulties.

Independent variables	Model 1			Model 2		
	β	R^2	ΔR^2	β	R^2	ΔR^2
		.064	.064		.293	.229
Step 1: Covariates						
1. Previous internalizing symptoms	.253***			.188**		
2. Sex of the child ¹	-.005			.074		
Step 2: Study variables						
3. Parental distress ²				-.168*		
4. Parent-child dysfunctional interaction ³				-.378***		
5. Parent’s social support				.084		
6. Financial difficulties ⁴				.141**		

* $p < .05$, ** $p < .01$, *** $p < .001$

β = standardized regression coefficient

ΔR^2 = change in R^2 when all the variables in the step are included

¹ 1 = boy, 2 = girl

² higher values represent less parental distress

³ higher values represent less parent-child dysfunctional interaction

⁴ 1 = no financial difficulties, 2 = financial difficulties present

3.3 Associations between family factors and children’s externalizing symptoms

Table 5 shows that when adding all the family factors simultaneously into the model after adjusting for previous externalizing symptoms and the sex of the child, worse parent-child dysfunctional interaction ($p < .001$) and higher parental distress ($p < .05$) were associated with higher externalizing symptoms at the 6-8 years follow-up. The model explained 42.9 % of externalizing symptoms in children at the 6-8 years follow-up. The family variables alone explained 18.1 % of the child’s externalizing symptoms at 6-8 years when the covariates were controlled for.

TABLE 5. Externalizing symptoms during the 6-8 years follow-up explained by previous externalizing symptoms at age 2, sex of child, parental distress, parent-child dysfunctional interaction, parent’s satisfaction to social support, and financial difficulties.

Independent variables	Model 1			Model 2		
	β	R^2	ΔR^2	β	R^2	ΔR^2
		.248	.248		.429	.181
Step 1: Covariates						
1. Previous externalizing symptoms	.454***			.326***		
2. Sex of the child ¹	-.139*			-.107*		
Step 2: Study variables						
3. Parental distress ²				-.163*		
4. Parent-child dysfunctional interaction ³				-.297***		
5. Parent’s social support				-.078		
6. Financial difficulties ⁴				.034		

* $p < .05$, *** $p < .001$

β = standardized regression coefficient

ΔR^2 = change in R^2 when all the variables in the step are included

¹ 1 = boy, 2 = girl

² higher values represent less parental distress

³ higher values represent less parent-child dysfunctional interaction

⁴ 1 = no financial difficulties, 2 = financial difficulties present

4. DISCUSSION

The aim of this study was to investigate the effect of parental distress, parent-child dysfunctional interaction, parent's satisfaction to social support, and the family's financial difficulties on children's resilience measured by the stability of internalizing and externalizing symptoms during the COVID-19 pandemic. The study sought out to identify family factors which can be seen as protective or risk factors affecting the resilience of children during the pandemic. The family factors were investigated simultaneously in the same model because prior research demonstrates that having multiple protective factors may diminish the negative effects of adversity and enhance resilience (Turner et al., 2007; Zimmerman et al., 2013). Prior research on the effect of family factors on resilience during the COVID-19 pandemic is still scarce but based on research on other adversities and some research already carried out on COVID-19, the hypothesis was that all of the listed family factors would have an impact on resilience demonstrated by internalizing and externalizing symptoms in 6-8-year-old children during the COVID-19 pandemic.

Resilience was measured by current internalizing and externalizing symptoms controlling for the child's previous levels of internalizing and externalizing symptoms as well as the sex of the child. The results demonstrated dysfunctional parent-child interaction, parental distress, and financial difficulties to be associated with increased internalizing symptoms at the 6-8-year-old follow-up. In terms of externalizing symptoms, dysfunctional parent-child interaction and parental distress were found to be associated with increased externalizing symptoms displayed by the child at 6-8 years of age.

4.1. Dysfunctional parent-child interaction, parental distress, and the family's financial difficulties associated with the child's internalizing symptoms during the pandemic

The hypothesis of the first research question regarding internalizing symptoms received partial support from this study, as parent-child dysfunctional interaction, parental distress, and financial difficulties were statistically significantly associated with internalizing symptoms at the 6-8 years follow-up when adjusting for sex of the child and previous internalizing symptoms. On the other

hand, social support was not statistically significantly related to internalizing symptoms at the 6-8 years follow-up, and this hypothesis did not receive support in this study.

Parent-child dysfunctional interaction was found to be associated with increased internalizing symptoms at the 6-8 years follow-up and can thus be seen as a risk factor hindering resilience. This result fits in well with previous research in which poorer parent-child closeness during the pandemic was found to be associated with internalizing symptoms (Du et al., 2021). Parent-child closeness can be seen as an important part of functional interaction. Though in previous research this association was found especially in parents with lower educational levels (Du et al., 2021), and the current study's population was relatively well-adjusted as mothers with higher education levels were overrepresented. In this sense the current study gives additional information displaying the same pattern in families with higher educational levels. The results also fit in with previous research on family factors influencing internalizing symptoms in general, as early insecure attachment styles (Groh et al., 2012), poor family functioning (Crawford et al., 2010), negative affect demonstrated by the mother (Fang & Gagne, 2018), and hostile parenting in infancy (Edwards & Hans, 2015) have been found to be associated with increased internalizing symptoms. These factors can all be seen to influence functional interaction and thus point to the same direction as the results of this study. Though these research results did not include an adversity and thus cannot be seen as resilience risk factors per se. Thereby, the current study gives insight to the association between parent-child interaction and resilience during the global pandemic, which can be seen as an adversity.

In addition, parental distress was associated with increased internalizing symptoms at the 6-8 years follow-up. This result is also aligned with previous research on the topic, as childhood mental health problems in general have been shown to be associated with parental stress during the pandemic (Buechel et al., 2022). Previous research has also displayed maternal stress to be associated with internalizing symptoms in general (Bayer et al., 2008), so the current study specifies that parental distress is also associated specifically with internalizing symptoms during the COVID-19 pandemic. Parental distress was also positively correlated with dysfunctional parent-child interaction in the current study, which displays that these two separate family factors might influence each other, and it is possible that parental distress affects the interaction between the parent and the child in some way and thus affects the display of symptoms in children. One study previously found parental stress to be associated with increases in harsh parenting and decreases in closeness between the parent and the child during the pandemic (Chung et al., 2020). It is also possible that dysfunctional parent-child interaction is a source of parental stress affecting the child's symptoms. These explanations however still need additional research as only correlations were looked at in the current study, so a cause-and-effect relationships cannot be established based on these findings.

Financial difficulties were associated with increased internalizing symptoms in the 6-8 years follow-up which goes in line with previous research but also broadens the knowledge we have of financial issues during the pandemic. The result is not surprising, as previous research has shown financial insecurity to have negative impacts on adults during the pandemic (Coulombe et al., 2020), but the impact on children's symptoms is an important finding. Though lower financial status has been found to be associated with increased psychological problems in children during the pandemic (Buechel et al., 2022) and this study confirms this finding. Previous research has also suggested financial status to have an impact on parental stress (Buechel et al., 2022), which would make sense as the family's financial status is for sure a source of parental distress. However, in the current study financial difficulties were not correlated with parental distress, so additional research is still needed to study this association during the pandemic.

4.2. Dysfunctional parent-child interaction and parental distress associated with the child's externalizing symptoms during the pandemic

The hypothesis regarding the second research question considering resilience measured by externalizing symptoms received partial support in this study as well. Parent-child dysfunctional interaction and parental distress were associated with increased externalizing symptoms and thus hindered resilience in the 6-8 years follow-up once the sex of the child and previous externalizing symptoms were controlled for. Though, social support and financial difficulties were not found to be associated with externalizing symptoms at the 6-8 years follow-up, and the hypothesis did not receive support regarding these two family factors.

The finding of the association between externalizing symptoms and dysfunctional parent-child interaction is in line with previous research which illustrated parental negative emotional expression and irritable attitudes to be associated with externalizing symptoms during COVID-19 (Du et al., 2021). These factors can be seen to influence the parent-child interaction in a dysfunctional way. Research in general is also in line with these results, as harsh parenting (Flouri & Midouhas, 2017) and disrupted parenting (Reising et al., 2012) in face of adversity have been shown to increase the child's externalizing symptoms in previous research. Harsh parenting was characterized by for instance yelling (Flouri & Midouhas, 2017) and disrupted parenting by intrusiveness (Reising et al., 2012), both of which are aspects of dysfunctional interaction. In addition, family conflict has been previously associated with children's externalizing symptoms when a specific adversity has not been

present (Edwards & Hans, 2015). This study widens the scope of previous research on the effect dysfunctional parent-child interaction has on resilience measured by externalizing symptoms during this pandemic.

The association between parental distress and increased externalizing symptoms during the pandemic was an interesting finding and extended previous research findings on the topic. A lot of previous research regarding parental distress and externalizing symptoms during the COVID-19 pandemic was not found, but more general research suggests that maternal stress predicted externalizing symptoms during the first three years of life (Bayer et al., 2008). The finding from the current study goes in line with this previous finding. Though the previous study did not consider adversity as a context, on which this study gives more insight particularly in the context of a pandemic.

Financial difficulties were associated with increased internalizing symptoms at 6-8 years old follow-up during the pandemic but not with externalizing symptoms. The hypothesis thus did not receive support regarding externalizing symptoms. This is new information as previous research has suggested financial status to be associated with children's psychological problems in general during the pandemic (Buechel et al., 2022). The current study suggests that the impact is demonstrated only in internalizing symptoms, but more research is still needed to confirm the findings. Theoretically internalizing symptoms are conceptualized as, for instance, depression and anxiety, which may include worrying (American Psychiatric Association, 2013). It would make sense that the family's financial difficulties during the pandemic would be the source of worry for children who demonstrate increased levels of internalizing symptoms but not necessarily externalizing symptoms. Though this finding needs replication from further research to be sure of the association.

4.3. Parent's satisfaction with their social support not associated with the child's internalizing or externalizing symptoms during the pandemic

An association was not found between the parent's satisfaction to social support and the child's internalizing or externalizing symptoms at 6-8 years when previous symptoms were controlled for. Thus, the hypotheses did not receive support regarding satisfaction to social support. This was a bit surprising, as a vast amount of research has found social support to act as a protective factor boosting resilience in the face of adversity (e.g. Meng et al., 2018; Park & Schepp, 2014) and a study conducted during the pandemic found higher levels of resilience in adults with high social support (Killgore et

al., 2020). Though previous research has usually looked at the same individual's social support and resilience, whereas the current study investigated the role of parent's satisfaction to social support on the child's resilience. An alternative explanation for the result might be, that the role of outside social support during the COVID-19 pandemic is not that significant regarding resilience. As an adversity COVID-19 is special in the way that it is global and touches the lives of most people in some way as opposed to many other types of adversity. The context of receiving and giving social support might be different in a situation when everyone is facing the same adversity, the COVID-19 pandemic. Though, this alternative explanation is in conflict with previous research literature in which social support was seen as a protective factor during the pandemic (e.g. Killgore et al., 2020). Clearly more research is still needed on social support's influence on resilience, and whether the social support of a parent affects their children's mental health, or whether the child's own perceived social support would be a more influential factor regarding the child's resilience.

4.4. The effect of the covariates on internalizing and externalizing symptoms

In this study the sex of the child was considered as a covariate, since previous research illustrates that boys typically present more externalizing symptoms than girls and that girls present more internalizing symptoms than boys in general (Martel, 2013). The current study also illustrated the pattern of boys displaying more externalizing symptoms than girls, but girls were not found to display more internalizing symptoms than boys. In the analysis, the sex of the child also had an impact on externalizing symptoms, the association remaining significant also when the family factors were added to the model.

As another covariate this study investigated previous internalizing and externalizing symptoms at age 2. Previous research suggests prior externalizing symptoms may impact current levels (e.g. Achterberg et al., 2021), which was also demonstrated in this study with both internalizing and externalizing symptoms. By adding these two covariates to the analysis, the study could examine the effect of family factors when previous symptoms and the sex of the child were controlled for.

4.5. Limitations and strengths of the study

There are some limitations in this study that need to be considered. First, the final study population was relatively small ($N = 258$) and a lot of participants were left outside this study due to incomplete information on the key measures looked at. The sample of the study was also relatively well adjusted, and the SES of the population was high. Over 80 % of the study population's mothers had a higher education, and thus this study mainly gives insight to the research questions in a highly educated population. The attrition analysis demonstrated that higher education levels were overrepresented in the mothers of the study population, which raises the question of how the results might have differed if the study population had not differed from the original population on this variable. Another limitation is that the SES was only measured from the education of the mother, which does not necessarily display the full picture of the family's socioeconomic status.

Another limitation of this study was the use of self-report questionnaires to measure the family factors looked at, and parents subjectively assessing the level of symptoms in their children. The source of information here was the perception of the parent or parents, which pose the risk of being subjective. Situational factors like what family life has currently been like in the past few days, might have impacted the answers as well as the parent's own current feelings and ability to perceive the child and situation objectively and accurately. In this study possible subjectivity may be seen especially in the questionnaire in which parents assessed the level of internalizing symptoms in their children, which may not be as apparent in overt behavior. Internalizing symptoms might thus be more difficult to perceive if the child has not been open about their feelings. Though in this study the children were relatively young, so obtaining accurate and objective results by asking the children to fill in the questionnaires themselves would not have been a viable option either. Though the mentioned limitations are general in a way that the same risk of subjectivity lies with every parent filling in the questionnaire, so the answers are thus comparable to each other. In this study also the mother mainly answered the questionnaires, which could bias the results. In future studies it would be ideal to have all caregivers of the child to be present while filling in the questionnaires, to increase reliability of the answers. One source of possible bias also lies in the fact that the same person often assessed the level of symptoms in their children as well as the level of family factors, which might in some cases bias results if one for instance is in denial of problems. The level of symptoms was not confirmed by any objective source and reflects only the child's behavior known to the parent and, for instance, behavior in the school environment is not necessarily taken into consideration.

There are also several strengths in the current study. First, the current study provides novel information on children's resilience during the COVID-19 pandemic in a Finnish population, on which previous research has been scarce. Naturally the results cannot directly be generalized to other countries, since the COVID-19 pandemic has had differing effects on different countries depending on, for instance, the number of restrictions that have been put to place, the number of casualties, how population dense a place is, and the opportunities there have been to socially distance. The measures used in the study also display strengths and especially the fact that internalizing and externalizing symptoms were measured in two follow-ups enabling controlling for previous symptom levels is a merit of this study. All measures used were also reliable with high Cronbach's alpha values. All in all, the study sheds light on the important family factors affecting resilience in children, which may be valuable information in the face of future global adversities and in interventions aimed at families displaying multiple risk factors.

4.6. The significance of the study and future research

In conclusion, this study recognized family factors which influence the resilience of children during the COVID-19 pandemic. The study found dysfunctional parental distress and parent-child interaction to act as risk factors hindering resilience in terms of internalizing and externalizing symptoms in children, and financial difficulties were found to influence resilience in terms of internalizing symptoms. The associations found are in line with previous research on the topic (e.g. Du et al., 2021; Buechel et al., 2022) giving more detailed information on resilience measured by internalizing and externalizing symptoms. The findings of specific family risk factors affecting resilience might have significant importance in family and child interventions during adversities and especially during pandemics like COVID-19. The research suggests which factors to look out for and which family factors possibly impact resilience and the mental health of children. The findings could be applied to planning interventions in the context of possible future pandemics and identifying risk families who need special support during this type of adversity.

Even though the current study found multiple family factors to be associated with resilience of children during COVID-19, many factors were left outside the scope of this study. One interesting aspect not looked at includes the social support of the child, which would be an interesting direction of research. A child's social environment encompasses more than just their home environment and the social support a child receives from for instance school, the community, peers, and adults outside

one's household have been suggested to act as resilience boosting factors in previous research (e.g. Marley & Mauki, 2019; Chen et al., 2021). Although these forms of social support might not have been as available to all children during the COVID-19 pandemic as before. Thus, during a time like this it would be especially interesting to see the effects of outside social support on resilience in children who have had availability to such social support. Thus, studying social support more widely in addition to parent's satisfaction to it would be called for in future research.

Another theme that was not looked at in the current study was children's individual traits, such as temperament. In previous research, children's resilience in the face of adversity has been impacted partly by personality traits such as extraversion, agreeableness, and conscientiousness (Meng et al., 2018). Also, individual factors such as personal control, self-esteem, and being socially well adjusted (Meng et al., 2018) as well as empathy and tolerance (Pérez-González et al., 2017) were found to have an impact on resilience. In addition, factors like self-efficacy, self-esteem, intelligence, and prosocial behavior have been found to be protective factors during adversity (Marley & Mauki, 2019). Thus, it would be interesting to look at these individual factors regarding children's resilience and to see which factors ultimately have the most impact on resilience if these individual factors were also simultaneously added to the same model.

As a summary, the current study sheds light on an emerging field of research regarding the impacts of the COVID-19 pandemic on children's mental health and which factors affect their manifestation and which factors protect and aid the resilience in children during it. It is yet to be seen how the pandemic has affected children in the long run and whether family factors apparent during the pandemic have had a long-term impact on children's mental health in the future. Longitudinal studies on the topic are called for to answer these questions, and replicating the study in different populations in families from differing socioeconomic statuses, countries, and cultures would give more insight on the generalizability of these results.

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