An examination of child developmental changes during a global pandemic from parents' perspective

by

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Abstract

The COVID-19 pandemic profoundly impacted various aspects of life, including children's development. This study aimed to explore the pandemic's impact on children's language, communication, physical, and social-emotional development from the perspective of parents. It also examined perceived differences in impacts between neurotypical children and children with disabilities. Participants included parents of children aged 0-8 from the Atlantic provinces of Canada. Parents reported whether each developmental area was negatively, positively, or not impacted during the pandemic. Frequencies revealed that social and emotional development was the most negatively impacted area, with 45% of neurotypical children and 55% of children with disabilities affected. A chi-square analysis showed a weak association between disability status and both physical and social-emotional development and a moderate association with language and communication development. Qualitative analysis identified themes across developmental areas and differences between the two groups. Parents reported that increased family time improved language skills for neurotypical children and children with disabilities. Neurotypical children also saw academic gains from more home teaching. Both groups experienced stronger family bonds and greater independence at home, but reduced social opportunities led to higher anxiety, sadness, and social fear. Neurotypical children also had increased confidence and happiness from controlled social interactions. While neurotypical children engaged in more outdoor play, overall physical activity decreased for both groups due to halted recreational activities and increased screen time. The pandemic's impact was mostly negative on children's social and emotional development, indicating a need for support and intervention, especially from school psychologists.

Chapter 1

Literature Review

Introduction

The literature to be explored investigates the impacts of the COVID-19 pandemic on child development, with a particular emphasis on four critical domains: communication development, language development, physical development, and social-emotional development. This review will examine the changes children and families have experienced during the pandemic. Additionally, the literature will highlight the perspective of parents in comprehending child development. This review will facilitate the recognition of challenges that both children with disabilities and those without disabilities may encounter. It will highlight differences in those children's experiences and the barriers they face, both during the pandemic and in the pre-pandemic period, with a particular focus on children with disabilities.

The COVID-19 pandemic has profoundly impacted the lives of many Canadian families, parents, and children, as physical distancing measures and employment changes disrupted everyday routines, leading to financial difficulties, increased instability, and reduced health and support systems (Statistics Canada, 2020). In Canada, the government-initiated lockdown measures in mid-March 2020, which encompassed border closures, limited travel, restrictions on group gatherings, closures of schools and childcare facilities, mandatory remote work arrangements, and temporary suspension of non-essential health and public services. Parents with children faced unique pressures during the pandemic, including concerns about their child's health and mental well-being, heightened stress levels while juggling work responsibilities, and the absence of in-person schooling for their children (Gadermann et al., 2020). It has been found that parents of children perceived a negative impact of COVID-19 restrictions on their children's

well-being (Egan et al., 2021; Christiner et al., 2021; Gadermann et al., 2020). The behaviours were described as understandable responses to a lack of routine, boredom, and anxiety, and parents' options for alleviating these emotions were limited, relying almost entirely on skillfully navigating life at home without external support (Egan et al., 2021). Parents reported negative impacts on their children's social and emotional well-being due to the closure of school and childcare settings, which led to tantrums, anxiety, clinginess, boredom, and under-stimulation (Egan et al., 2021). Despite their efforts, parents expressed worries about their children's well-being, as they felt limited in their options for alleviating their children's negative emotions. The lack of external support and routines, combined with the uncertainty and stress of the pandemic, created significant challenges for parents (Christner et al., 2021). Many studies suggest that most children missed their friends, playing with other children, and the routine and structure of early childhood education and school settings during the COVID-19 restrictions (Asbury et al., 2021; Christner et al., 2021; Egan et al., 2021)

However, some studies have found that parents report positive aspects of the lockdown for their children and family. They said they appreciated having more time to play with their siblings and a break from the usual routine. These positive aspects could be seen as an opportunity for families to bond and spend quality time together, which may have had a positive impact on their overall well-being (Asbury et al., 2021; Egan et al., 2021; Neece et al., 2020; Zhang et al., 2020). Socio-economic factors may contribute to the observed differences in these studies, as indicated by one study demonstrating more positive outcomes, with most participants being white British school-aged children and around half of their families having household incomes exceeding the median wage (Asbury et al., 2021). Frequently, the positive effects on children's well-being and mental health were found to be associated with their family

relationships (Prime et al., 2020). Likewise, in other instances, positive experiences within families were attributed to the children's successful adaptation to new routines and circumstances during the lockdown period (Egan et al., 2021). This study focused on neurotypical children, whereas adapting to new routines can pose more significant challenges for children with disabilities. For children with disabilities, maintaining a stable routine is often essential to their mental health and symptom management, particularly for specific conditions. (Zhang et al., 2020). Nonetheless, these studies highlight the challenges parents and children faced during the pandemic, with negative and positive consequences resulting from the COVID-19 pandemic and restrictions.

Theoretical Framework

Bronfenbrenner Ecological Systems Theory

Bronfenbrenner's (1974, 1977) ecological model presents a comprehensive framework emphasizing the relationship between individuals and their environments. This model highlights the importance of various interconnected systems, such as immediate settings (microsystem), interactions between settings (mesosystem), indirect influences (exosystem), cultural factors (macrosystem) and time (chronosystem). By considering the dynamic interactions between individuals and their ecological contexts, the ecological model provides context into the complexities that may influence human development. This theory underscores the significance of various factors that shape child development, particularly emphasizing the child's immediate environment and interactions within the larger context. It recognizes that children's development is influenced by their family, peers, school, community, and cultural environment. The theory highlights the dynamic interplay between these factors and emphasizes the importance of understanding how these interactions impact a child's growth, learning, and overall well-being.

Considering the multifaceted nature of a child's environment and their interactions within it, this theory provides a comprehensive framework for understanding and promoting optimal child development.

According to the ecological systems theory of development, individuals are influenced by various settings and events throughout their lives. The microsystem, which includes immediate settings and environments, directly impacts children (Bronfenbrenner, 1977). However, the pandemic disrupted this system as lockdowns and restrictions confined children to their immediate living environments, potentially increasing the risk and protection factors associated with child maltreatment (Bryce, 2020). The negative consequences of adverse childhood experiences (ACEs) on health, education, and life opportunities can be attributed to neurodevelopmental changes in stress reactivity and coping, impacting an individual's overall health (Trinidad, 2021). The family environment, particularly socioeconomic position, racial-ethnic identification, and neighbourhood and school safety, significantly shape developmental trajectories in adversity (Darling, 2020). In those formative years of childhood, their experiences can foster resiliency or contribute to health and developmental challenges if there is exposure to chronic stressors such as poverty, maternal depression, abuse, or neglect (Canadian Paediatric Society, 2023).

Childhood Development

Development encompasses various stages and types, each with significant implications for a child's future success and well-being. Healthy development ensures that all children, regardless of their abilities, can grow up in environments where their social, emotional, and educational needs are adequately addressed. Factors such as a safe home life, proper nutrition, regular exercise, and sufficient sleep are crucial in promoting healthy development (Centers for

Disease Control and Prevention, 2023). Examples of development include communication, language, physical, social, and emotional development. The first three years of life are particularly critical for speech and language development, as this period is marked by significant growth and maturation of the brain in these areas (U.S. Department of Health and Human Services, 2022). Social and emotional development revolves around two vital concepts: developing self or temperament and establishing relationships with others, including building attachments (Benson & Haith, 2010). This development aspect is crucial as it can influence mental health and emotional well-being. Insufficient development in social and emotional domains can contribute to the onset of mental health or emotional issues. Additionally, adverse childhood experiences have the potential to significantly disrupt overall development (Malik & Marwaha, 2022).

The Effect of Coronavirus on Development

The Effect of Coronavirus on Communication and Language Development

Research has suggested various aspects of communication development may have been affected by the COVID-19 pandemic. Some of how communication has the potential to negatively impact children include delayed language development, reduced socialization opportunities, and limited access to speech therapy services (Charney et al., 2021; Tohidast et al., 2020). Significant delays in language and cognition are strongly contingent upon early detection and intervention, especially if these delays are due to a developmental disorder (Shonkoff et al., 2000). The outbreak of COVID-19 and the resulting closure of many Speech-Language Pathology (SLP) centers has had a significant impact on children who require speech and language therapy. The closure of these centers has deprived many children of access to essential services, which could result in long-term problems if not addressed promptly (Todihast et al.,

2020). Delaying treatment could lead to significant language and communication setbacks, affecting their academic, social, and emotional well-being (Tohidast et al., 2020). Reduced in-person socialization and limited interaction with peers and adults can contribute to delayed language development in young children. Clinicians should be aware of those possible impacts to mitigate those effects. Another study found that comparing children in a pre-covid to the post-covid group, there were no differences in their expressive vocabulary (Feijoo et al., 2023). While further research is necessary to fully understand the impact of the pandemic on children's speech and language development, clinicians and parents should remain mindful of this issue and take proactive steps to create an optimal communication environment for children (Charney et al., 2021).

The Effect of Coronavirus on Physical Development

Food consumption can significantly impact physical health and can be negatively affected when children face food insecurity. Experiencing hunger, children are more likely to have poorer health, including an increased risk of being diagnosed with chronic conditions or asthma, and repeated episodes of hunger can be particularly detrimental to their physical well-being (Kirkpatrick et al., 2010). Significant associations have been found between food insecurity and poor mental health, indicating a bidirectional relationship with each impacting the other negatively (Bruening et al., 2017). Additionally, poor emotional health can contribute to adverse physical health outcomes, including diabetes, impaired child growth and development, and cardiovascular disease. At the same time, food insecurity is associated with anemia, congenital disabilities, poor sleep outcomes, and oral health problems (Gundersen & Ziliak, 2015).

Due to school closures, many children who relied on school food programs for stable access to food and nutrients faced disruptions as these programs either ceased or provided fewer

school-prepared lunches (Hecht et al., 2022). This reduction in school-prepared lunches during the pandemic resulted in a decreased intake of crucial nutrients like calcium and vitamin D, which are essential for growth and development, particularly impacting students from Black, Hispanic, or low-income households who experienced the poorest diet quality (Larson, 2021). While a study indicated that food disparity might not have been a significant issue, food quality suffered, leading to a considerable excess calorie consumption that could contribute to weight gain (Hecht et al., 2022). Furthermore, evidence suggests that children may have been less physically active and more sedentary during school closures, potentially exacerbating weight gain even further (Rundle et al., 2020). These changes in food security and nutrition have the potential to impact the physical health of children significantly.

During the initial outbreak of the COVID-19 virus, a Canadian study found that children and adolescents demonstrated decreased physical activity levels, played outside less, engaged in more sedentary behaviour, spent more time participating in recreational screen-based activities, and slept more compared to their pre-pandemic behaviours (Moore et al., 2020). Some United States studies have also demonstrated the risk the pandemic may have on increased obesity rates in children (Rundle et al., 2020; Workman et al., 2020). A school is a place that often promotes physical activity during recess, lunch, or after-school programs that facilitate physical development (Franckle et al., 2014; Ridgers et al., 2012). It has been found that during the weekends, children often engage in lower levels of physical activity, and children tend to gain more weight during the summer, especially if they do not have the means to attend sports or summer camps that facilitate physical activity (Tanskey et al., 2018). The pandemic's extended duration and restrictions on attending in-person school and engaging in regular physical activities or sports may have considerable adverse effects on children's physical health if they follow the

same pattern of inactivity typically observed during summers and weekends, as previously documented.

A study conducted in China emphasized the importance of physical activity during school hours, especially with the return of students to school after the pandemic. As the pandemic restricted exercise and sports, the study highlighted the need to facilitate healthy physical development once the restrictions are lifted (Chen et al., 2020). Generally based upon a review of several studies, Pfefferbaum & Van Horn (2022) indicated a decline in physical activity levels among children, coupled with a rise in sedentary behaviour such as excessive screen time. Similarly, a Canadian study examined changes in health behaviours. Carroll et al. (2020) found that since the onset of COVID-19, 87% of children have experienced increased screen time, while 52% have decreased physical activity levels. In France and Italy, this pattern of increased screen time was raised as well; parents believed screen time was consuming a significant portion of time that could have been dedicated to learning academic skills and according to this survey conducted by Champeaux et al. (2021), the time children spent watching TV or browsing the internet doubled in these regions. However, according to another study, screen time, which was found to have moderately increased in school-aged children, could potentially have a positive impact on social communication skills, as it facilitated peer interactions during a time when most social interactions had to be virtual (Hernandez & Jabbari, 2022).

Additionally, these studies have revealed correlations between such activities and various psychological outcomes. The decrease in physical activity during the pandemic was often due to social distancing measures. Still, if individuals engage in less physical activity, it can have negative implications for mental health (Caputo et al., 2020). These observations align with the

broader literature on children's health, emphasizing the significance of physical activity in promoting overall health and mental well-being (Chen et al., 2020; Moore et al., 2020).

The Effect of Coronavirus on Social and Emotional Development

The impact of children's mental health and social and emotional well-being has been explored in research recently but with mixed results. Some studies found that the pandemic harmed children's emotional development, which could lead to anxiety, depression, increased stress, and behavioural problems (Asbury et al., 2020; Sau Man Ng & Sui Ling Ng., 2022; Egan et al., 2021). During the pandemic, heightened emotions, particularly anxiety, were observed in many individuals, with parents reporting that their children displayed increased concern for themselves and others, as well as a heightened fear of illness. These instances were particularly pronounced among children with disabilities or specific needs, who typically receive support from schools (Asbury et al., 2020). Generally, parents found that more than 50% of their children were more tense, restless and uneasy during the pandemic compared to before and that there were increased levels of anxiety, fear and worry in more than 40% of children (Ghanamah & Eghbaria-Ghanamah, 2023). Yet, families in which children felt safer in their home environment than at school experienced a sense of calm and more positive impacts because of social distancing and self-isolation measures (Asbury et al., 2021). Spending more quality time with family is a reason parents have reported positive emotional health due to the child's lower level of emotional difficulties during quality time spent together (Prime et al., 2020). Also, positive emotions were described for some families, particularly for children facing difficulties in school; closures allowed them to feel calmer, avoiding the stressful school environment. Another explanation for minimal or positive impact was found among families who perceived COVID-19 as not harmful (Asbury et al., 2021). Another study revealed that children in Spain aged 3 to 12

experienced mixed emotions during the lockdown. While they expressed happiness at being with their families, they also worried about their health and well-being. They also felt a sense of relaxation at home, yet they felt nervous, overwhelmed, upset, and scared. Additionally, they felt boredom, loneliness, and sadness from limited interactions with peers and grandparents (Idoiaga-Mondragon et al., 2021).

Additionally, parents reported that over half of their children, particularly school-aged ones, exhibited more behavioural problems, irritability, and arguments with family members during the pandemic. At the same time, preschoolers seemed to become more attached to their parents (Ghanamah & Eghbaria-Ghanamah, 2023). Parents in a Canadian study have noted a common concern regarding increased irritability and easy frustration among their young children since the onset of the pandemic (Carroll et al., 2020). However, another study found that parents perceived little change in school-aged children's social skills despite a moderate decrease in time spent with friends and a slight reduction in extracurricular activities (Hernandez & Jabbari, 2022).

Childhood Disabilities

The Centers for Disease Control define disability as "any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)" (Centers for Disease Control and Prevention, 2023). Childhood disability is commonly understood as a complex interplay between a child's limitations, such as developmental and functional difficulties or impairments in physical, mental or social development, and contextual factors, including access to necessary support services and resources. These contextual factors enable the child to participate in age-appropriate activities and interact with peers in social settings (UNICEF, 2023;

World Health Organization, 2007). The most common mental disorders that can be diagnosed in childhood are attention-deficit/hyperactivity disorder (ADHD), anxiety and behavioural disorders (Centers for Disease Control and Prevention, 2023).

Childhood disability is highly prevalent in the Atlantic provinces, especially in Nova Scotia. According to a report by Human Resources and Skills Development Canada (2011), Nova Scotia has the highest rate (4.6%) of disabilities, including communication disorders, developmental delays, learning disabilities, emotional/psychological disorders, chronic conditions, hearing impairments, agility, and mobility impairments, among children aged 0-14 in Canada. Similarly, the rates of disabilities in the other Atlantic provinces are also above the national average (3.7%), with Newfoundland (3.9%), Prince Edward Island (4.1%), and New Brunswick (4.0%) reporting high rates. More recent statistics show that the prevalence of youth aged 15 to 24 years is also higher in the Atlantic provinces, with 19% having a disability versus 13% in all of Canada (Government of Canada, 2017).

Although the cited data is outdated, it still indicates an essential area of study since most families in the sample population belong to these four provinces, with a significant number from Nova Scotia. These statistics demonstrate the prevalence of children with disabilities, highlighting the importance of addressing their needs to promote equity and inclusivity across the entire population rather than prioritizing only those who are more privileged.

The Effect of Coronavirus on the Development of Children with Disabilities

Although children are not the most at-risk population for COVID-19 illness, there can still be other severe ramifications for children with disabilities and neurotypical children. School closures and service closures were in place to stop the spread of COVID-19 worldwide. However, research is still needed to understand the impact on the development of children due to

those abrupt closures of essential services that provide learning, health care and, overall, a considerable contribution to children's health (Araujo et al., 2020; Hoffman & Miller., 2020; Lanckner & Parolin, 2020).

Children with disabilities before COVID-19 faced barriers related to their financial stability and access to care and services (Charlton et al., 2017; Mitra et al., 2017). However, this has only increased during the pandemic, specifically for children with physical disabilities with a decrease in physical activity, increased pain, and disruptions to their medical care routines. These parents reported concern about potential impacts on their children's development based on the difficulty accessing essential services (Cacioppo et al., 2021). The literature on the effects of COVID-19 on families with children with disabilities is expanding globally. However, recent reviews of empirical studies suggest that the literature is limited, particularly in Canada, and that the experiences of families with children with disabilities are underrepresented (Jesus et al., 2021; Shorey et al., 2021). This is even though these families may be facing more challenges than neurotypical children due to pre-existing barriers (Charlton et al., 2017). Existing literature suggests a heightened vulnerability of children with special needs and their families to encounter adverse mental health effects and increased pressure during COVID-19, as compared to less vulnerable families (Asbury et al., 2020). However, while supported by some studies, the absence of a comparison group of neurotypical children and families for reference results in inconclusive evidence.

Children with disabilities often need specific services or structures to help them cope with everyday tasks, and most of these services or therapies were shut down (Al-Beltagi, 2022). Many children with autism spectrum disorder rely on consistent routines to navigate daily life. As stated in the Diagnostic and Statistical Manual of Mental Disorders fifth edition (American

Psychological Association, 2013), the symptomatology of restricted, repetitive patterns of behaviour, interests, or activities, which is essential for an ASD diagnosis, can manifest through insistence on sameness and patterns. Any disruption to their routine can result in extreme distress due to difficulties with transitions and rigid thinking patterns (American Psychological Association, 2013). As a result, many of these children suffered during the lockdown due to the closure of their essential services and their schools and daycares, which provided them with stability (Al-Beltagi, 2022).

Much like children without disabilities, children with disabilities' levels of physical activity decreased drastically during the pandemic. Due to disrupted services, parents were confronted with the task of independently managing their child's therapy and rehabilitation needs daily (Cacioppo et al., 2021). This study conducted by Cacioppo et al. (2021) in France found that during the initial lockdown period, up to 83% of therapies were provided by parents, significantly impacting their child's physical progress and overall well-being. Another study revealed that while telehealth services were made available to parents of children receiving in-school therapies, widespread dissatisfaction was with the service. Less than half of the parents could access the services, primarily due to barriers that hindered their access (Murphy et al., 2021).

Families raising children with autism spectrum disorder (ASD) and developmental disorders observed both adverse and positive effects on their children (Meral et al., 2021). These families expressed significant concern regarding unfulfilled educational requirements and the challenges of social isolation and limited peer interaction. Conversely, positive outcomes in this study included enhanced verbal communication due to heightened family engagement and advancements in the children's ability to learn self-care skills. Similar findings were reported in a

related study, which highlighted the difficulties of isolation at home and the perceived inadequacy of educational and developmental support for children with intellectual and developmental disabilities (Neece et al., 2020). Additionally, parents highlighted benefits such as increased family bonding time and ongoing developmental progress, particularly in language acquisition. These observations stem from these two studies by Meral et al. (2021) and Neece et al. (2020) conducted in the United States. While they may not directly address long-term consequences, they consistently identified challenges and potential benefits. However, it's worth noting that these studies lacked a comparison group of families without children with diverse needs.

A study conducted in the UK by Morris et al. (2021) examined families of children with autism spectrum disorder. It revealed that over half of the parents felt inadequate support during the lockdown period. Instead, many reported being assigned online homework or receiving updates via email. This highlighted another instance where parents of children who require additional support in the classroom were left to manage their child's learning at home without adequate assistance. Additionally, the study found that parents reported a negative impact on their children's self-regulation and cooperation skills but not their communication skills.

While these studies were not explicitly conducted in Canada, they provide important insights that may be relevant to Canadian families. The experiences and challenges faced by parents and children with disabilities during the pandemic may share similarities across different countries, including Canada. Therefore, these findings can help inform our understanding of the potential impact on Canadian families and emphasize the need to address the unmet needs of parents and provide support for children with disabilities during times of crisis.

Parental Perspectives of Children

Parents assume a pivotal role as primary caregivers for children, especially in the face of the challenges brought about by the COVID-19 pandemic. With children spending most of their time at home, parents or caregivers took on the responsibility of various aspects of care typically handled by professionals, including physical care. For instance, during lockdowns, when services were unavailable, family members became the sole providers of essential physical care (Couper-Kenney & Riddell, 2021). As children increasingly spend more time with their parents, the parental role has significantly shifted, with parents becoming the primary experts on their children, particularly amidst the pandemic. However, fulfilling all the responsibilities of a child with specific needs can be challenging without adequate support or expertise. Advocacy is a crucial way for parents to address inadequacy in furthering their child's development (Boshoff et al., 2016). Parents' perceptions of their children play a pivotal role in shaping how the children view themselves. Research suggests that when parents acknowledge and nurture their child's educational and personal growth potential, it positively influences the child's self-perception (Karkkainen et al., 2009). In children with autism spectrum disorder (ASD), advocacy is essential. A study conducted in the Atlantic provinces found that parents utilized their role as advocates for their children to access services in the healthcare and education systems. Despite facing various challenges, their advocacy efforts persisted (Smith-Young et al., 2022).

Families raising children with disabilities require the opportunity to share their experiences and concerns regarding their children’s education to feel connected and facilitate navigating through a system that can be more challenging for their child. It also helps them find ways to advocate for their needs (Hess et al., 2006).

School Psychologist Practices

School psychologists play a crucial role within the educational system by utilizing their unique professional training and skills to provide psycho-educational and clinical services to students and families. By collaborating closely with school staff, they diagnose challenges, design and assess effective programs and interventions, and provide extensive consultation services to the educational system (French & Mureika, 2002). The pandemic led to a drastic shift in the role of school psychologists, with reduced time for assessments, mental health interventions, and report writing, as indicated by a study in Canada where 97% of school psychologists reported significant changes in their job responsibilities (Ritchie et al., 2021).

During the pandemic psychologists had two options in conducting assessments, either delay all testing until school closures ended or perform remote assessments with limited resources or training in telehealth (Farmer et al., 2020). Consequently, numerous assessments were postponed, resulting in a backlog of assessments that needed to be conducted after the pandemic. Moreover, with fewer children receiving assessments and mental health interventions during the pandemic, it is anticipated that wait times for services in schools will rise, coinciding with an apparent increase in the mental health needs of these children, partially attributed to the pandemic (Ritchie et al., 2021). The timely identification and remediation of students' learning, behavioural, and psychological issues are essential to prevent the escalation of more significant long-term developmental consequences, including impaired academic progress, persistent behavioural problems, disciplinary interventions, and early school disengagement (French & Mureika, 2002). The pandemic has presented ongoing challenges for assessments, even post-pandemic. School psychologists are now particularly concerned about the over- and under-identification of students. These professionals are facing the task of determining whether a

student's struggles stem from a diagnosis such as developmental delay or from inadequate access to education (Hunt et al., 2023). Given the delayed psychological services many children are facing based on the pandemic, it becomes increasingly crucial to comprehend how child development may have been impacted or transformed throughout this period.

In a study by Schaffer et al. (2021), it is evident that school psychologists have embraced a more extensive role. They feel responsible for providing social-emotional support to students and their fellow educators after schools reopen post-closures. This study highlights the significance of school psychologists collaborating with school administrators to identify and deliver crucial social-emotional resources, thereby ensuring smoother transitions during the reopening of schools. This expansion of their role emphasizes the vital importance of social-emotional support and the pivotal role that school psychologists play in promoting this development. Due to their training, school psychologists can provide interventions that support the healthy social, emotional, and behavioural development of children impacted by the pandemic and its various challenges (Nickerson & Sulkowski., 2021)**.**

Conclusion

Although there are numerous studies that look at children's development throughout the pandemic the research still is very mixed on whether there are negative or positive impacts for each aspect of development. Also, the research on children with disabilities and occurring in Canada is extremely sparse. As well, there has been limited research comparing the impact of the pandemic on the development of children with disabilities versus neurotypical children, highlighting the scarcity of studies in this crucial area. Although, studies have emphasized the importance of developing interventions and policies to support children's health and development during and after the pandemic (Araujo et al., 2020; Jesus et al., 2021).

The current study investigates areas of development that may have mixed findings, exploring differences in development across populations (children with disabilities and neurotypical children), and understanding parents' perceptions of their child's development during the pandemic. The goal is to address gaps in research and provide clarity on possible changes to children's early development due to the pandemic. If changes in development are evident, this information could guide future policies, interventions, or psychological assessments to address such situations. Identifying the areas of development most impacted in children post-pandemic could offer valuable insights to school psychologists and other professionals. This knowledge could help prioritize interventions and support strategies, especially in domains significantly impacted by the pandemic, such as social and emotional development.

Chapter 2

Introduction

The COVID-19 pandemic had impacted many lives throughout the past few years, particularly affecting children during a critical period of development. Bronfenbrenner's (1979, 1989) ecological systems theory emphasizes the relationship between individuals and their environments, illustrating how children's development is influenced by their family, peers, school, community, and cultural environment. The pandemic significantly limited those influences due to lockdowns confining children to their immediate living environments (Bryce, 2020). For many parents the pandemic introduced increased life pressures. They had to focus on their children's health and mental well-being while also managing the heightened stress of work and the challenges of supporting online learning when many services were shut down (Gadermann et al., 2020). Previous research has found mixed results regarding the pandemic's impact on children, with negative outcomes observed in various developmental domains.

During the pandemic, physical activity levels declined significantly, with children playing outside less and engaging in more sedentary behaviour (Moore et al., 2020; Rundle et al., 2020). The absence of school activities further contributed to this issue, as typically, children engaged in lower amounts of physical activities during weekends and summers (Tanskey et al., 2018). In the area of language and communication development, limited interaction with peers and educators during developmental periods contributed to delays and challenges in language acquisition and social communication (Watts & Pattnaik, 2022). Increased device screen time and decreased face-to-face interactions also negatively impacted language development (Carroll et al., 2020; Champeaux et al., 2021). However, another study suggests that increased screen time may have facilitated social communication skills through virtual interactions (Hernandex & Jabbari, 2022). Social and emotional development was also disrupted, research indicated that the pandemic led to heightened anxiety, depression, stress, and behavioural problems among children (Asbury et al., 2020; Egan et al., 2021). Parents reported increased tension, restlessness and anxiety in their children compared to pre-pandemic levels (Ghanamah & Eghbaria-Ghanamah, 2023). However, some children experienced positive outcomes, particularly those who felt safer at home and benefited from increased family time and support (Prime et al., 2020; Asbury et al., 2021). Overall, it is important to examine both the pandemic's negative and potential positive impacts on children’s development to understand its effects and address the current mixed findings.

In addition to examining the changes resulting from the pandemic, it is important to investigate the impacts of the pandemic on children with disabilities. There are many different types of disabilities, each requiring varied amounts of support depending on severity, type, and the children's age. The body of research on the effects of COVID-19 on families raising children with disabilities is growing worldwide. Nonetheless, recent evaluations of empirical studies

reveal deficiencies in the literature, particularly in Canada, where the experiences of these families still need to be represented (Jesus et al., 2021; Shorey et al., 2021). These individuals often have unique needs and may rely heavily on specialized services, which have been disrupted due to the pandemic (Charlton et al., 2017). Understanding how these disruptions have affected their development, and their level of support is crucial in ensuring that they receive the necessary resources and interventions.

This study aimed to gain a deeper understanding of the impact of the pandemic on children's development, particularly focusing on families' perception of their child's positive or negative progress in social and emotional development, language and communication skills, and physical development. Exploring these aspects will emphasize challenges and opportunities that have arisen during this unprecedented time as well as promote healthy development moving forward.

Through this study, the hope is to generate insights that can inform policymakers, educators, or caregivers in addressing the specific developmental needs of children during and after the pandemic. By understanding the impact on various aspects of children's development and the challenges faced by different groups, more focus can be on developing effective strategies to promote their well-being and growth during adversity. To achieve this, the current study aimed to respond to the following questions:

1a. What is the prevalence rate of parents reporting negative and positive impacts of the COVID-19 pandemic on their children’s development?

1b. Is there a difference between the developmental impact of the COVID-19 pandemic between children with disabilities and neurotypical children?

2. What are the family’s perceptions of developmental changes in children?

It was hypothesized that the pandemic has had a significant influence on various aspects of children's development, particularly regarding children with disabilities. These children were expected to experience a more pronounced impact on their developmental trajectories.

Method

Positionality Statement

The COVID-19 pandemic has caused abrupt disruptions in many lives, unlike anything I have ever experienced. I was in the middle of my second year of undergraduate studies when everything came to a halt. Fortunately, I did not experience the same burden as others struggling financially or facing challenges accessing necessary services. While the pandemic was anxiety-provoking, it did not negatively impact my academic development. I was in a program that easily transitioned to online learning, which I enjoyed. I understood the material and was able to navigate the change in learning without requiring extra help. However, it is important that I acknowledge that not all individuals and communities have been as fortunate. Based on my experiences with family members and friends, I can recognize that the pandemic has disproportionately affected certain populations, particularly those who were already marginalized or disadvantaged before the pandemic. The abrupt shift to online learning has presented significant challenges for many students, including limited access to technology or stable internet connection, difficulties in adapting to new learning environments, and reduced opportunities for social interaction with peers and teachers. These challenges can be especially debilitating for individuals who struggle with independent learning or require additional support.

I have witnessed firsthand from close family members' experiences the negative impact the pandemic has had on individuals who need extra help. My mother's experience as an educational assistant at a middle school further highlighted for me the challenges faced by

individuals with disabilities during the pandemic. Many students struggled to concentrate during online learning and opted out of attending altogether as it was not beneficial for them. When schools resumed in-person learning, the risk of COVID remained too high for many students with disabilities to return due to their increased susceptibility to health risks. To me, this underscores the need for continued efforts to provide accessible and safe learning environments for all students, especially those with disabilities. My current school psychology internship in elementary schools has given me firsthand insight into how children are doing. I have observed, and heard from other professionals, the significant need for support especially in social and emotional development. Numerous professionals in the schools believe that many children are struggling more socially and behaviourally than before the pandemic. While these issues cannot be attributed solely to the pandemic, it is evident that it has likely had a long-term impact on children and schools.

It is important to acknowledge that as someone who does not live with a disability, I may not fully understand the challenges that individuals with disabilities face daily. However, conducting research on the experiences of individuals with disabilities is important in identifying areas where additional support and accommodations are needed and can help inform efforts to improve access to services and support systems such as psychological-educational assessments in schools and tiered intervention programs. By including the perspectives and experiences of individuals or families living with disabilities in research, it is working towards creating a more inclusive and equitable society for all.

Methodology

The research design employed in this study was a sequential multi-methods approach, which involves analyzing the quantitative questions first before proceeding to analyze the

qualitative data (Creswell, 2014). The qualitative component aimed to provide a descriptive exploration of respondents' perceptions and experiences, building upon the findings obtained from the quantitative aspect. By employing quantitative and qualitative analyses, this approach enables an in-depth analysis of families' perceptions of their child's development. The quantitative analysis provides numerical data that can offer statistical insights, while the qualitative analysis allows for a more nuanced understanding of families' experiences and perspectives. As described by Neergaard et al (2009), qualitative description will enable an investigative approach focused on describing individuals' perceptions and experiences of the world. This combination of methods ensures a comprehensive exploration of the topic, enriching the analysis and providing a deeper understanding of families' perceptions of their child's development.

Participants

This study used secondary data of families (N=767), who participated in a survey investigating family changes during a global pandemic. The survey was open to families with children aged 0-8 years. The sample consisted of 12% of families that had at least one child less than 12 months, 9% had at least one child aged 12-18 months, 26% had at least one child aged 19-35 months, 61% had at least one child aged 3-5 years old, 37% had at least one child aged 6-8 years old, 17% had at least one child aged 9-12 years old, and 8% of families had at least one child 13 years of age or older. However, respondents were asked to answer the questions only concerning their child or children under the age of 8 for this study. The participants provided a comprehensive representation of diverse perspectives across the Atlantic Provinces, distributed as follows: 45% from Nova Scotia, 21% from Newfoundland and Labrador, 11% from Prince Edward Island, and 23% from New Brunswick. Fifty one families identified with Indigenous

origins for their ethnic/cultural backgrounds, one hundred twenty seven identified as of Acadian descent, four hundred and seven identified as of European origins, ten identified as of African origins, eight identified as of Middle Eastern origins, nine identified as of East Asian descent, seven identified as of South Asian descent, four identified as of Southeast Asian origins, seven identified as of Latin American, thirty nine identified with an ethnic/cultural background that was not listed and 93 did not identify their families background.

Materials

Demographics

At the beginning of the survey, participants responded to demographic questions. The family-related questions facilitated the gathering of demographic details, including the number and ages of children in the family, the respondent's relationship to the child, racial/ethnic identity, province of residence, highest completed family education level and current household income. Another initial question was if your child identifies with any of the following addressing disabilities and health conditions, these responses included physical disability, visual impairment, hearing impairment, speech impairment, learning disability, chronic medical/health problems, unaddressed dental needs, autism spectrum disorder, developmental delay and other (see Table 1).

Table 1

Regular Demographic/Informational Table

Variable	N (%)
Respondent's relationship to children	
Mother	653 (87.4%)
Father	8 (1.1%)
Aunt/uncle	1 (0.1%)
Guardian	1 (0.1%)
No response	2 (0.3%)
Number of children in family	
1 child	269 (36.0%)
2 children	349 (46.7%)
3 children	89 (11.9%)
4 children	26 (3.5%)
5 or more children	11 (1.5%)
No response	3 (0.4%)
Families' disability status of children	
Disability	168 (22.5%)
Neurotypical	579 (77.5%)
Type of disability	
Physical disability	8 (1.1%)
Visual impairment	18 (2.4%)
Hearing impairment	3 (0.4%)
Speech impairment	51 (6.8%)
Learning disability	45 (6.0%)
Chronic medical problems	50 (6.7%)
Unaddressed dental needs	21 (2.8%)
Autism spectrum disorder	23 (3.1%)
Developmental Delay	30 (4.0%)
Other	34 (4.6%)
Current household income	
Less than $20,000	18 (2.4%)
$21,000-$40,000	48 (6.4%)
$41,000-$60,000	60 (8.0%)
$61,000-$80,000	67 (9.0%)
$81,000-$100,000	111 (14.9%)
More than $100,000	295 (39.5%)
Unsure	12 (1.6%)
No Response	136 (18.2%)

Quantitative and Open-Ended Qualitative Questions

Survey questions related to child development were informed by the domains of the Early Developmental Instrument (Janus & Offord, 2007) to focus on four specific areas of development that the pandemic has potentially impacted: language skills, communication skills, social and emotional skills, and physical skills. The survey consisted of dichotomous questions, primarily asking for a “yes” or “no” response. The questions of interest further included negative and positive options, allowing respondents to choose from "yes, positively," "no," "yes, negatively," and "prefer not to answer" to rate their agreement with the following statements. “I feel the pandemic has impacted: The development of my child(ren)’s language skills; The development of my child(ren)’s social and emotional skills; The development of my child(ren)’s communication skills; The development of my child(ren)’s physical skills”.

To gather qualitative data, follow-up questions were posed based on the respondents' answers. For those who selected the positive option, the respondent was asked, "If you feel comfortable, please describe how the pandemic has positively impacted your child's development." Conversely, for those who selected the negative option, the respondent was asked, "If you feel comfortable, please describe how the pandemic has negatively impacted your child's development."

Procedure

Participants were recruited by distributing posters to promote the online survey via prominent online communities, family-focused organizations (e.g., child care centers, family resource centers), and social media initiatives. The survey was available for completion online between March 9th and April 5th, 2021.

Data Analysis

The current study utilized a sequential multi-methods design, integrating a cross-sectional survey that incorporates both closed (quantitative) and open-ended (qualitative) questions. To begin, the quantitative data was analyzed, and then the qualitative data followed. Descriptive statistics were run as a preliminary analysis to better understand the variables prior to more advanced statistical procedures. The objective was to investigate children's development during the COVID-19 pandemic using both quantitative and qualitative approaches. Specifically, examining the quantitative questions about development, focusing on whether the pandemic has impacted children's social and emotional, language, communication, and physical skills. To examine these aspects, a 2x4 chi-squared analysis; a non-parametric analysis was performed to compare categorical variables between families with children with a disability and families with neurotypical children. Variables were investigated from the parents' responses to the perceived developmental changes during the pandemic.

Qualitative data was analysed by thematic content analysis (Braun & Clarke, 2006). The process of conducting a thematic content analysis involved six sequential steps: familiarizing with the data, generating initial codes, forming themes, reviewing themes, defining and naming themes, and creating the report with findings. This analysis aimed to identify themes from the open-ended questions regarding the positive or negative impacts of COVID-19 on children's development across various areas, including language and communication, social and emotional, and physical skills.

Results

Quantitative Results

Frequencies were calculated to address parental perspectives of their child(ren)'s language, communication, social-emotional, and physical developmental skills. Overall, across all areas of development, social and emotional development was reported as the most negatively impacted, with 47% of parents indicating that the pandemic adversely impacted their child in this area. This was followed by 22% of parents who felt that their child's communication skill development suffered due to the pandemic. Similarly, 21% of parents perceived a negative impact on their child's language development. Finally, 17% of parents reported that the pandemic had a negative impact on their child's physical development. These results indicate that social and emotional development was the most significantly impacted area according to parents. Conversely, positive impacts were reported at much lower frequencies, language development had the highest positive impact, with 8% of parents indicating this area. Positive impacts on communication and physical development were reported by 7% of parents, while only 4% of parents indicated positive impacts on social and emotional development (see Table 2)

Table 2

Frequencies for Parental Perspectives of Child Development

Developmental Skill	Yes, negatively		No		Yes, positively		No response	
	n	%	n	%	n	%	n	%
Language	153	20.5	519	69.5	61	8.2	14	1.9
Communication	163	21.8	519	69.5	54	7.2	11	1.5
Social/Emotional	353	47.3	345	46.2	33	4.4	16	2.1
Physical	127	17.0	556	74.4	51	6.8	13	1.7

A chi-square test for association was conducted between disability status of children and the parental perception of the four development skill areas. There was a statistically significant

association between disability status and all areas of development (see Table 3). However, although each was statistically significant, there was a weak association between disability status and social and emotional development (V = .168) as well as disability status and physical development (V = .121). There was a moderately strong association between disability status and language development (V = .251) and disability status and communication development (V = .217). For parents of children with a disability, a larger percentage perceived that all four developmental skills were impacted, both negatively and positively, compared to parents of neurotypical children. Still, the overall perception was continuously more negative than positive from parents for both children with disabilities and neurotypical children.

Table 3

Frequencies and Chi-Square for Parental Perspective of Child Development and Disability Status

Developmental Skill	Yes, negatively		No		Yes, positively		No response		X^2
	n	%	n	%	n	%	n	%	
Language									47.0*
Disability	61	36.3	81	48.2	21	12.5	5	3.0	
Neurotypical	92	15.9	438	75.6	40	6.9	9	1.6	
Communication									35.1*
Disability	56	33.3	86	51.2	22	13.1	4	2.4	
Neurotypical	107	18.5	433	74.8	32	5.5	7	1.2	
Social/Emotional									21.0*
Disability	92	54.8	56	33.3	15	8.9	5	3.0	
Neurotypical	261	45.1	289	49.9	18	3.1	11	1.9	
Physical									10.9**
Disability	41	24.4	109	64.9	14	8.3	4	2.4	
Neurotypical	86	14.9	447	77.2	37	6.4	9	1.6	

*p<.001 **p<.05

Qualitative Results

A qualitative approach was taken to address the question of parent's perceptions of their children's development. As the quantitative results revealed a significant association between disability status and all areas of development, examining parents' open-ended responses was important to more deeply explain the insights, differences, and concerns across these two groups (see Table 4). Responses were categorized according to the areas of development investigated in the quantitative questions. The areas of language and communication were combined into one due to the similarity between responses. Although the other two areas of physical and social and emotional development were separated, it is important to note that some responses addressed multiple areas demonstrating the interrelationship between domains. The impacts frequently mentioned by parents were also compared based on whether the parent has a child with a disability.

Table 4

Qualitative Themes from Parents' Responses Across Groups

Developmental Category	Themes	All Parents	Parents of Neurotypical Children	Parents of Children with Disability
Language and Communication				
	Time spent with family	✓		
	Increased teaching during family time		✓	
	Loss of educational and support services	✓		
Social and Emotional				
	Enhanced connections and independence at home	✓		
	Reduced interactions supported increased confidence and happiness		✓	
	Reduced opportunities for socialization as detrimental to social skills	✓		
	Reduced socialization due to being an only child		✓	
	Decreased emotional well-being, increasing anxiety, sadness and social fear	✓		
Physical				
	Increased outdoor play and physical activity		✓	
	Reduced physical activity due to recreation activities and sports	✓		
	Increased screen time	✓		

Impact on Language and Communication Development

Across both groups of parents, they viewed similar positive impacts on their children's language and communication development. The main commonality was that oftentimes parents expressed improvement in language that was influenced by the increased time they were spending with their immediate family. Therefore, one theme that was identified through the data was *time spent with family*. This was illustrated by parents of neurotypical children indicating the positive impacts to language was a result of older siblings and closer proximity to parents allowing for those skills to develop through increased interaction. This was similar to parents of children with disabilities as one parent shared:

> "Especially when we were locked down as a household, my partner and I were our child's only companion, and we talked to her like she was a little adult. Her communication and language skills have dramatically improved, though some of that is obviously because she's a year older now. She also had a lot more playdates with grandparents (through facetime) than pre-pandemic, which also helped her improve her social skills. She and I talked a lot about emotions and anxiety using a Sesame Street app." (Anonymous parent of a child with disability, 2021)

Another response included:

> "I speak French to my children and my husband speaks English. Since our 3 year old was home for 6 months and was exposed to more French, his language development improved." (Anonymous parent of a child with disability, 2021)

However, there was one noticeable difference in responses between groups. A theme only found in the parents of neurotypical children group was *increased teaching during family time.* In addition to increased language skills, these parents frequently commented on the improvement in

their children's academic skills, often attributed to increased opportunities for learning at home. One parent commented:

> "We had concerns about our daughters language development at the beginning of the pandemic and had just started working with an SLP last March. Being home with her full-time allowed us to deliver the strategies she recommended in an intensive manner - perhaps more so than if we had been asking daycare staff etc to participate. Not sure if this is the reason, but her language improved substantially over the first few months of covid." (Anonymous parent of a neurotypical child, 2021)

Another parent stated:

> "Our daughter in late grade 2 was still unable to read/write. Due to high level of interaction during home schooling, she ended the lockdown being able to read and write. Her confidence grew and she is now much better at navigating the world. She began grade 3 happily reading and was even asked by the teacher to read in front of the class, which she did proudly. I honestly don't know where she'd be if it hadn't been for the lockdown and our ability to devote more hours to her learning." (Anonymous parent of a neurotypical child, 2021)

Overall, having more family time and an opportunity to develop language was the main contributing factor in most responses, regardless of disability status. However, for neurotypical children, the positive impacts from parents indicated that more time with parents and the ability to teach these skills while continuing their learning at home seemed to influence their academic and language skills for some families.

Among both groups, one theme identified was the *loss of educational and support services.* Parents expressed concerns about their children's educational and language

development, particularly regarding missed learning opportunities during key academic periods. Neurotypical children's parents were specifically worried about gaps in French language education. Parents noted the challenge of replicating this language instruction at home, others noted significant setbacks in their children's French immersion progress and overall academic skills in reading and math, as well as limited interaction with French speaking peers. The most prevalent negative impact across both groups was the lack of access to school specialist supports or changes in the level of support, which impacted language and academic skills. An example of this impact was expressed:

> "…we were taking speech sessions to help better develop certain sounds and we totally missed many months of this and then we moved to online sessions which is difficult as you really need to the position of lips, tongue and mouth in order to make sure the sounds are being made properly." (Anonymous parent of a child with a disability, 2021)

Another parent shared their experience,

> "We are at the beginning stages of having my school age child diagnosed with a learning disability. All her school supports have stopped and we are now purchasing online speech pathology. She is getting more distracted at us trying to teach her which I believe is causing her to lack even further behind in her reading skills." (Anonymous parent of a child with a disability, 2021)

Impact on Social and Emotional Development

Throughout the responses from both groups of parents, one major theme was *enhanced connections and independence at home.* Some parents observed positive impacts from the increased time at home; children were playing together more with their siblings, and that improved their problem-solving skills. More time spent at home allowed parents and their

children to build closer relationships, create more memories, and establish quality time within their immediate family. Another parent appreciated the chance to better their understanding into their child's challenges due to increased time spent with them. One parent commented:

> "My children seem happy, and not overly worried. They play more outside with friends, since that's the only way they are permitted to see people outside of school. They are more independent at home (developed during school lockdown while both parents worked full-time), and have a daily chore routine that they didn't have before the pandemic." (Anonymous parent of a neurotypical child, 2021)

Another parent shared:

> "We have built stronger relationships as a family, it has been fantastic. Online games/facetime allow kids to interact when our bubbles are restricted. Extracurricular activities are not missed, and we are enjoying the fact that we are no longer stressed and rushed to always be somewhere." (Anonymous parent of a child with a disability, 2021)

Another theme identified specifically in the parents of neurotypical children was *reduced interactions supported increased confidence and happiness*. These parents noted that their children, who disliked social contact and interactions, felt more control of their environment and social engagement during the pandemic restrictions. This increased happiness was linked to reduced interactions and increased family time. Parents observed that their children were happier at home, a response not found among parents of children with disabilities. Although parents of children with disabilities reported various positive impacts, they did not explicitly mention increased happiness due to any factor. One parent commented on how the social distancing has helped their child's emotional regulation,

> "Honestly, my daughter doesn't really worry much about the pandemic. She's very matter-of-fact and the pandemic is just part of life. If anything, she's happier now because she doesn't have to worry about telling people to give her space (now they HAVE to give her space). Since the pandemic started, my husband and I have both noticed an increase in her confidence and happiness." (Anonymous parent of neurotypical child, 2021)

A response very similar in context was,

> "My daughter has always been an introvert and dislikes being touched by people she doesn't know (and she struggled with saying no), so the social distancing part of the pandemic has allowed her to gain confidence because she can control interactions more than before. Because she's less focused on people being too close to her (or touching her, which can cause her to withdraw), she focuses more on her studies and doing what she enjoys." (Anonymous parent of a neurotypical child, 2021)

However, when examining the quantitative analysis for both groups of parents, social and emotional development stood out as the area most negatively impacted for their children, with approximately 45-55% of parents expressing concerns. This was equally evident in the open-ended responses from both groups, which highlighted the various ways they felt social and emotional development was affected. One prominent theme included *reduced opportunities for socialization as detrimental to social skills*. Parents of neurotypical children noted that limited social interactions had negative effects on their children's social and emotional development. They observed that their children became shyer, overly attached, and lacking the ability to cope with various feelings and behaviours with others due to minimal exposure to peers. Additionally, children who previously were comfortable in larger groups now felt more anxious, spoke less and didn't want to do activities they previously enjoyed with peers. One parent expressed:

> "I think all children need to be socialized. I've previously been a preschool teacher. I am fully capable of teaching my 4 year old all he needs to know to be prepared for Kindergarten, but I cannot socialize him by myself. Sharing, being kind, social queues and so much more are taught through play with others and the generation of children born throughout this pandemic is going to be extremely hard on caregivers in the next year or two. My youngest is 1, and barely knows anyone outside of our home." (Anonymous parent of a neurotypical child, 2021)

This theme was identified in children with disabilities as well; parents reported that a lack of group play and social contact during the pandemic severely impacted their children's social and emotional development. They emphasized that this period is crucial for learning social skills and emotional responses, and their children missed out significantly. Some family concerns were that pre-existing social immaturity in some children became more pronounced, causing difficulties in peer interactions. Also, behavioural issues, emotional outbursts and acting out were noted due to the lack of social interaction across multiple ages, with some children having no friends outside of the home and struggling to interact with peers. One parent provided insight into their perspective on having children with autism spectrum disorder,

> "My children have ASD and thrive on routine. The youngest is very social and was more prone to meltdowns of not being able to interact with others outside of our household. Oldest is not very social and we had worked very hard to get her used to social settings. She struggles interacting with people and has to relearn a lot of her skills when transitioning back to social environments (like school)." (Anonymous parent of a child with a disability, 2021)

Another parent highlighted,

> "The baby was in lockdown during the stranger danger phase where you introduce babies to others to remove the fear, instead now we have a baby who is scared of anyone except us. The 8 year old suffers from ADHD, she has trouble with social skills and we cannot work on those skills when we cannot be around people." (Anonymous parent of a child with a disability)

Lack of socialization with other children was a major concern for many parents. However, another theme was *reduced socialization due to being an only child*, as children with siblings may have had opportunities to interact with children, although minimal compared to pre-pandemic, whereas an only child would not have this same opportunity. One parent commented,

> "He is an only child so not engaging with children for almost a year really set him back when it came to his social and emotional skills. For this reason we decided that when pre primary started up and schools opened he would be attending. When he started he was unsure how to facilitate play with other children. He had a hard time with how to react to other people feelings and regulate his own when at school." (Anonymous parent of a neurotypical child, 2021)

Another parent responded,

> "As a single child, the lack of time with other children playing and interacting is significant. Also, we (parents) have limited time due to work requirements, so even though we do our best, it isn't sufficient. The effect is obvious and sad, starting with behavioural and then more antisocial." (Anonymous parent of a neurotypical child, 2021)

One other theme that emerged was *decreased emotional wellbeing, increasing anxiety, sadness and social fear*. Parents reported that their children experienced increased fear of others, anxiety, and sadness due to the pandemic. Young children just beginning to overcome their fear

of people became more fearful because of prolonged isolation. Many parents observed heightened sadness and signs of anxiety, such as increased tantrums, self-doubt, and fear of others and the world around them. Some children struggled to understand why they couldn't see family members, leading to anxiety about sickness and abandonment, and becoming overly attached to caregivers. According to parents, some children developed severe anxiety, requiring professional therapy. Overall, children faced challenges with isolation, loneliness and difficulties reintegrating into social environments, which increased their anxiety and emotional struggles. One parent shared,

> "When he was out of daycare routine for 6 months he began having anxiety to going back to daycare. No issues going to daycare previously because he was in a routine. With 6 months out of going and staying home with father or grandparents. He would make himself vomit every morning before going to daycare. 7 months later still has anxiety to go and will vomit time to time saying he doesn't want to go and wants to stay home." (Anonymous parent with a neurotypical child, 2021)

As one other parent noted,

> "My son is now anxious when there are multiple children at the playground, he gets upset when someone gets in our space. He used to cry and long for community spaces like libraries, pools, museums but I think he forgets now that was the norm. He doesn't get to see his teachers faces at school which impact how they respond to teacher's words and body language. He was having trouble initiating play for the fall because he had gone so long without playing with other children." (Anonymous parent of a neurotypical child, 2021)

Impact on Physical Development

There was a notable difference in how parents of children with disabilities and parents of neurotypical children perceived the impact on physical development. An evident theme for physical development was *increased outdoor play and physical activity.* This theme occurred primarily in the neurotypical group, as only one parent of a child with a disability reported a positive impact, mentioning increased physical activity in the summer. In contrast, parents of neurotypical children frequently mentioned more outdoor play and physical activity. Some of these parents commented on their children exploring the outdoors more and being more active at home throughout various activities. Despite this, positive responses regarding physical development were minimal compared to the other areas of development.

The two themes that emerged based on parents' responses in both groups were *reduced physical activity due to recreation activities and sports,* and *increased screen time.* These two themes were often interrelated throughout the responses as one influenced the other. Parents expressed concerns about increased screen time and its negative impacts on their children's physical activity as well as social development. Numerous parents working from home noted their children were less physically active. Other parents highlighted their children's increased reliance on electronics for their only social interaction, which led to setbacks in social and communication skills. Parents attributed the rise in screen time and decreased physical activity to the demands of working from home and pandemic-related stress, which also resulted in increased anxiety and attention-seeking behaviours in children. One parent expressed their concern:

> "The lockdown after the pandemic restricted all activities, and although her screen time increased, it did not make her happier as it is not the type of activities that interest her.

> Even after she went back to school, we stopped going to any indoor group activities." (Anonymous parent of a child with a disability, 2021)

Another parent shared:

> "We struggled as we lived in an apartment for most of lockdown. When parks and playgrounds closed we not longer had any access to green space/outdoor play, which impacted our daughters sleep (not as tired at night), and increased screen time." (Anonymous parent of neurotypical child, 2021)

Discussion

The current study aimed to address three questions. The first was about the prevalence of parents reporting negative and positive impacts of the COVID-19 pandemic on their children's development. The results indicated that for families living in the Atlantic provinces, social and emotional development was the area most negatively impacted for young children. The second question explored whether there was a difference between the developmental impact of the COVID-19 pandemic between children with disabilities and neurotypical children. The results indicated that disability status was weakly associated with physical development and social and emotional development, whereas it was moderately associated with language and communication development. Despite the weak association, social and emotional development remained the area of greatest impact for both groups, with 55% of the parents of children with disabilities and 45% of the parents of neurotypical children believing it was negatively impacted. This developmental area also dominated the qualitative responses, possibly explaining the weak association due to its significant impact on all children. Additionally, parents of children with disabilities perceived the pandemic to have had a greater impact, both positively and negatively, across all areas. The final question examined families' perceptions of developmental changes in children through

qualitative responses, providing a better understanding of the associations found in the previous research question.

For language and communication, disability status was found to have a moderately strong relationship with these developmental areas. For this developmental area, it was found that numerous complex factors influence language and communication development. An example of this was when investigating the qualitative responses, parents of neurotypical children perceived increased learning at home due to more family time as a positive impact. This perception could explain the difference, as these parents might have mitigated the negative impacts on their children's language and communication through explicit teaching. In contrast, this perception was not shared by parents of children with disabilities. These children often require more of their parents' time for daily living activities and academic support than neurotypical children (Greenlee & Reid, 2020). Additionally, many parents of children with disabilities had to independently manage their children's needs, which were previously supported by various services (Cacioppo et al., 2021). This increased demand for parents' time and support may explain why the additional family time was not perceived as a positive impact on academic learning, given that many other responsibilities are equally as important to the child's well-being. Bronfenbrenner's (1977) theory contributes context to understanding the reciprocal relationship between an individual and their environment. The alignment between the qualitative and quantitative results highlights the complex interplay of factors influencing language and communication development. Quantitative data demonstrated the impact of disability status, while the qualitative responses provided context, showing how the perceived benefits of increased family time varied significantly based on the child's needs and the parent's ability to provide support.

As reflected in the responses, increased screen time and decreased physical activity were recurring interrelated themes; these have also been identified in previous studies (Seguin et al., 2021; Toombes et al., 2022; Velde et al., 2021). Velde et al. (2021) found that children were less physically active and had higher screen time during and after school closures due to lockdowns, suggesting these closures may have a lasting impact. Another study builds further understanding related to the effects on emotional well-being during the pandemic, showing that increased screen time was associated with higher levels of depression and anxiety in older children and with higher levels of conduct problems, hyperactivity and inattention in younger children (Toombs et al., 2022). According to Seguin et al. (2021), although media screen time increased in all children by an average of 3.2 hours a day following school closures, higher levels of parent stress were associated with significantly more hours of screen time in children. This finding aligns with responses from parents, who attributed the increase in screen time to pandemic-related stress and work demands.

Also, decreased emotional well-being was a common theme in the responses from families, with increased levels of anxiety, loneliness, sadness, and behavioural outbursts frequently reported. This is like findings from other studies highlighting trends of rising depression and anxiety among children and adolescents (Xie et al., 2020; Fortuna et al., 2023). One study indicated that preschoolers experienced a significant increase in angry and irritable mood and argumentative or defiant behaviour, while adolescents showed a great rise in emotional problems, and school-aged children demonstrated an increase in both behavioural and emotional issues (Schmidt et al., 2021). This decreased emotional well-being will impact school services, specifically the services school psychologists will need to provide to support the influx of children facing mental health problems.

The Collaborative for Academic, Social and Emotional Learning (CASEL, 2023) provides a comprehensive social and emotional learning (SEL) framework to foster skills and build environments that support learning and development. According to CASEL (2020), “Social and emotional learning (SEL) is an integral part of education and human development.” The CASEL 5 model outlines five key areas of competence: self-awareness, which involves understanding one’s own emotions and thoughts; self-management, focusing on managing emotions, thoughts and behaviours effectively; social awareness, which entails understanding and empathizing with the perspectives of others; relationship skills, which involve building and maintaining healthy relationships; and responsible decision-making, which encompasses making caring and helpful choices about behaviour and social interactions (CASEL, 2023). Building these competencies is more challenging without interaction and the socialization of other children. As highlighted by preschool teachers worldwide who shared their insights into the impact of school closures on their students' social skills, highlighting a decrease in friendships, peer learning, communication, and opportunities for play and socialization with peers (Watts & Pattnaik, 2022). Referring to Bronfenbrenner’s (1977) framework, SEL programs could be implemented at the mesosystem level, with efforts tailored across different contexts to meet the specific needs of communities and children through their interactions within those settings. These programs should not exist on a microsystem level, as bridging learning through multiple contexts such as home, school, and the community would be more beneficial for optimal learning opportunities.

Despite being five years since the pandemic began, research on its continued impacts remains relevant, particularly concerning the current state of the school system and student well-being. In Newfoundland, a recent news article detailed how the Newfoundland and Labrador

Teachers' Association union reported unprecedented levels of violence in schools. Incidents have increased from 20 per day five years ago to 29 per day in the first three months of the 2023-2024 school year (Mullin & Kennedy, 2024). Similarly, the P.E.I. Teachers' Federation reports that rising violence is contributing to a staffing shortage (Stewart, 2024). Additionally, a survey by the New Brunswick Teachers' Association found that nearly half of the respondents of school staff experienced physical or verbal violence (Rudderham, 2023). This increased violence trend aligns with the findings in Nova Scotia. A 2023 survey by the Nova Scotia Teachers' Union revealed that 87 percent of teachers believe school violence has risen since 2018, with 92 percent witnessing the violence firsthand. Notably, 84 percent of this violence was student-to-student (Cooke, 2023). Another report highlighted 17,234 incidents of physical violence during the 2022-2023 school year, the highest recorded to date, with 77 percent occurring in classes up to grade 6. This is particularly concerning since these grades are the time to focus on developing social interactions, self-regulation, and building social-emotional skills. The president of the Nova Scotia Teachers' Union noted that the increased violence is not attributed to a single cause but rather a combination of factors, including mental health issues from the pandemic and a lack of services, as well as increased poverty (Gorman, 2023).

The large number of incidents involving children in grades six or below in Nova Scotia is particularly important to note. The parents of the children in this current study were surveyed in 2021 when their children were eight years of age or younger. The oldest children would now be in grade 6, with the youngest prepared to start school. This makes the incidents of violence highly relevant to the negative impact on social-emotional skills that parents observed during the pandemic. While this does not prove that deficits in social-emotional skills from the pandemic

led to increased violence, it does provide a plausible explanation that can be addressed to help remediate the issue.

A Durlak et al. (2011) meta-analysis found that social and emotional learning (SEL) programs positively affect students by enhancing their social-emotional competencies and attitudes toward themselves, others, and school. These programs improved students' behaviour, specifically increasing prosocial behaviour, reducing conduct and internalizing problems such as anxiety or depression, and boosting academic performance and achievement. Given the current study's findings on the perceived negative impact on social and emotional development and the prevalent violence in the Atlantic province schools, implementing SEL is crucial to start addressing these issues. Durlak et al. (2011) noted that classroom teachers can effectively conduct SEL programs by integrating them into their teaching. Additionally, involving other school staff in SEL implementation across all educational levels can be beneficial. School psychologists can play a vital role in delivering SEL teaching and interventions. Their roles in the school include prevention and intervention at three tiers. Tier 1 focuses on all students, fostering learning and mental health, including SEL. Tier 2 targets students at risk for learning or mental health difficulties. Tier 3 involves academic, behavioural or psychosocial interventions for students with disabilities or mental health disorders (Canadian Psychological Association, n.d). SEL falls within the scope and role of school psychologists, and the increasing number of children experiencing social and emotional difficulties or mental health disorders will significantly impact psychologists' role in the school system.

This study contributed to the current literature by providing the developmental impacts of the COVID-19 pandemic on children and through context in the qualitative responses. Previous studies have examined the developmental impacts on children in Canada. However, they do not

often include both neurotypical children and children with disabilities, focusing instead on the overall group of children. By employing a mixed-method approach, this study provided details for why the impacts on children with disabilities were different but not as pronounced, given the overall negative impact on social and emotional development across both groups. Interestingly, parents of children with disabilities did not emphasize specific themes in their responses relevant solely to children with disabilities. In contrast, responses from parents of neurotypical children indicated reasons for some of the positive impacts seen in that group, which were not found in children with disabilities. This comprehensive approach highlights the importance of considering diverse experiences to understand better and address the varied impacts the pandemic has had on children's development. Additionally, this study emphasizes the need for heightened focus and awareness on specific developmental areas requiring attention to promote enhanced healthy development as children transition through the school system and into society.

Strengths and Limitations

One strength of this study was its use of a mixed methods approach. Through quantitative analysis, differences were identified in the frequency of parents' responses. However, the qualitative responses provided more profound insight into the meaning behind the quantitative data. This approach offers a richer understanding of how parents perceive their children's development. It highlights what they found most important to discuss when asked about positive, negative and overall impacts on their children's development. A limitation of this study was that it was conducted at a single point in time rather than being a longitudinal study. Future research could address this by tracking developmental changes over time. Despite being a single snapshot, the study captures an essential period with impacts still felt worldwide, especially among children. Another limitation is that, in the quantitative responses, parents answered questions

based on all their children collectively. This may have led them to focus on the most impacted child, potentially overlooking siblings' differences. However, in the open-ended questions, parents could explain any differences between their children. One limitation is that the responses were provided from parental perspectives, which means there are no direct observations of children and their development. Also, since the parents answered whether their child identified with any of the listed disabilities, therefore it cannot be conclusively determined that the child had a formal diagnosis of that disability. It should be noted that one survey may not capture the experiences of all populations, making it essential to be mindful of underrepresented groups. Future research and funding should focus on community-led initiatives, adding value to the collective evidence by representing a broader range of individuals and their unique experiences.

Conclusion

In conclusion, this study highlights the multifaceted impacts of the COVID-19 pandemic on children's development across language, communication, social and emotional, and physical domains. The findings demonstrate significant interruptions to children's routines, physical activity levels, academic achievement and social interactions due to prolonged lockdowns and school closures. These disruptions led to notable changes in parents' perspective of their children's decreased physical activity, increased sedentary behaviour and screen time, and language acquisition and social communication challenges. The pandemic also exacerbated mental health issues in many children, with parents reporting heightened levels of anxiety, depression and stress among children. However, it is crucial to recognize the adaptability of some children, who experienced positive impacts such as increased family bonding, leading to improved language skills and increased connection within families. Also, surprisingly, for children with disabilities, parents did not report specific negative impacts from the qualitative

responses, although some themes were relative to only neurotypical children. Positive impacts for neurotypical children included improved academic and language skills based on at-home teaching and increased happiness and confidence due to decreased social interaction. Understanding these varied impacts is essential for developing targeted interventions and support systems to mitigate the negative impacts and foster the positive aspects of children's development in the post-pandemic era. School psychologists are responsible for providing interventions and support to children. Therefore, they may have an opportunity to have the most significant impact on children.

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