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Understanding the Impact of COVID-19 on the Mental Health of Children with Attention Deficit Hyperactive Disorder and their Families

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education

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Abstract

In March 2020, the world entered a state of lockdown due to the COVID-19 pandemic. The isolation caused by the pandemic had an unprecedented effect on the lives and general wellbeing of individuals worldwide. The present study engaged 15 children with diagnosed Attention Deficit Hyperactive Disorder (ADHD) and their parents in virtual interviews in order to explore the unique ways that the COVID-19 pandemic affected their mental health and the specific barriers they faced to maintaining optimal mental health. A thematic analysis revealed that the most frequently identified mental health effects were increased child anxiety and disconnectedness, as well as deteriorating parental mental health. The most frequently identified barriers to maintaining optimal mental health were lack of routine, lack of social interaction and social supports, and uncertainty and fear. This research identified areas of need during times of social isolation, specifically in families with children with ADHD, and is intended to help create safeguards to support mental wellbeing during times of crisis.

Keywords

COVID-19

Pandemic

Attention Deficit Hyperactive Disorder (ADHD)

Children and Youth

Parents

Mental Health

Barriers

Recommendations

Summary for Lay Audience

The COVID-19 pandemic obliged families to stay at home and isolate socially for several months beginning in March 2020. This required children to learn virtually from home, and many adults to work from home. The pandemic had unprecedented effects on the mental and physical wellbeing of individuals worldwide. It also created several barriers to maintaining optimal levels of mental and physical wellbeing. Recent research has shown that the restrictions during the COVID-19 pandemic resulted in significant consequences including increased psychosocial problems, fear, anxiety, depression, stress, panic, and social isolation. The social isolation experienced by individuals throughout the COVID-19 pandemic is of great concern. Past literature has shown that loneliness can affect child development and result in feelings of depression, anxiety, and other mental and physical health concerns.

The findings mentioned above are of particular interest regarding children with a diagnosis of Attention Deficit Hyperactive Disorder (ADHD) due to their predisposition to experiencing comorbid mental health issues. Some of the most common comorbid diagnoses are depression and anxiety disorders. Due to this predisposition, it is important to consider how these comorbidities might be affected by the COVID-19 pandemic.

The present study aimed to explore the effects of the COVID-19 pandemic on the mental health of children with ADHD and their families, as well as the unique barriers they face to maintaining optimal mental wellbeing. These issues were explored through conducting interviews with 15 children-parent pairs that asked them about their own experiences during the pandemic. The most frequently identified mental health effects were increased child anxiety, increased child depression, and feeling disconnected. The most frequently identified barriers to maintaining optimal mental health were lack of routine, lack of alone time, and lack of social

interaction. Results from this study will hopefully help better support children with ADHD and their families through a pandemic.

Acknowledgements

It is with great honour that I write my acknowledgements for all of those who have supported me through my academic journey. I am sincerely appreciative to each individual who has helped me throughout this special and meaningful process.

I would first like to thank my entire family for their support, encouragement, and investment in my education that has helped me reach this milestone. Thank you to my parents, Evy and Elliot, I am grateful to have you as role models, and I hope to continue to make you proud. Thank you to my partner, Jonathan, for his endless support and for uplifting me. Thank you to my siblings Hailey and Jordan. I would also like to thank my grandfather and my late grandmother for their love and investments in my education.

I would also like to thank my academic mentors for their guidance and for helping me with this opportunity. Thank you to Dr. Jason Brown and Dr. Susan Rodger for providing me with the opportunity to learn in the Counselling Psychology program and for allowing me to strive to achieve a career in which I can help others. Thank you to Alexis Winfield for supporting me through several stages of research, for presenting alongside me in conferences, and most notably for her part in creating this incredibly important research project. Most particularly, thank you to my supervisor, Dr. Barbara Fenesi, for guiding me through my dissertation and providing support throughout the journey.

Lastly, thank you to all my peers and friends who have been a source of encouragement and guidance. I am very lucky to have such amazing people in my life and would not have reached this milestone without them.

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Understanding the Impact of COVID-19 on the Mental Health of Children with Attention Deficit Hyperactive Disorder and their Families

In January of 2020, the Novel Coronavirus Disease (COVID-19) broke out in China and quickly spread worldwide, causing substantial morbidity and mortality (Muruganandam et al., 2020). By March 2020, the world entered a state of lockdown to slow down the spread of the virus. With schools and businesses closed down, Canadians were required to stay in their homes and socially isolate from other households. This resulted in adults working from home, as well as students learning from home, presenting many unique mental and physical health challenges for individuals. The present study aimed to identify the impact of the pandemic on the mental health of children with Attention Deficit Hyperactive Disorder (ADHD) and their families.

The Impact of COVID-19 on Mental and Physical Wellbeing

The health threat of the pandemic has had an unprecedented impact on the mental and physical wellbeing of individuals all over the world (Arslan et al., 2020). Since the outbreak of COVID-19, there has been an increase in psychosocial problems, including fear, anxiety, depression, stress, panic, and social isolation (Arslan et al., 2020). Yildirim and Arslan (2020) found that fear of Coronavirus has a direct impact on depression, stress, and anxiety. In a study of the Chinese population aimed to understand the impact of the COVID-19 pandemic, the results showed that in lockdown, 29% of respondents reported suffering from different forms of anxiety, more than one third were experiencing different forms of depression, and many were experiencing overall lower mental wellbeing (Ahmed et al., 2020). A central element that many people have been experiencing throughout this pandemic is a lack of knowledge surrounding the spread and the course of the virus, causing many to fear the unknown. This fear can potentially predict both mental and physical health outcomes including psychological distress, mental health

disorders, and poor physical health (Shigemura et al., 2020). In addition to the health fears and fears of the unknown surrounding COVID-19, social isolation from other households has increased the risk of developing mental health problems. The confinement measures, and the associated loneliness, has also been shown to re-aggravate pre-existing mental issues due to susceptibility to stress (Muruganandam et al., 2020).

Social Isolation, Loneliness, and Its Impact on Wellbeing

Social isolation due to COVID-19 restrictions poses a large threat to individuals. In fact, loneliness that is related to situational factors, such as social distancing measures during the pandemic, is potentially longer-lasting detrimental both behaviorally and physiologically (Hawkley et al., 2015). In a review of research on social isolation, Hawkley et al. (2015) summarized several adverse health consequences of loneliness at each developmental stage of life. Experiences of social isolation in later childhood and early adolescence (ages six to 12 years) can result in deficiencies in connectedness, feelings of depression, anxiety, and somatic symptoms (Hawkley et al. 2015). A study conducted by Qualter et al. (2010) tested children for loneliness at ages five and nine, and for depression at ages nine and thirteen. The researchers found that those who displayed persistent loneliness at ages five and nine predicted higher levels of depressive symptoms at age 13. Similarly, in a 32-year prospective longitudinal study of a representative birth cohort, results showed that exposure to adverse psychosocial experiences in childhood increased risk of depression later in life, among other age-related diseases in the stress-sensitive biological systems (Danese et al., 2009).

Another consequence of social isolation is poor sleep patterns (Hawkley et al. 2015). Harris et al. (2013) found that adolescent participants experiencing relatively high levels of loneliness had more difficulties sleeping, took longer to fall asleep, and were more likely to wake

throughout the night than participants who had lower levels of loneliness. Furthermore, loneliness has been shown to decrease executive functioning, including self-control and time management (Hawkley et al., 2015; Masi et al., 2011). The symptoms of depression, sleep dysfunction, and poor executive functioning experienced by socially isolated children and early adolescents are similar to symptoms and comorbidities of children with ADHD, which gives reason to believe they may be uniquely affected by COVID-19 (Elia et al., 2008; Gillberg et al., 2004; Larson et al., 2011; Tandon et al., 2019; Tandon et al., 2021).

ADHD and Its Effects in Children

ADHD is a neurodevelopmental disorder characterized by inattention, over-activity distractibility, and impulsiveness (American Psychiatric Association, 2013). It is one of the most prevalent cognitive and behavioural disorders in children in the U.S., as at least four to seven percent of school-age children meet the diagnostic criteria for ADHD (Mirsky & Duncan, 2001; Gillberg et al., 2004; Larson et al., 2011). The literature has consistently shown that there are several comorbidities associated with ADHD in children; for example, two thirds of U.S. children diagnosed with ADHD have impairing comorbid conditions, and one fifth have three or more diagnosed comorbidities (Elia et al., 2008; Larson et al., 2011). The Canadian ADHD Practice Guidelines recognized major depression as a common comorbidity of ADHD in children and adolescents (Turgay et al., 2016). Some of the most common co-occurring diagnoses with ADHD are Oppositional Defiant Disorder (ODD), Minor Depression/Dysthymia (MDDD), and Generalized Anxiety Disorder (GAD) (Elia et al., 2008). Consistent with these findings, Gillberg et al. (2004) identified Developmental Coordination Disorder (DCD), ODD, Conduct Disorder, depression, anxiety, Bipolar Disorder, Tic Disorder, Obsessive Compulsive Disorder (OCD), Autism Spectrum Disorder (ASD), and substance abuse as potential co-existing disorders to

ADHD. In addition, Larson et al. (2011) found that 14 percent of children with ADHD experienced depression versus one percent without ADHD, and 18 percent experienced anxiety versus two percent. In addition to these comorbidities, 70% of youth with ADHD have struggled with bedtime resistance and falling asleep (Sung et al., 2008). Further, while physical activity has been shown to be effective in managing ADHD symptoms in children (Schoenfelder & Sasser, 2019; Pontifex et al., 2014), research has indicated that children with ADHD typically do not participate in optimal levels of physical activity (Cook et al., 2015; Tandon et al. 2019). This is concerning in the times of the COVID-19 pandemic, as recent research has indicated that children specifically have experienced decreased levels of physical activity participation during the pandemic (Pelletier et al., 2021; Yomoda & Kurita, 2021; Perez et al., 2021). It is important to note that many of the comorbidities to which children with ADHD are susceptible may be exacerbated during the pandemic, as we are not yet aware how the lack of knowledge, fear, and social isolation associated with COVID-19 may affect children with ADHD.

The Current Study

Aims

The literature on social isolation and comorbidities of ADHD is quite comprehensive. However, there is a need to understand how children's symptoms and potential comorbidities of ADHD interact with the social isolation and other effects of COVID-19. Prior to the pandemic, children with ADHD were already at risk for experiencing depression, anxiety, and sleep dysfunction, which may have been exacerbated due to COVID-19 and being homebound (Elia et al., 2008; Gilberg et al., 2004; Larson et al., 2011; Tandon et al., 2019; Pontifex et al. 2014; Pontifex et al., 2013; Arslan et al., 2020). The current study aimed to understand the effects of

the pandemic on children's and families' mental health, and to inform how they can better supported through these unprecedented and challenging times moving forward.

Research Questions

The following research questions were explored:

1. How has the COVID-19 pandemic impacted the mental health of children with ADHD and their families?
2. What are the barriers to maintaining optimal mental health for children with ADHD during the COVID-19 pandemic?

Methods

Participants

Parents or guardians of children with ADHD who have previously participated in past studies with the Working to Enhance Brain and Body Research (WEBB) lab at Western University and provided contact information for future studies were contacted and recruited for the present study. The OurBrainsCAN: Western University's Cognitive Neuroscience Research Registry was also utilized to recruit participants for this study. Additionally, snowball sampling was used by asking participants if they knew of any other families with a child with ADHD who would be interested in participating.

Participants were recruited until there were 15 parent-child dyads. To be eligible for this study, the parent participants must have had a child between the ages of seven to 12 years of age with an ADHD diagnosis who was living with them for at least some of the time during the COVID-19 pandemic. While parent participation was mandatory, child participation was not.

Procedure

Study participants (parents and their children) were recruited via a scripted email (see appendix A). Parents were sent the letter of information (see appendix B), consent form (see appendix C), and assent form (see appendix D) via email to read and sign prior to participating in the study. Participants were given the opportunity to ask any questions that they may have about the study. After signing the consent and assent forms, participants were assigned a unique study ID number and filled out a demographics survey online through Qualtrics (see appendix E). This survey was optional and did not affect their eligibility to participate in the interview portion of the study.

Following the demographics questionnaire, parent and child participants participated virtually in a semi-structured interview with a researcher via Western Zoom. The interviews lasted approximately one hour for the parent interview and 30 minutes for the child interview, and the researcher followed an interview guideline (see appendix F). The child's participation in the interview was not mandatory, however, it was appreciated as it further contributed to the data. Both parent and child participants were compensated for their time in the form of a \$10 Amazon gift card following their interviews.

Materials

Online Survey

The first portion of the study was an online survey completed through Qualtrics, which is an encrypted platform that will restrict access to protect all collected data. The purpose of the online questionnaire was to collect demographic information. The survey asked for information such as age, gender, income, race, education, as well as questions specified to gather data on the child participant's ADHD diagnosis.

Semi-structured Interview

The second portion of the study was a recorded and semi-structured interview, with both the parent participants and the child participants. Fifteen child participants and 15 parent participants engaged in the interviews. Due to COVID-19, all interviews were conducted virtually via Western Zoom.

The first section of the parental interview touched on the unique barriers for their children during the pandemic due to their ADHD diagnosis, and whether there had been changes in the presenting symptoms associated with their child's ADHD. The second section of the parental interview focused on questions relating to mental health. The questions aimed to gather

information on their own mental health and their child's mental health before and during the pandemic, as well as any barriers to maintaining optimal mental health that they faced. Examples of the questions included "How was your mental health prior to the COVID-19 pandemic" and "Since the COVID-19 pandemic, have you noticed any changes in your child's mood?" The child interview was broken up into two sections. The first asked for demographic information of age and gender. The second section was related to their experiences with COVID-19 and asked questions including "How do you feel about the COVID-19 pandemic?" and "What is the hardest part about dealing with the COVID-19 pandemic?"

Qualitative Data Analysis

A post-positivist paradigm was used in the collection and analysis of the data in the current study. The data collected from the participant interviews was analyzed qualitatively using a content analysis, which is a technique used to compress texts into content categories based on explicit codes, and is useful for examining trends and patterns in documents (Weber, 1990; Stemler, 2000). According to Weber (1990), a category is "a group of words with similar meaning of connotations." The content analysis aimed to identify, analyze and report common themes from the audio-recorded interviews with both parent and child participants. The analysis was used to analyze the interview transcripts to identify the effects that the pandemic had on the mental health of children with ADHD and their families, as well as the unique barriers to maintaining optimal mental health that were faced. Digital recordings of the interviews were transcribed verbatim using a professional transcription service. The transcribed interviews were read and anonymized prior to coding and analysis. All interview transcripts were inputted into Dedoose (V.8.1.8), a qualitative computer software program to analyze the information regarding the effects of the COVID-19 pandemic and barriers faced.

Emergent coding was used in the current study, whereby categories were established following preliminary examination of the data from the interviews, according to the steps outlined by Haney et al. (1998). To do so, two researchers independently reviewed the transcripts then developed and discussed a preliminary codebook for the data to categorize the interview content into meaningful groups based on theoretically derived themes. The preliminary codebook was then applied to the 15 participant interviews. After establishing the preliminary codebook, the final codebook was finalized by going through the transcripts again. In order to establish interrater reliability, the researchers met and discussed each excerpt applied to a theme for the first three interview transcripts. Any coding discrepancies were reviewed and discussed, and final coding decisions were made. Once the reliability was established, the codebook (see appendix G) was applied to the rest of the transcripts. Consultation on the remaining 12 interview transcripts was done as needed.. The analysis generated the significant themes as results with explanations from participants in order to illustrate key findings, which can be found below.

Ethical Considerations

The proposed study protected the human participants by following appropriate ethical principles. Ethical approval was granted by Western University's Non-Medical Research Ethics Board. Researchers ensured that the study was conducted according to approved protocol. Researchers were trained to follow the study procedures and to conduct the interviews according to an interview guideline. There were many ethical considerations in this study regarding voluntary participation, informed consent, protection from undue harm, and ability to withdraw from participation, privacy and anonymity.

Participants were able to partake in the present study voluntarily, free from coercion, and were given a letter of information to provide informed consent. Additionally, children completed an assent form in order to ensure that they were informed about the study. Participants were free to withdraw from the study at any time throughout the process, and choosing to withdraw did not impact the participant negatively in any way. They were not required to provide reasoning for withdrawing, nor were they pressured to continue. Additionally, since the present study included children, a vulnerable population, the study followed the principles of fairness, justice and equality within research (Canadian Institutes of Health Research et al., 2018).

In order to protect the privacy and anonymity of participants, they were assigned a unique participant ID number that was tied to their demographic questionnaires and interview audio recordings. Any video recordings of participant interviews were destroyed immediately following the interview. A password-protected Participant Masterfile was the only file with identifying participant information and their associated ID numbers and was only accessible by the researchers involved in the study. The demographic data collected from the survey and the interview transcripts was de-identified and anonymized, and all identifiable information was stored separately.

There were no foreseeable potential risks, harms, vulnerabilities, or inconveniences as a result of participating in this study. As some of the questions in the interview portion involved sensitive matters, researchers provided a safe space for participants to voice their experiences. Participants also had the option to omit any information while answering the questionnaire or during the interview. Additionally, as children are a vulnerable population, extra care was taken to respect their dignity and wellbeing; thus, child participation was not required for parents to participate. This study did not include any deceptions, and did not require a debrief following

participation. Throughout the study, researchers ensured that they adhered to ethical standards and that participants did not experience any harm.

Trustworthiness

Multiple measures were implemented to ensure the trustworthiness of the present research through considering credibility, dependability, and transparency. In order to ensure credibility, investigator triangulation was used. Multiple investigators took part in the research process, particularly in the data analysis stage. This contributed to credibility by confirming findings across multiple investigators and by minimizing any research bias (Denzin, 1978). Dependability was promoted by creating explicit and repeatable methods through the use of recruitment scripts and interview guides. Detailed methodology and research processes were recorded throughout the research process. In order to remain transparent, it is important to reflect upon my own biases and how my personal experiences may influence the research process and the interpretation of the data. My experiences throughout the COVID-19 pandemic are related to the current research, as I was staying at home in isolation and had experiences that were similar to participants in the present study. Additionally, I know children in my personal life who are diagnosed with ADHD. I acknowledge that my own experiences throughout the COVID-19 pandemic and my relationship to other children with ADHD present an implicit risk of bias that may have impacted the ways interviews were conducted, or how the data was interpreted. To manage these risks, it was necessary to review the data with other investigators.

Results

The present study aimed to answer two research questions exploring the effects of the COVID-19 pandemic on the mental health of children with ADHD and their families, as well as to determine the unique barriers to optimal mental health for these individuals. The results are divided into two sections, each representing its corresponding research question. Both of the research questions are represented as a topic theme with subthemes that were generated from data analysis. Themes and subthemes are presented in the order of highest frequency of occurrence, which is defined by the number of times the theme was cited by the research participants in their interviews. Quotations from the interviews will be provided in the following sections to illustrate the themes found within the responses of 15 participants identified as children and parent dyads where the children have a diagnosis of ADHD.

Demographics Questionnaire

Table 1 provides a summary of the results from the demographics questionnaires.

Table 1

Results of the Demographics Questionnaire

<i>Gender of child</i>	
Male	12
Female	6
<hr/>	
<i>Age of child (Mean)</i>	10.16
<hr/>	
<i>Gender of parent</i>	
Male	2
Female	13
<hr/>	
<i>Race of parent</i>	
Caucasian	14
Black	1
<hr/>	
<i>Education</i>	
Some college	1
College	4
Post grad/professional	7
<hr/>	

<i>Income (family)</i>	
20,000-30,000	1
80,000-90,000	1
90,000-100,000	2
100,000+	5
Prefer not to say	6
<i>Comorbid neuro (child)</i>	3
<i>Comorbid mental (child)</i>	3
<i>Comorbid physical/auditory/visual</i>	4

Research Questions 1: How has the COVID-19 pandemic impacted the mental health of children with ADHD and their families?

Table 2 provides a summary of the ways in which the COVID-19 pandemic has affected the mental health of children with ADHD and their families. The most frequently identified mental health effects were increased child anxiety, disconnectedness, and negative impacts on parental mental health.

Table 2

Frequency of the COVID-19 Pandemic's Impacts on Mental Health

Theme	Frequency (n)
<i>Increased Child Anxiety</i>	53
Fear of COVID-19	15
Attachment	9
Difficulty Navigating Online Learning	6
Lack of Structure and Routine	4
<i>Disconnectedness</i>	41
Social Isolation	27
<i>Deteriorating Parental Mental Health</i>	35
Lack of Social Support	11
Difficulty Managing Parenting Duties	7
Parent-Led Schooling	7
Increased Parental Anxiety	4
Change in Routine	3

<i>Increased Child Depression</i>	13
Grief	2
Lack of Goals	1
Concern	1
<i>Increased Calm</i>	7
Family Time	4
Reduced Stress	3
<i>Uncertainty</i>	6
School and Online Learning	1
Future	1
<i>Improved Child Mood</i>	5
<i>Decrease in Child Self-Efficacy</i>	1

Theme 1: Increase in Child Anxiety (Frequency 53)

Parent participants expressed that their children experienced an increase in anxiety during the COVID-19 pandemic. Regarding child anxiety, the four prevalent subthemes were attachment, difficulty navigating online learning from home, lack of structure and routine, and fear of COVID-19. Below is an example that illustrated the increased anxiety that children experienced throughout the pandemic.

He is more anxious, highly anxious. He has a lot of symptoms of anxiety, super anxious all the time. He just panics. He panics about anything. He's afraid about a lot of things. He's very confused about the pandemic, like one hundred and fifty percent confused.
(Participant 6, parents, female)

Subtheme 1a. Fear of COVID-19 (Frequency 15). Participants described a fear of COVID-19 as a contributor to increased child anxiety. This theme included factors such as the fear of contracting COVID-19 themselves, as well as loved ones contracting COVID-19. The following excerpts illustrate the fear experienced by participants.

I know that there is a kid in school whose their relative got the virus... It's sad to know that lots of people are just dying because of the sickness, which today normally you

wouldn't think that would really hurt someone or make them pass away, but it's something that happens every day for lots of people. (Participant 8, child, male)

He has gone through some phases of increased anxiety, I'd say, especially at the beginning of the pandemic. And that took a long time to understand what was behind that. I worked in health care and was redeployed to an area of working with people where the exposure would be a higher risk. And I didn't realize that he was even aware of what the implications were until one day he burst into tears and said that he didn't think he would like living in an orphanage. And I was like, wow. (Participant 11, parent, female)

Subtheme 1b. Attachment (Frequency 9). Participants described the children's attachment as having been affected negatively during the pandemic in a way that contributed to increased child anxiety. This subtheme of attachment included factors such as spending too much time together, separation anxiety, and trouble sleeping alone. These components of attachment issues are illustrated in the excerpt below.

He's not able anymore to sleep by himself in his own room... His anxiety level has been ramping up. But I think it's definitely spiked during COVID and attachment issues, I would say, are a result of it just being the two of us and spending so much time together. (Participant 1, parent, female)

Subtheme 1c. Difficulty Navigating Online Learning from Home (Frequency 6). Participants reported experiencing increased child anxiety due to the difficulty of navigating online learning from home when the COVID-19 pandemic forced schools to close and to subsequently adapt a virtual learning platform. Both parent and child participants described online learning as a challenge in their interviews. This theme included issues with technology, lack of one-on-one teacher support, conflicting parental work schedules, and insufficient instruction for the virtual platform. Additionally, the children's ADHD was often cited as an extra barrier to online learning, further contributing to increased child anxiety. Below is an example that illustrated the difficulty of navigating learning from home.

It's like it came at a hard time where guess what? She really needs us. It's not just the ADHD. It's all the other stuff. It's a very volatile situation. Really stressful because now

all of a sudden, your parents are teaching you and all of your shortcomings are becoming very evident. And so, the stress, right? That was a really difficult thing to do. (Participant 3, parent, female)

Subtheme 1d. Lack of Structure and Routine (Frequency 4). Participants described a lack of structure and routine for the children as a contributing factor to increased child anxiety, especially as routine is essential for many children with ADHD. This theme included factors such as cancelled activities, school closures, and loss of past routines. Below is an example that illustrates the challenges associated with a lack of structure and routine.

[x] is very routine oriented and structure oriented and when school closed for a couple of weeks, we could deal with that. But then when they didn't reopen, and I work full time, and we lost all sense of structure and we were not able to engage with online school, I just could not figure out how to make that work. And things just kind of fell apart at that point. (Participant 11, parent, female)

Theme 2: Disconnectedness (Frequency 41)

Participants described feeling disconnected due to the COVID-19 pandemic and emphasized its effects on mental health. Within the concept of feeling disconnected, the theme of social isolation was identified. Below, this subtheme is discussed.

Subtheme 2a: Social isolation (Frequency 27). Participants described social isolation as contributing to feeling disconnected during the COVID-19 pandemic. Participants referred to feeling lonely due to social isolation guidelines. The example below illustrated the social isolation experienced by participants.

We've had lots of tears. We've had serious crying sessions, serious concerns about and expressions of I'm not doing well. Things like, I'm sad. I feel scared. I feel alone. I don't have anyone to hang out with. (Participant 14, parent, female)

Theme 3: Negative Impact on Parental Mental Health (Frequency 35)

Participants described experiencing a negative impact on parental mental health due to the COVID-19 pandemic. This theme included increased frustration and stress around parent-led

schooling, difficulty managing parental duties, lack of social support, increased anxiety, and concern for the health of family members. The aforementioned subthemes are discussed below.

Subtheme 3a. Lack of Social Support (Frequency 11). Participants described experiencing a lack of social support throughout the COVID-19 pandemic that contributed negatively to parental mental health. This theme included aspects such as a lack of childcare options, a lack of social interaction and physical contact. The example below illustrates the lack of social support experienced by participants.

It's been really hard, like all of the social support that we have, all of the people who give us a break and will give our kids a break are not there. Their friends that they used to hang out with and have sleepovers with and socialize with and mutually support, that's not available either. So, both us as parents, as a family and also the kids as individuals are now down close to zero social support and no physical contact with the world. And that's pretty tough. (Participant 14, parent, female)

Subtheme 3b. Difficulty Managing Parental Duties (Frequency 7). Participants described experiencing difficulty managing parental duties during the COVID-19 pandemic, resulting in deteriorating parental mental health. This theme included factors such as working from home while caring for their children, and feeling guilty about struggling with parental duties. The example below illustrates the difficulty managing parental duties experienced by participants.

Before COVID-19 we were able to go to places. Like he mentioned, he loves to be at the library. There were always some little limitations of being at home. But since COVID-19 began, it has been the most painful thing, I cannot even describe. As I said, it is exhausting. It's been the most severe, painful thing I have ever gone through. It has been challenging caring for him medically since he was born, but the most challenging time has been COVID-19. I feel like I have been defeated and I don't know what else to do. I'm defeated, actually, as I speak I'm defeated. (Participant 6, parent, female)

And on top of that, we both kind of work in a similar field. So, we're both doing counselling with individuals from our kitchen and from our dining room while we're trying to manage two kids who were being schooled, which I never signed on to homeschool, because really that's not my strength. And I never signed on to be a stay at home parent, because that's really not my ideal. I mean, I do love my kids and they know

that. So, this has been hugely negative for a person like me. I changed jobs as a result of that. (Participant 14, parent, female)

I'll reach frustrated points where I've just had enough and I lose it. Then I feel like a horrible mother. (Participant 1, parent, female)

Subtheme 3c. Increased Frustration and Stress surrounding Parent-Led Schooling

(Frequency 7). Participants described increased frustration and stress due to parent-led schooling and lack of information regarding school guidelines. This theme included factors such as parents struggling to help their children with virtual learning, technology frustrations, and not being informed about school guidelines during the pandemic. The example below illustrates the negative impact that parent-led schooling had on parental mental health during the COVID-19 pandemic.

I needed to hire a tutor to help support things more and give me a break. He does not want me as his teacher. I already fill so many roles in his life, he doesn't want me in that one. It causes a lot of stress and frustration for both of us. (Participant 2, parent, female)

They need to go back to school. That's for my mental health. (Participant 5, parent, male)

Subtheme 3d. Increased Parental Anxiety. Participants described an increase in parental anxiety as a result of the COVID-19 pandemic. This theme included factors such as fearing the unknown aspects of COVID-19 and anxiety surrounding parenting. The example below illustrates the increased parental anxiety described by participants.

I just wanted to stay away from people. I felt like in our home we had at least this nice little cocoon. We were safe here. And then if anybody had to step out, there was just so much unknown and I cried. I remember the first time I was about to go to Costco, I cried. I said to my husband, I don't want to go. I have the membership. That's the problem. I had to go. (Participant 9, parent, female)

Yeah, so for him, his screen time doubled, which makes me, as a parent, feel guilty and anxious... It's gut wrenching. But when you're at home and you're trying to work, what else can you actually do? But you still feel awful about it. (Participant 12, parent, female)

Research Question 2: What are the barriers to maintaining optimal mental health for children with ADHD and their families during the COVID-19 pandemic?

Table 3 provides a summary of the parent-identified barriers to positive mental health for children with ADHD and their families during the COVID-19 pandemic. The most frequently identified barriers were lack of routine, lack of social interaction and social support, and uncertainty.

Table 3

Frequency of Barriers to Maintaining Optimal Mental Health

Theme	Frequency (n)
<i>Lack of Routine</i>	11
<i>Lack of Social Interaction and Social Supports</i>	10
<i>Uncertainty and Fear</i>	8
School	3
Fear of COVID-19	2
Childcare	2
<i>Lack of Access to Services</i>	3
<i>Lack of Alone Time</i>	3
<i>Lack of Physical Activity</i>	2
<i>Disruption and Change</i>	1
<i>Removal of Positive Behaviour Reinforcements</i>	1

Theme 1: Lack of Routine (Frequency 11)

Participants described a lack of routine as a barrier to positive mental health for children with ADHD and their families during the COVID-19 pandemic. This theme included factors such as a lack of activities, school scheduling being minimal, and being stuck at home. The example below illustrates how lack of routine was a barrier to positive mental health during the pandemic.

He's just kind of tired of the whole routines recycling in the house and he doesn't go and express his brain somewhere else. I don't know how long this is going to last and I don't know how we're going to survive. (Participant 6, parent, female)

Theme 2: Lack of Social Interaction and Social Supports (Frequency 10)

Participants described lack of social interaction as a barrier to maintaining optimal mental health during the COVID-19 pandemic. This theme included factors such as not being able to see family, friends, or coworkers. The following excerpt illustrates how a lack of social interaction acted as a barrier to optimal mental health.

That's easy, social interaction! Yes, I mean,, it's funny because we couldn't see our coworkers and other extended family members. When we do go for walks, we're more likely to stop and say hello to a neighbour and make friends with other kids down the road and things like that. So in the last six months, we've just really transitioned our social interactions in a way, because we've had to find those fulfilling interactions in other ways. Because, this is my own personal belief, these interactions, although lovely, are not the same as a warm body sitting beside you and having a cup of tea. So, we have gotten to know our neighbours a little bit better staying socially distant from them as we have those conversations and discuss our different stresses... they're not really digging deep, unfortunately, either. They're very superficial conversations, but it's fulfilling something that we obviously need. (Participant 9, parents, female)

I'm like, have I left the house today? Have I actually interacted with anybody besides my eight-year-old? And I think that the hardest part for me has actually been the lack of adult exposure. I don't remember the last time I just went out for lunch with a friend or said 'come over tonight and have a glass of wine.' (Participant 11, parent, female)

Theme 3: Uncertainty and Fear (Frequency 8)

Participants described uncertainty and fear as a barrier to positive mental health for children with ADHD and their families during the COVID-19 pandemic. Within uncertainty and fear, the subthemes identified were fear of COVID-19, school, and childcare. The aforementioned subthemes are discussed below.

Subtheme 3a. Childcare (Frequency 3). Participants described the uncertainty surrounding childcare as a barrier to positive mental health during the COVID-19 pandemic. This theme included aspects such as parents not knowing how to balance taking on childcare

responsibilities while children stayed home, and an uncertainty of how they will find help with childcare due to isolation and difficulty balancing duties with childcare. Below is an example that illustrates the barriers that childcare created for positive mental health during the COVID-19 pandemic.

The constant uncertainty of child care. And what were we going to do? How was this going to work? You know, you can do anything for a short period of time, but it's not sustainable. (Participant 11, parent, female)

Subtheme 3b. Fear of COVID-19 (Frequency 2). Participants described fear of COVID-19 as a contributing factor to their uncertainty and fear throughout the pandemic. This theme included factors such as worrying about contracting COVID-19, their children or loved ones becoming sick, and the lack of knowledge about the virus. Below is an example of how the fear of COVID-19 was a barrier to positive mental health during the pandemic.

And with school opening a few parents are kind of like 'we're going to close our eyes and we're going to pray on it and we're going to send our kids'. But with my kid, I can't. Because first of all, I'm really worried just in case of anything. Or even when kids are returning to school, sometimes it's cold and kids begin getting sick. If he's to get sick, it will be a big alarm for me in my house. So, it's been the most stressful thing. I have a new baby in the middle of the COVID-19 pandemic. And with him, he's like 10 babies, plus the new baby. (Participant 6, parent, female)

Subtheme 3c. School (Frequency 2). Participants described the uncertainty surrounding school as being a barrier to positive mental health for children with ADHD and their families during the COVID-19 pandemic. This theme included factors such as uncertainty and frustration surrounding the use of the virtual online platform and the uncertainty of school guidelines, such as being unsure of when school would return to in-person, and the rules in place once it did. The example below illustrates the way school acted as a barrier to positive mental health for parents and children.

I think for [my child], it was the sudden disruption in routine and the uncertainty. First, it was for two weeks, then it was for seven weeks. Then it was like, no, school's not going

back. And it was like, we don't know if schools are going to open again. So, in some ways, that made it easier because you only had to get to the next milestone. But in some ways, that prolonged uncertainty and not knowing was really, really hard and sort of you can do anything for a short period of time, but it sustained. Really by July we were so done with the way things were. And then the entire uncertainty about school return and sort of all of August and even right up until the week before school started, not knowing if it was actually going to happen. And so that I think, for him, was very difficult because he thrives on understanding what's going on and he asks a lot of questions and there were no good answers. There was nothing I could say because nobody could tell what the plan was. (Participant 11, parent, female)

Discussion

The current study aimed to identify the pandemic's effect on the mental health of children with ADHD and their families, as well as to identify the specific barriers to optimal mental health that these individuals faced. A thematic analysis showed that the most frequently identified mental health effects were increased child anxiety, disconnectedness, and a negative impact on parental mental health. The most frequently identified barriers to maintaining optimal mental health were lack of routine, lack of social interaction and social supports, and uncertainty and fear. The aforementioned themes will be discussed in the following section.

Research Questions 1: How has the COVID-19 pandemic impacted the mental health of children with ADHD and their families?

Increase in Child Anxiety

Participants most frequently identified increased child anxiety as appearing in their children's attachment, issues with school, lack of routine, and fear of COVID-19. Parents described that their children experienced more worry, stress, and bursts of emotions. This was a very significant effect of the COVID-19 pandemic, as studies have shown that children with ADHD are at a higher risk than typically developing children to experience anxiety (Elia et al., 2008; Larson et al., 2011). Additionally, research has indicated that approximately 15% to 50% of children with ADHD also have an anxiety disorder, including social, separation, and generalized anxiety (Jensen et al., 1997; Jarret et al., 2008). This is also consistent with previous findings that the COVID-19 pandemic has caused an increase in fear, mental distress, panic, and anxiety (Arslan et al., 2020; Marashi et al., 2021). It would be important to consider the ways in which children's anxiety was affected by the pandemic through academic, familial, and social changes in social life to better understand how to provide proper supports in these areas.

Attachment. Parents expressed their children's anxiety as manifesting through attachment issues. Parents shared that due to the stay-at-home order, schooling from home, and social isolation, their children were becoming increasingly attached. For example, some participants described that their children were no longer able to sleep alone and would display more separation anxiety than prior to the COVID-19 pandemic. This created issues for children when they began to return to school as they struggled to leave their parents and were experiencing elevated levels of anxiety. Additionally, parents reported that this separation anxiety led to decreased independence. This separation anxiety is of concern for children with ADHD as research shows that adults with ADHD displayed a higher comorbidity with Separation Anxiety Disorder (SAD) in adulthood (Özten et al., 2016). Additionally, a longitudinal study found that 40% of the sample that had separation anxiety at age 11 also displayed symptoms when they were 18 years-old (Poulton et al., 2001). Therefore, if these children with ADHD are experiencing separation anxiety in childhood, it is important to be aware that there is a likelihood that it continues into adulthood.

Difficulty Navigating Online Learning from Home. Participants frequently related their children's increased anxiety to the difficulties of schooling from home during the COVID-19 pandemic. When the government enforced a stay-at-home order, all children were completing school from home. Additionally, schools switched from in-person to virtual learning several times with little warning for the students and parents. This caused anxiety for many of the children who participated in this present study due to technological issues, lack of one-on-one support for students, and lack of routine. Research has shown that children diagnosed with ADHD are likely to experience impairments in academic settings compared to typically developing children (Morris et al., 2020). Therefore, these children may require special attention

in school that was not available to them while they were learning from home, resulting in increased anxiety surrounding schooling. Children's daily routines were disrupted during the pandemic as they no longer needed to wake up to get ready for school, and they no longer had a full day of in-person classes. Rather, participants described shorter school days with a lack of structure and large gaps of unscheduled time. This lack of routine in the school day proved to be difficult for the children in the present study, as well as the switching between virtual and in-person learning. Research has shown that routine and structure are vital for children with ADHD to minimize symptomology including inattention and hyperactivity in children with ADHD (Harris et al., 2014; McRae et al., 2020). Schools need to place a higher emphasis on children with ADHD when making plans for learning, in order to reduce the strain on mental health. For example, the children who were receiving individualized one-on-one help from teachers should continue to receive the same level of accommodation despite participants sharing that this was not the case. It is necessary that the children, especially those with exceptionalities, are provided with adequate structure, routine, and predictability in order to help them succeed.

Lack of Structure and Routine in Daily Life. The lack of structure and routine in the daily lives of participants was another contributing factor to the increase in child anxiety during the COVID-19 pandemic. According to Jordan (2003), routines are “highly observable, repetitive behaviours which directly involve the same child and at least one adult acting in an interactive or supervisory role, and which occur with predictable regularity in the daily and/or weekly life of the child.” During the COVID-19 pandemic, much of the predictability and regularity was lost, as well as the consistent supervisory adult as parents were working and teachers were not with the children. Parents described school hours as being inconsistent, their own work hours being inconsistent, and cancelled extracurriculars that were typically scheduled weekly for children.

Many parents also shared that bedtime and morning routines were lost throughout lockdown. Research has shown that structure and routine are particularly vital for children with an ADHD diagnosis, and have been viewed as an effective way to manage associated symptoms (Hammerness, 2008). Indeed, routine has been associated with decreased inattention and hyperactivity in children with ADHD (Harris et al., 2014). It has also been shown to be directly related to fewer externalizing (e.g., conduct issues) and internalizing (e.g., anxiety) behaviours in children with ADHD (McRae et al., 2020).

Fear of COVID-19. Children's anxiety was also caused by their fear of the COVID-19 virus. Participants described this fear as including being afraid to get sick, being afraid that loved ones get sick, and general fear surrounding the unknowingness of the virus. These findings were in line with recent research that the fear of the unknown surrounding COVID-19 has caused increased mental health issues (Ahmed et al., 2020; Arslan et al., 2020; Muruganandam et al., 2020). These fears were found to predict both mental and physical health outcomes, including psychological distress and mental health disorders (Shigemura et al., 2020). In the current study, some parents described their children as being afraid to leave the house, afraid for their parents to leave the house, and as being afraid of things they heard from peers or on the news. The lack of knowledge and information surrounding the COVID-19 virus made it difficult to extinguish these fears and subsequent anxiety.

Feeling Disconnected

The results of the current study suggested that several participants felt disconnected throughout the COVID-19 pandemic due to the lockdown. Based on the results, it seems that both children and parents were experiencing feelings of disconnect. A key factor in feeling disconnected was the social isolation that was mandated by the government.

Social Isolation. The social isolation experienced by participants largely contributed to feeling disconnected. During the COVID-19 pandemic, individuals had to work and learn virtually, could not visit friends or family, and could not partake in social activities. Research has shown that social isolation, such as social distancing measures and lockdown, can be detrimental to both physical and mental wellbeing and the effects can be long-lasting (Hawley et al., 2015). This is especially crucial for children as the literature shows that social isolation in childhood and early adolescence can result in deficiencies in connectedness, feelings of depression, anxiety, and somatic symptoms (Hawley et al., 2015). Furthermore, loneliness in childhood has been shown to predict higher levels of depressive symptoms among other age-related diseases in the stress-sensitive biological systems later in life (Danese et al., 2009; Qualter et al., 2010). While the lockdown was enforced in order to protect individuals from the COVID-19 virus, it is important to consider the other ways that individual health can be affected by isolation. This information will be important to consider when the children who experienced lockdown grow older and potentially display some of the consequences. It is also especially relevant to consider social isolation in children with ADHD. In research with typically developing children, social isolation in childhood can also result in poor sleep patterns, sleep difficulties, and decreased executive functioning, including the use of self-control and time management (Harris et al., 2013; Hawley et al., 2013; Hawley et al., 2015; Masi et al., 2011). These are all symptoms that children with ADHD already commonly experience, even before the COVID-19 pandemic and lockdown, and may thus be exacerbated during isolation leading to compounding negative outcomes.

Negative Impact on Parental Mental Health

The results of the present study suggested that one of the prevalent mental health effects of the COVID-19 pandemic was a negative impact on parental mental health. According to Deckard (1998), parenting stress is related to a parent's perception that their parenting demands exceed their resources to deal with them. Prior research studies have shown that parents of children with ADHD tend to have a significantly higher baseline of stress than parents of typically developing children (Johnston et al., 2001). Importantly, parental stress has been shown to negatively impact all children, but especially those with ADHD (Johnston et al., 2001). One reason for this is that greater levels of parental stress have been associated with lower levels of child routines which are important for improving ADHD symptomology (McRae et al., 2020). Further, higher levels of parental distress have been associated with increased use of maladaptive parenting behaviours such as harsher and less consistent discipline; this can negatively impact child behaviour problems such as conduct issues and anxiety (Johnston et al., 2001; Goodman et al., 2011; Loeber et al., 2000; Thompson et al., 2003).

Increased Frustration and Stress around Parent-led Schooling and Lack of Information Regarding Guidelines. The present study found that parents experienced frustration with their children's schooling. This frustration was caused by parents taking on the teacher role for their children's homeschooling, as well as the lack of information provided by the school. Parents shared in their interviews that schools gave very little notice as to whether school would be virtual and for how long. Parents were also provided with few instructions on how to help their children with their schoolwork. Some parents expressed struggling with the curriculum and the technology that was used for class. Children with ADHD often struggle with school compared to their typically developing peers (Morris et al., 2020), thus requiring more

specialized support from teachers. Parents were ill-equipped to provide this support for their children, resulting in increased frustration. Parents also expressed not having the time to help their children due to their own jobs. In order to preserve parental mental health, it is necessary to provide additional and sufficient support for online schooling.

Difficulty Managing Parental Duties. Parents struggled to manage their parental duties, which negatively affected their mental health. Parents reported struggling to juggle all of the roles they took on during lockdown, including teacher, full-time caregiver, home keeper, and others. Many of these parents relied on their children being in school prior to the pandemic, and needed to readjust their typical routines once their children were staying home. This was especially difficult for parents who were not working from home and still had to work in-person. Many parents expressed feeling tremendously guilty about struggling with parental duties and not doing enough for their children, which contributed to their declining mental health. It is vital to understand the specific and unique challenges regarding managing parental duties that were experienced throughout the pandemic in order to create supports for future times of crisis.

Lack of Social Support. Parents struggled with the lack of social support that they received during the COVID-19 pandemic. Many parents, including those with children with ADHD, had strong support systems that were lost due to the pandemic. For example, parents had nannies, babysitters, friends, and family members who helped with childcare and provided social interaction. Additionally, parents also had professional support for their children such as mental health professionals and programs targeting ADHD that were no longer available during the pandemic. This, in conjunction with the added parental duties, negatively impacted parents' mental health.

Increased Parental Anxiety. Parents experienced an increase in anxiety during the COVID-19 pandemic. Parents cited several sources of their increased anxiety such as fearing COVID-19, feeling overwhelmed with all of their duties, and worries that they were not being sufficient parents for their children. Past research has shown that parents of children with ADHD have shown higher incidence of anxiety, depression, and substance abuse among other disorders (Cantwell, 1972; Faraone et al., 1997). Knowing this, along with the knowledge that the COVID-19 has resulted in increased anxiety worldwide (Arslan et al., 2020), it is necessary to consider how the pandemic and parenting a child with ADHD intersect and affect parents' health and wellbeing.

Concern for the Health of Family Members. A major contributing factor to negative parental mental health was their concern for their family members' health. Several parent participants shared their struggles related to worrying about their loved ones' health. Many of these worries stemmed from the lack of knowledge surrounding the COVID-19 virus and the fear of the unknown. This fear can lead to negative physical and mental health outcomes, including psychological distress. Parents described that they were asked to decide whether their children should return to school in-person or if they should continue with online learning. Parents expressed feeling as though they did not have sufficient information to make this decision, and felt as though they had to decide between keeping their children isolated or risking illness. Additionally, teachers and individuals working in schools were being provided with minimal information regarding the pandemic and associated guidelines. In order to better help parents in the future, it would be beneficial to have a government-led initiative to make schools more informed so that they can provide parents with as much information as possible regarding crises,

the strategies in place to support safe learning, and any alternate options so that parents can make important decisions about their children's education without as much fear.

Research Question 2: What are the barriers to maintaining optimal mental health for children with ADHD and their families during the COVID-19 pandemic?

Lack of Routine

Parents frequently indicated the lack of routine during the COVID-19 pandemic as a significant barrier to maintaining optimal mental health. This barrier is important to consider as the pandemic removed routine from families' daily lives, despite the importance of routine for mental health especially for children with ADHD (Hammerness, 2008). As written above, structure and routine are essential for children with ADHD as it is an effective way to manage associated symptoms (Hammerness, 2008), thus with less routine due to the pandemic, children did not receive its mental health benefits. This underscores how mental health supports should include components that add structure and routine to children's and families' lives. This could be implemented through better-executed virtual school or by offering more extracurricular activities to children during the pandemic. Many of the children's extracurricular activities were a large part of their routines until COVID-19 mandates removed them.

Lack of Social Interaction and Social Supports

Participants frequently identified the lack of social interaction and social supports as a barrier to maintaining optimal mental health. Social isolation has proved to be a large threat to individual mental health throughout the pandemic (Arslan et al., 2020). This is in line with findings that social isolation has several adverse consequences including depression and anxiety (Hawkley et al., 2015). People were unable to see loved ones during the stay-at-home order, and while they were able to interact virtually, participants expressed that this was insufficient.

Additionally, many individuals experienced “zoom fatigue” and burnout from virtual communication (Lee, 2020). Several participants expressed that they felt their mental health would be better maintained during the COVID-19 pandemic if they had been able to interact with others including friends and family. As a result of the mandated social isolation, many parents also lost their social supports including childcare and mental health services for themselves and for their children. Considering the current study’s findings and previous findings on social isolation, it is vital that individuals have more access to social interaction and social support in order to maintain optimal mental health. For example, more virtual programming that promotes social connection and interaction could be beneficial for individuals experiencing loneliness. Alternatively, further guidelines and allowances for interacting in-person in a safe manner (e.g., outdoors, distanced, masked) could allow individuals to maintain feelings of connectedness with others during the time of crisis.

Uncertainty

The results indicated that the uncertainty experienced throughout the COVID-19 pandemic was a noteworthy barrier to maintaining optimal mental health. Due to the unprecedented nature of the COVID-19 pandemic, such as lockdown protocols, social isolation mandates, and lack of knowledge surrounding the virus, participants experienced high levels of uncertainty, thus resulting in non-optimal levels of mental health. This is in line with previous findings that indicated that the fear of the unknown during the pandemic caused increased mental health issues (Ahmed et al., 2020; Arslan et al., 2020; Muruganandam et al., 2020). Participants specifically described uncertainty surrounding COVID-19, school, and childcare.

School. Participants expressed that there was significant uncertainty surrounding school throughout the COVID-19 pandemic that acted as a barrier to maintaining optimal mental health.

The online learning platform left many children and parents uncertain with how to navigate the learning material. They expressed feeling unsupported throughout the virtual school experience. Parents also described that they were unsure of when their children would return to school in-person or for how long school would continue virtually. Additionally, they explained that they were eventually asked to choose whether their children would return in-person but were provided with insufficient information regarding the guidelines for in-person school. Since school is often more challenging for children with ADHD compared to typically developing children due to difficulties in executive functioning, inhibitory control, attention span, and socialization (Morris et al., 2020), these uncertainties surrounding school are important to address.

Fear of COVID-19. Several participants experienced significant fear and uncertainty surrounding the COVID-19 virus. Participants expressed that the lack of research on the COVID-19 virus was a barrier to their mental health. Due to the lack of knowledge, participants were uncertain about safety measures and were fearful of their families becoming sick. There was a general lack of understanding about the virus and how to best keep their families safe, especially as safety measures changed frequently. In order to better support optimal mental health in children and families, it is important to provide them with more information regarding the virus and clearer guidelines regarding safety. However, it should be noted that this pandemic was unprecedented, thus there was a lack of evidence-based information to share, especially at the beginning of the pandemic. In addition to disseminating information as it was discovered, it would be beneficial to provide individuals with mental support for managing and coping with their valid fears and anxieties surrounding the COVID-19 virus.

Childcare. There was also uncertainty surrounding childcare during the COVID-19 pandemic. Parent participants expressed struggling with balancing parental duties and their other

duties, such as work. Many parents felt uncertain about their new roles that emerged as their children learned virtually from home. Parents described their children requiring a lot of support with home schooling including help with the technology, the curriculum, and the school work. However, parents struggled to provide this support while working from home, which interfered with their jobs. It also created routine disruption for their children, which as described above, can be damaging to children's mental health. A study conducted by McRae et al. (2020) found that greater levels of parental distress was associated with lower levels of child routines. Parents were experiencing higher levels of distress due to the pandemic, thus contributing to lower levels of child routines. Additionally, parents were uncertain of how to obtain proper childcare during the pandemic due to schools, babysitters, nannies, family members, and other childcare services becoming unavailable. This affected both children and parents. In some cases, children were unable to receive proper attention and childcare. Parents also expressed experiencing elevated levels of guilt surrounding their lack of availability to support their children and provide them with proper childcare.

The themes discussed above represent study participants' feelings and experiences. These findings can be used as insight into the experiences of the greater population during the COVID-19 pandemic. Individuals worldwide likely experienced similar barriers and mental health effects as those who participated in the present study (Marashi et al., 2021; Arslan et al., 2020; Ahmed et al., 2020), thus these themes found can inform supports for individuals and families in times of crisis and social isolation.

The findings of the current study could be beneficial in creating support programs for individuals and families in this time of crisis. For example, a program could offer one-on-one educational support for children with ADHD and other exceptionalities. As mentioned above,

children with ADHD required specific one-on-one help with their school which was lost during the COVID-19 pandemic. If there was proper funding from the government, it would be beneficial for the school board to utilize their network of teachers and faculty members, (including part-time teachers, substitute teachers, support staff) to provide greater support for these children with exceptionalities, which was greatly needed during the pandemic. Many participants of the present study described that their children with ADHD struggled with virtual schooling as they did not receive the attention they require. Programs could offer additional help with school work either one-on-one or to smaller groups over Zoom that tailors the teaching to the students' specialized learning style. A program for families could also offer a way to help parents provide more routine for their children, as the findings of the current study suggested that the lack of routine was one of the most pressing barriers to mental health for children with ADHD. One way to do this could be for institutions such as schools or community centres to provide more online or socially distanced extracurricular activities for children that follow a strict schedule. This would allow children to have activities that are set in their daily or weekly routines. A final support that could be implemented, specifically in schools, is scheduling in time for the children to chat with their classmates online during school hours. This can be done through Zoom in breakout rooms with teacher supervision. Children could also discuss the ways in which they have been feeling throughout the COVID-19 pandemic. As shown in the findings above, many children have experienced strong emotions, including social isolation and loneliness. Having the time and space to discuss these feelings or to just socialize with peers could help students process their emotions while also providing more opportunity for social interaction.

Limitations

While this research contributes to our understanding of the effects of the COVID-19 pandemic on children with ADHD and their families, it is not without its limitations. The first limitation to consider is the sample size used for the interviews. The small sample size consisting of 15 child-parent dyads is not representative of all families living through the COVID-19 pandemic, therefore, the results of the present study may not generalize to the whole population. Other families may have experienced the pandemic differently than those that participated in the present study, and thus may have had encountered different effects on mental health or barriers to maintaining optimal mental health. Furthermore, the sample used is a subset of the population with ADHD. The results of the present study may not generalize to all children with an ADHD diagnosis and their families.

The second limitation reflects recruitment challenges and how the interviews took place at different times throughout the pandemic. Participants may have reported different experiences based on the time during the pandemic when they were interviewed. For example, participants who completed their interviews during the summer were not necessarily experiencing difficulties associated with school.

It is also important to note the limitations due to the recruitment method used for the present study. Participants who were reached through recruitment efforts had the voluntary choice to participate in the present study. Therefore, there may be some bias related to their willingness to participate in the study. For example, some participants expressed wanting to participate because they felt their families have been struggling significantly throughout the pandemic. Furthermore, the lack of anonymity with the virtual interviews may have deterred some participants from voicing their opinions fully.

Another limitation to consider is the use of the Zoom platform to conduct virtual interviews with participants. Conducting the interviews virtually extended the scope of participants that the study could reach, but may have also limited participation of individuals who did not have access to internet or computer. It may also be relevant to consider the potential impact of “Zoom fatigue” or the burnout associated with the overuse of virtual communication platforms (Lee, 2020) on the participants during their Zoom interviews.

Finally, while children were included in the interviews, analyses predominately focused on parent perspectives as it is often difficult for children to discuss their diagnosis or their experiences throughout the COVID-19 pandemic. Most of the excerpts analyzed were taken from interviews with the parent participants rather than the interviews with the children. Additionally, the questions asked in parent interviews were more expansive and thorough than for the child interviews. The questions asked in the child interviews were less complicated and were simpler and therefore unveiled less information. This may have limited the amount of information understood about how children themselves experienced the pandemic.

Future Directions

Implications of the current study’s findings include a better understanding of experiences during the COVID-19 pandemic. Implications also include application to mental health practices for children with ADHD and potentially to community resources. Future research can further explore the unique needs of children with ADHD and their families during times of crisis and social isolation. It would also be beneficial to explore what resources would be helpful for maintaining optimal mental health during said times of crisis and social isolation. For example, some participants referenced learning supports, mental health supports, and direction from health

authorities as specific needs that would better support their mental health during the COVID-19 pandemic.

Additionally, future research can broaden the analysis to a typically developing group of children and their families to compare and contrast the current study's findings to understand the ways in which children with ADHD were uniquely affected by the COVID-19 pandemic and its subsequent isolation. Additionally, this comparison could broaden the understanding of the necessary supports for children with ADHD to maintain optimal mental health during crises, and whether these are different than the supports needed for typically developing children.

Future research can further explore the effects of the COVID-19 pandemic on the physical health of children with ADHD and their families. Research has shown that physical activity is beneficial for children with ADHD, as well as for mental health in general (Dinas et al., 2011; Moljord et al., 2011; Pontifex et al., 2014; Schoenfelder & Sasser, 2019; Saxena et al., 2005). However, the COVID-19 pandemic created many barriers to physical activity such as a lack of social interactions to facilitate participation in physical activity, closures of facilities and services, and difficulty balancing different duties during the pandemic. Future research can explore the barriers to maintaining optimal levels of physical activity, as well as the unique needs of children with ADHD and their families to help support their physical activity during the COVID-19 pandemic. Future research may also explore the potentially positive outcomes of the COVID-19 pandemic. Participants from the current study referred to some positive effects, such as increased calm and increased family time. It might be beneficial to investigate individuals' positive experiences so that any supports created for families can incorporate these positives and try to replicate their effects.

Finally, it will be important to conduct follow-up studies with children and families in order to assess the long-term effects of the COVID-19 pandemic on children and family members' mental and physical health to better understand how periods of social isolation impact children's long term mental and physical health and to continue to provide supports for them.

Conclusion

The present study sampled parents and children with ADHD and found that the most frequently identified mental health effects of COVID-19 were increased child anxiety, disconnectedness, and a negative impact on parental mental health. The most frequently identified barriers to maintaining optimal mental health were lack of routine, lack of social interaction and social supports, and uncertainty and fear. This study brings voice to the individual and unique experiences of children with ADHD and their parents and contributes to our understanding of the pandemic's impact on family wellbeing. These findings are intended to help create safeguards and recommendations to support mental wellbeing in times of crisis.

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Appendix A

Scripted Recruitment Email

My name is Carly Sugar and I am currently conducting a research study with Dr. Barbara Fenesi in the Webb Lab at Western University.

I received your contact email from OurBrainsCAN: Western University's Cognitive Neuroscience Research Registry. According to our records, you and your family are eligible to participate in a research study with the Webb Lab at Western University.

Our lab is currently recruiting participants for a study aimed at understanding how the Coronavirus Disease (COVID-19) Pandemic has affected children with and without ADHD and their families. We are particularly interested in the impact that the COVID-19 Pandemic has had on mental and physical health.

We are keenly aware of how difficult this unprecedented period of time has been for children and their parents/guardians. We want to better understand the unique barriers families face when incorporating physical activity and maintaining optimal mental health. We also hope to get a sense of how we can better support children and families through the remainder of the COVID-19 Pandemic.

This study will consist of a virtual interview (via Zoom) lasting 1.5 hours (1 hour for parents, 30 mins for children) where I will ask you questions about how the COVID-19 Pandemic has impacted your family and your child(ren). The virtual interview will help us gain a firsthand perspective from parents and guardians of children 7-12 and children themselves. Children's participation is not mandatory but we would really appreciate hearing and including their perspectives as well.

If you (or another parent/guardian) and/or your child(ren) are interested in participating in the virtual interview please feel free to reply to this email or email me and we can set up a time that works best for you. Each participant will be compensated with a \$10 Amazon gift card for their time.

Thank you for taking the time to consider participating in our research!

Appendix B

Letter of Information

Principal Investigator

Dr. Barbara Fenesi, PhD, Psychology
Western University

Co-Investigators

Alexis Winfield, MA Counselling Psychology
Western University

Carly Sugar, MA Counselling Psychology
Western University

Introduction

We are pleased to invite you and your child to participate in this virtual interview aiming to get a firsthand perspective on the impact that the COVID-19 Pandemic has had on children's and families' mental and physical health. You are being invited to participate because you fit the selection criteria and have indicated that you would like to find out more information regarding the study.

Background/Purpose

The purpose of this study is to discuss in detail your views on how the COVID-19 Pandemic has impacted your child's mental and physical health. The aim of this study will be to understand the unique barriers for maintain optimal mental health and incorporating physical activity during the COVID-19 Pandemic. This study also aims to establish ways in which we can better support children and families for the remainder of this Pandemic and looking into the future. It is important for the research team to hear firsthand insight as this is most valuable when trying to develop helpful supports.

How long will you be in this study?

The focus group will last 1.5 hours, 1 hour for parents/guardians and 30 minutes for children.

What are the study procedures?

Virtually, we will discuss you and your families' experience with the COVID-19 Pandemic. You will be asked questions about your child's mental and physical health along with any barriers and recommendations that you can identify in promoting mental and physical health at home. Each participant will have equal time to contribute their ideas and thoughts. You may refrain from answering any questions that you are uncomfortable with. The virtual interview will be audio recorded so that researchers can fully capture and transcribe your ideas afterwards for analysis.

What are the risks and harms of participating in this study?

There are no known or anticipated risks or discomforts associated with participating in this study.

What are the benefits?

The possible benefits to you and the larger community are that we will get a more in-depth understanding of how the COVID-19 Pandemic has impacted your child and family and significant barriers you face when promoting mental and physical health. This information will then hopefully contribute to the development of effective supports to help children and families through the COVID-10 Pandemic and potential future pandemics.

Can participants choose to leave the study?

If you do not wish to continue participating in the virtual interview at any time, you may leave at your discretion and your data will not be used.

How will participants' information be kept confidential?

The data you provide will be secured by a password protected computer at all times. Only the primary investigator will have access to this computer. However, representatives of Western University's Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

All identifiable information, such as your contact information will be linked to your data only by a unique ID code which will be assigned to you after the study by the research team. The master list linking your study ID and your identifiable information will only be available to the researchers. However, representatives of Western University's Non-Medical Research Ethics Board may require access in order to monitor the ethical conduct of the study. If the results of this study are published, only deidentified information will be made available.

The researcher will keep all personal information about you in a secure and confidential location for 7 years. A list linking your study number with your name and contact information will be kept by the researcher in a secure place, separate from your study file. If the results of the study are published, your name will not be used. The data will be stored on a secure server at Western University and will be retained for a minimum of 7 years. Your data may be retained indefinitely and could be used for future research purposes (e.g., to answer a new research question). By consenting to participate in this study, you are agreeing your data can be used beyond the purposes of this present study by either the current or other researchers.

Are participants compensated to be in this study?

Guardian(s) will be compensated \$10 for their involvement in the study. Child(ren) will be compensated \$10 for their involvement (which is optional). The researcher will provide the compensation via Amazon gift cards.

What are the Rights of Participants?

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time it will have no effect on you in any way. You do not waive any legal right by consenting to this study. We will give you any new information that may affect your decision to stay in the study. You will be compensated half the full amount (\$5/participant).

Whom do participants contact for questions?

If you have questions about this research study, please contact Dr. Barbara Fenesi.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics. This office oversees the ethical conduct of research studies and is not part of the study team. Everything that you discuss will be kept confidential.

This letter is yours to keep for future reference.

Understanding the Impact of COVID-19 on Children's and Families' Mental and Physical Health

Appendix C

*Consent Form***Dr. Barbara Fenesi**

Dr. Barbara Fenesi, PhD, Psychology
Western University

CONTACT FOR FUTURE STUDIES

Please check the appropriate box below and initial:

I agree to be contacted for future research studies

I do NOT agree to be contacted for future research studies

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

Print Name

Signature

Date (DD-MM-YYYY)

My signature means that I have explained the study to the participant named above. I have answered all questions.

Print Name of Person Obtaining Consent

Signature

Date (DD-MM-YYYY)

Appendix D

Assent Form

Principal Investigator

Dr. Barbara Fenesi

Co-Investigators

Alexis Winfield, MA Counselling Psychology
Western University

Carly Sugar, MA Counselling Psychology
Western University

Why are you here?

We want to tell you about a study we are doing that looks at how children feel and act during the COVID-19 Pandemic. We want to know if you would like to participate in a virtual interview.

Why are they doing this study?

We want to see if the COVID-19 Pandemic has affected your mental and physical health in anyway. We also want to understand if and how you have been exercising and feeling

What will happen to you?

If you want to be in this study, a few things will happen

- You will meet with a researcher virtually
- You will be asked questions about your mental and physical health during the COVID-19
- After you participate you will earn \$10 as a thank you for your time

Will the study help you?

The study probably won't help you directly right away, but it will help us understand ways to improve how children feel during the COVID-19 Pandemic.

Do you have to be in the study?

You do not have to be in the study. No one will be mad at you if you do not want to do this. If you do not want to be in the study, just tell any of the researchers or your parents. Even if you say yes, you can change your mind later. It is up to you.

What if you have any questions?

You can ask questions at any time, now or later. You can talk to Alexis, your family, or Dr. Fenesi.

Assent Section**I want to participate in this study.****Print Name of Child** _____**Date** _____**Age** _____**Name of Person Obtaining Assent** _____**Signature of Person Obtaining Assent** _____

Appendix E

Demographics Survey

- 1. What is your Participant ID Number? (Provided to you by the researcher)**
- 2. What is your age?**
[Text Entry]
- 3. What is your gender?**
 - a) Male
 - b) Female
 - c) Non-Binary
 - d) Other[Text Entry]
- 4. What race/ethnicity do you identify the most with?**
 - a) Asian
 - b) Black
 - c) Caucasian
 - d) Hispanic
 - e) Indigenous
 - f) Prefer Not to Say
 - g) Other[Text Entry]
- 5. What is the highest level of education that you have completed?**
 - a) Some Highschool
 - b) Highschool
 - c) Some College
 - d) College
 - e) Some University
 - f) University Degree
 - g) Some Postgraduate/Professional Training
 - h) Other[Text Entry]
- 6. What is your household income?**
 - a) \$20,000 - \$30,000
 - b) \$30,000 - \$40,000
 - c) \$40,000 - \$50,000
 - d) \$50,000 - \$60,000
 - e) \$60,000 - \$70,000
 - f) \$70,000 - \$80,000
 - g) \$80,000 - \$90,000
 - h) \$90,000 - \$100,000
 - i) \$100,000+
 - j) Prefer Not to Say
- 5. How many children do you have?**
 - a) 1

- b) 2
- c) 3
- d) 4
- e) 5
- f) 6+

- 7. How old is your child(ren)? Please type your response as follows: Child 1: 7 years old, Child 2: 4 years old, Child 3: 2 years old.**
[Text Entry]
- 8. Has your child(ren) been formally diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) by a professional?**
- a) No
 - b) Yes
 - c) Prefer Not to Say
 - d) My Child is Suspected of Having ADHD
- 9. IF YES to Q6: How many of your children have been formally diagnosed with ADHD by a professional?**
[Text Entry]
- 10. Has your child(ren) been formally diagnosed with a co-morbid neurodevelopmental/behavioural disorder (Autism Spectrum Disorder, Oppositional Defiant Disorder) by a professional? If yes, please specify.**
- a) No
 - b) Yes
[Text Entry]
 - c) Prefer Not to Say
- 11. IF YES to Q8: How many of your children have been formally diagnosed with a co-morbid neurodevelopmental/behavioural disorder?**
[Text Entry]
- 12. Has your child(ren) been formally diagnosed with a co-morbid mental disorder? (depression, anxiety) by a professional? If yes, please specify.**
- a) Yes
[Text Entry]
 - b) No
 - c) Prefer Not to Say
- 13. IF YES to Q9: How many of your children have been formally diagnosed with a co-morbid mental disorder by a professional?**
[Text Entry]
- 14. Does your child have a physical/visual/auditory impairment? If yes, please specify.**
- a) Yes
 - b) No
 - c) Prefer Not to Say
- 15. IF YES to Q12: How many of your children have a physical/visual/auditory impairment?**
[Text Entry]
- 16. Is there anything else you would like us to know about your child(ren) and family?**
[Text Entry]

Appendix F

Interview Guide

Parent/Guardian Interview Guide:

Today, I am going to ask you how the COVID-19 Pandemic has impacted your child and family.

General Well-Being/Barriers Questions:

For families with child(ren) with ADHD only]

When thinking of your child with ADHD...

1. Have there been unique barriers for your child during the COVID-19 because of their ADHD diagnosis?
2. Have you noticed any changes in the presenting characteristics or symptoms associated with your child's ADHD?

[For families with multiple children, potentially with a mix of those with/without ADHD, give them preamble below; if families only have child(ren) with or without ADHD, just ask the interview questions directly in relation to those children]

For the following questions, I want you to think about both your child(ren) (with and without ADHD), and comment on both.

Mental Health Questions:

This section aims to understand how your child's mental health (a person's condition with regard to their psychological and emotional well-being) has been impacted by the COVID-19 Pandemic.

1. How was your child's mental health (overall well-being, temperament, mood) prior to the COVID-19 Pandemic?
2. How was your mental health (overall well-being, temperament, mood) prior to the COVID-19 Pandemic?
3. Since the COVID-19 Pandemic, have you noticed changes in your child's temperament?
4. Since the COVID-19 Pandemic, have you noticed changes in your child's mood? (mood swings, extended periods of positive/negative moods)
5. Since the COVID-19 Pandemic, have you noticed an increase/decrease in your child's anxiety/depression levels?
6. Since the COVID-19 Pandemic, have you noticed that your child has become more/less energetic?
7. Since the COVID-19 Pandemic, has your child seemed more socially isolated?
8. In your opinion, what are the biggest barriers to maintaining optimal mental health for yourself and your child during the COVID-19 Pandemic?
9. In your opinion, what do you need to feel better supported in maintaining optimal mental health for yourself and your child during the COVID-19 Pandemic?

Physical Health Questions:

This section aims to understand how your child's physical health (condition of your body, fitness level) has been impacted by the COVID-19 Pandemic.

1. What was your child's daily/weekly amount of physical activity prior to the COVID-19 Pandemic? (including school, extra-curricular activities)
 - a. If child(ren) were active → What kinds of physical activity were they doing?
2. What was *your* daily/weekly amount of physical activity prior to the COVID-19 pandemic?
 - a. If guardian(s) were active → What kinds of physical activity were you doing?
3. Have you been able to incorporate physical activity into your child's/families' daily routine? If so, how? Can you recommend any strategies? If not, why not?
4. How has your child's physical activity level during COVID-19 Pandemic impacted their physical health and general behaviour? (increased sedentary/screen time, weight gain/loss, soreness, discomfort, restlessness, sleep quality)
5. If you have been able to incorporate physical activity, what effect has this had on your child's mental health?
6. In your opinion, what is the biggest barrier to incorporating physical activity into your and your child(ren)'s routine during the COVID-19 Pandemic? (stress levels, time)
7. In your opinion, what do you need to feel better supported in incorporating physical activity during the COVID-19 Pandemic?

We want to end the interview on a positive note by asking if anything positive has come from the COVID-19 Pandemic? What do you hope for in the future?

Child Interview Guide:

Today I am going to ask you some questions about how COVID-19 Pandemic has affected you.

Demographic Questions:

1. How old are you?
2. What is your gender?

COVID-19 Related Questions:

3. How do you feel about the COVID-19 Pandemic?
4. What is the hardest part about dealing with the COVID-19 Pandemic?
5. What has been the biggest change for you since the COVID-19 Pandemic?
6. Have you found ways to make dealing with the COVID-19 Pandemic easier?

Physical Health Questions:

7. What type of physical activity did you do before the COVID-19 Pandemic? How often? Do you miss that physical activity? What do you miss about it?
8. Have you been able to participate in physical activity during the COVID-19 Pandemic? If yes, what activities do you do? If no, do you wish you could do more?

Looking Forward Questions:

9. Have you found any positive things since the COVID-19 Pandemic started?
10. What do you look forward to? (each day, after COVID-19)

Appendix G

*Codebook***Research Questions:**

1. How has the COVID-19 pandemic impacted the mental health of children with ADHD and their families?
2. What are the barriers to maintaining optimal mental health for children with ADHD and their families during the COVID-19 pandemic?

Codebook:**Research Question 1: *How has the COVID-19 pandemic impacted the mental health of children with ADHD and their families?***

1. Increased child anxiety: Use this code if there is a mention of increased child anxiety symptoms.
 - a. Attachment: Use this code if the child's anxiety was related to attachment issues.
 - b. Difficulty navigating online learning: Use this code if the child's anxiety was related to navigating online learning/learning from home with their parents.
 - c. Lack of structure: Use this code if the child's anxiety was related to the lack of structure or routine during the pandemic.
 - d. Fear of COVID-19: Use this code if the child's anxiety was related to the fear of themselves or a loved one getting sick.
2. Increased child depression: Use this code if there is a mention of increased child depressive symptoms.
 - a. Lack of goals: Use of this code if the child's depression was related to a lack of goals or structure.
 - b. Grief: Use this code if the child's depression was related to feelings of grief and loss due to the pandemic (could be loss of a loved one, of their normal lives, or things they were not able to do).
 - c. Concern: Use this code if the child's depression was related to feeling badly about the effects of the pandemic on others.
3. Decrease in regulation: Use this code if there is a mention of decreased child self-regulation or emotion regulation.
4. Disconnected: Use this code if there is mention of feeling disconnected.
 - a. Social isolation: Use this code if the child or adult mention social isolation.
5. Uncertainty:
 - a. Guidelines: Use this code if there was uncertainty surrounding the guidelines and safety measures for COVID-19.
 - b. School and online learning: Use this code if there was uncertainty surrounding online learning.
 - c. Future: Use this code if there was uncertainty about the future.
6. ADHD symptoms: Use this code if there was an increase in difficulty with ADHD symptoms (e.g., increased hyperactivity).

7. Decrease in child self-efficacy: Use this code if the child has experienced a decrease in self-efficacy.
8. Decrease in child anxiety: Use this code if the child experienced less symptoms of anxiety.
9. Improved child mood: Use this code if the child experienced improved mood.
10. Increased calm: Use this code if there is a mention of increased calm in certain domains.
 - a. Reduced stress: Use this code if families experienced less stress around routines and were able to slow down.
 - b. Family time: Use this code if families were able to spend more time together.
11. Deteriorating parental mental health: Use this code if the if parents experienced deteriorating mental health.
 - a. Parent-led schooling: Use this code if parents experienced frustration due to parent-led school and lack of information from schools.
 - b. Difficulty managing parental duties: Use this code if parents experienced difficulties managing work and parental duties.
 - c. Lack of social support: Use this code if parents felt increased anxiety or depression due to a lack of social support.
 - d. Increased Parental Anxiety: Use this code if parents experienced concern for the health of themselves or family members.
 - e. Change in routine: Use this code if parents described a change in routine as contributing to deteriorating mental health.

Research Question 2: *What are the barriers to maintaining optimal mental health for children with ADHD and their families during the COVID-19 pandemic?*

1. Lack of alone time: Use this code if a lack of alone time or too much time together were barriers to maintaining optimal mental health.
2. Lack of routine: Use this code if the lack of routine was mentioned as a barrier to maintaining optimal mental health.
3. Uncertainty and fear: Use this code if the uncertainty and fear were mentioned as barriers to maintaining optimal mental health.
 - a. Fear of COVID-19: Use this code if the fear of contracting or spreading COVID-19 were barriers.
 - b. School: Use this code if the uncertainty surrounding school was a barrier.
 - c. Childcare: Use this code if the uncertainty of receiving help with childcare was a barrier.
4. Lack of social interaction and social support: Use this code if the lack of social interaction and social supports were barriers to maintaining optimal mental health.
5. Lack of access to services: Use this code if the lack of access to services was a barrier to maintaining optimal mental health.
6. Online schooling: Use this code if online schooling was a barrier to maintaining optimal mental health.
7. Disruption and change: Use this code if disruption and change was a barrier to maintaining optimal mental health.

8. Removal of positive behaviour reinforcements: Use this code if the removal of positive behaviour reinforcements was a barrier to maintaining optimal mental health.

Appendix H

Ethics Approval

Western Research

Date: 28 July 2020

To: Dr Barbara Fenesi

Project ID: 116190

Study Title: Understanding the Impact of COVID-19 on Children's and Families' Mental and Physical Health

Short Title: COVID Parental and Child Interviews

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: August 7 2020

Date Approval Issued: 28/Jul/2020

REB Approval Expiry Date: 28/Jul/2021

Dear Dr Barbara Fenesi

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Webb Lab - Impact of COVID-19 - Parent:Guardian Interview Consent Form	Written Consent/Assent		
Webb Lab - Impact of COVID-19 - Interview Assent Form	Written Consent/Assent		
Webb Lab - Impact of COVID-19 - Telephone Script	Recruitment Materials	13/Jul/2020	1
Webb Lab - Impact of COVID-19 - Survey Questionnaire	Online Survey	13/Jul/2020	2
Webb Lab - Impact of COVID-19 - Email Script	Recruitment Materials	13/Jul/2020	1
Webb Lab - Impact of COVID-19 Interview Guide	Interview Guide	13/Jul/2020	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Kelly Patterson, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Carly Sugar

Western University
Faculty of Education

EDUCATION

- 2020-2022 **M.A. (Candidate), Counselling Psychology**
Western University
- 2014-2018 **B.HSc Health Sciences, Double Major in Health Sciences and Psychology**
University of Western Ontario

HONOURS AND AWARDS

- 2020-2022 Graduate Student Assistantship Scholarship
- 2015-2018 University of Western Ontario Deans Honour List

CONFERENCE PRESENTATIONS

- Sugar, C.**, Windfield, A & Fenesi, B. (2021, May). *Understanding the Impact of the COVID-19 Pandemic on Children's and Families' Mental and Physical Health*. Presentation at the *Child Health Symposium—Children in Context: Optimizing Environments in a Changing World to Support Child and Youth Health and Well-Being*, Western University, London, ON, Canada.
- Sugar, C.**, Windfield, A & Fenesi, B. (2021, March). *Understanding the Impact of the COVID-19 Pandemic on Children's and Families' Mental and Physical Health*. Poster presented at the Robert MacMillan Symposium in Education, Western University, London, ON, Canada.

SELECTED PROFESSIONAL & VOLUNTEER EXPERIENCE

- 2021-2022 **Clinical Student Intern**
Family Service Thames Valley
- 2019-2020 **Research Assistant**
The Hospital for Sick Children
- 2020-Present **Crisis Responder**
Distress Centres of Greater Toronto

PUBLICATIONS

- Ruskin, D., Young, M., **Sugar, C.**, & Nofech-Mozes, J. (2021). Mindfulness and acceptance interventions for parents of children and adolescents diagnosed with chronic medical conditions: a systematic review. *The Journal of Alternative and Complementary Medicine*, 27(2), 120-135.