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## How can Single Mothers Care for Themselves and their Children during the COVID-19 Pandemic?

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Health Promotion

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## **Abstract**

This work investigates how single mothers maintain healthy behaviours for themselves and their children as they try to meet the evolving COVID-19 public recommendations. Everyone has had to adapt to changing public health rules. Single mothers may have unique challenges as they juggle to adapt to changing family responsibilities since they do not have another person helping in the home, and help outside the home may be restricted by public health rules. My research plan addressed these questions to learn more about the experiences of single mothers during the pandemic: 1) What are the changes in family responsibilities? 2) How do they implement health-promoting behaviours that have been recommended to prevent COVID-19 such as mask wearing, social distancing, hand washing, and disinfecting surfaces; and what things helped or prevented those changes? and 3) How do they maintain other healthy behaviours to address their overall health like: healthy eating, physical activity, and mental health. My research involved quantitative surveys and qualitative interviews to provide in-depth understanding. Single mothers may be at particular risk during the pandemic. This research will help us understand the challenges and needs of single mothers so that they can follow public health rules for COVID-19 and stay healthy, while supporting the health and well-being of their children.

## **Keywords**

Single mothers, COVID-19, unpaid labour, family responsibilities, healthy behaviours, health promotion

## **Summary for Lay Audience**

I studied how single mothers maintain their health and support their children's health during a pandemic. Single mothers have unique challenges because they may not have another person helping in the home, and help outside the home may be restricted by public health rules. My research plan answered three questions about their experiences: 1) How did family responsibilities change? 2) How do they implement health rules to prevent COVID-19, like mask wearing, social distancing, hand washing, and disinfecting surfaces; and what things affected those changes? and 3) How do they maintain other healthy behaviours like: healthy eating, physical activity, and mental health? I used surveys and interviews to understand their experiences and needs, and then make recommendations. This issue is very meaningful to me because I grew up with a single mother in Ecuador and I saw her struggle to provide food, safety and a better life for her children.

## Co-Authorship Statement

Lisbeth Alexandra Pino Gavidia completed this thesis work under the supervision of Dr. Joy Christine MacDermid and advisement of Dr. Laura Brunton and Dr. Samantha Doralp, who will be co-authors on the publication resulting from manuscripts. Chapter two was also supported by fellow trainees: Hoda Seens, James Fraser and Marudan Sivagurunathan.

### **Chapter 2:** COVID-19 attributed Changes of Home and Family Responsibilities among Single Mothers

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### **Chapter 3:** Barriers and Facilitators of COVID-19 Practices among Canadian Single Mothers: A Qualitative Study

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**Chapter 4: A Qualitative Study of Healthy Eating, Physical Activity, and Mental Health  
among Canadian Single Mothers**

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## **Acknowledgments**

To my supervisor Dr. Joy Christine MacDermid and my committee members Dr. Laura Brunton and Dr. Samantha Doralp for guiding me through my training. Your support was a testimony of your commitment as kind and supportive professors who brought out the best of me. Thank you for illustrating that people succeed and excel because of being surrounded by kind and supportive individuals. It has been a delight to work with you in which I have learned and enjoyed very much.

To my mother Carmita Margoth Gavidia Chávez who raised three girls on her own in the rural community of Pallatanga, Ecuador. This research has been an inspiration because of you mom. I saw how you worked hard to support your children and care for us, while facing many hardships.

To my younger sisters Cinthia and Nicole who are always encouraging me to persevere.

To Ecuador for sending me on a mission to Canada. I have fought the good fight, I finished the PhD race. Now there is in store for me to work and discharge all the duties of my learning and growing.

Last but not least, the PhD graduate program in Health Promotion of Health and Rehabilitation Sciences at Western University is heartily dedicated to Jesus, my Lord, the Shepherd and Overseer of my soul. You made my feet like the feet of a deer, enabling me to tread in the heights. You are the Master of my life and work.

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# Chapter 1

## 1 Introduction

### 1.1 Background and Significance

The COVID-19 public health emergency was announced by the World Health Organization on January 31, 2020 (Bulut & Kato, 2020). SARS-CoV-2, severe acute respiratory syndrome coronavirus 2, caused the coronavirus disease or COVID-19 (Girum et al., 2021). The animal market in Wuhan, China was the possible initial source of the origin of SARSCoV-2 due to the bat coronavirus that contained 96% characteristics of nucleotide (Bulut & Kato, 2020; 28). The 12 cases of COVID-19 first happened in China (Liu et al., 2020). By April 16, 2020, the infection of coronavirus disease was spread globally, resulting in 2 million cases and 137 thousand deaths (Bulut & Kato, 2020; Schuchat, 2020).

The SARSCoV-2 incubation period accounts approximately for 5 days (Bulut & Kato, 2020). The severity of the infection goes from asymptomatic or subclinical infection to critical or severe illnesses (Bulut & Kato, 2020):

More than 80% of cases remain asymptomatic and 15% of cases present with mild, self-limiting respiratory tract illness. While, the remaining 5% of individuals present with severe and complicated conditions such as pneumonia, multi-organ failure, and death (Girum et al., 2021, p. 2).

Airborne from person-to-person whether asymptomatic or symptomatic can transmit the virus (Girum et al., 2021).

There were 408, 921 cases reported in Canada under the incidence of 1088 per 100, 000 people by December 5, 2020 (Waldner et al., 2021). Canada ranked sixth in COVID-19 related deaths among high-income countries by the end of July 21, 2021 (Bignami, 2021). Results from epidemiological studies in China, Iran, and India showed that females may be less susceptible to infection (O'Brien et al., 2020). In contrast, health agencies in Canada reported more females being diagnosed with COVID-19 with the largest number of cases in the provinces of Ontario and Québec (O'Brien et al., 2020; Assche & Assche, 2020). The WHO-China Joint Mission on coronavirus disease explained that public health measures prevented thousands of infections in China (Alwan et al., 2020). Then public health responses have been focused to mitigate viral transmission at the individual and community levels (Waldner et al., 2021).

Governments around the world have followed public health guidelines, which in turn have changed daily routines (Thomson, 2020). The global public health response encompassed a multifaceted and rapidly adapting measures such as home isolations, face masks, social distancing, hand washing, and disinfecting surfaces (Piovani & Aydiner-Avsar, 2021; Schuchat, 2020; Girum et al., 2021; Ammar et al., 2021). In-person restrictions of social gatherings and public facilities had lessened the impact on virus transmission (Waldner et al., 2021). There is evidence of the effectiveness on mask wearing, hygiene practices and social distancing measures that lower the risk of infection (Ioannidis, 2020; Xiong et al., 2020; Khoo & Lantos, 2020).

Before COVID-19, masking has been a behaviour to combat viruses in healthcare settings. Mask wearing decreases virus transmission by 40% - 85% from person to person (Waldner et

al., 2021). During the COVID-19 pandemic, the daily masks production in China accounted for 110 million units by the end of February 2020 (Zhang et al., 2020). A systematic review indicated that other COVID-19 practices such as stay-at-home orders and social distancing measures are also efficient to prevent the disease (Girum et al., 2021). However, these strategies cannot be implemented for long periods of time due to economic reasons.

Approximately 50% of the workforce shifted to working from home by April 2020 (Zamberlan et al., 2021). With few alternatives to work outside the home, the magnitude of these changes is not yet known in carrying out paid and unpaid workloads among women. For instance, closures of schools and daycares was challenging for women in which more unpaid labour exacerbated gender inequalities (Fisher et al., 2020; Fortier, 2020; İlkkaracan & Memiş, 2021; Douglas et al., 2020).

COVID-19-related quarantine has negatively impacted mental health. Stay-at-home orders and social distancing measures came with isolation and adverse psychological effects such as depression and anxiety (Kaye et al., 2021; Khoo & Lantos, 2020). The Centers for Disease Control and Prevention (CDC) reported that 40.9% of participants experienced a stressor-related disorder during the pandemic (Kaye et al., 2021). There was also an increase in family responsibilities, where women were often responsible for family, work, and caretaking roles compared to men (Kaye et al., 2021). In turn, women managed unaided childcare and children's home-schooling while, in some cases, working from home. All of these stressors may cause symptoms of depression and anxiety. The response measures impacted mental health and other aspects of life at large, from health to family and economy (Khoo & Lantos, 2020; Blundell et al., 2020).

The COVID-19 pandemic impacted the economy. Unemployment and reduced working hours are markedly rising (Xiong et al., 2020). In Canada, between the ages of 25-54, 5% of women lost their jobs compared to 2% of men (Fortier, 2020). Single mothers were more likely to lose their jobs as their work involved sectors that had been closed (Blundell et al., 2020). For example, single mothers decreased employment from 76% in 2019 to 67% in 2020 (Taylor et al., 2021). Financial concerns arose among single-parent families whose income rely on a single earner and for many there was not an option to work from home (Fisher et al., 2020; Khoo & Lantos, 2020). Research showed that females were more vulnerable to greater psychological distress such as depression and anxiety during the pandemic (Xiong et al., 2020). This financial crisis impacted social isolation and symptoms of depression and anxiety among women (Ioannidis, 2020).

The COVID-19 pandemic impacted gender inequality. Women earn less than men globally (Carli, 2020). Women also perform far more unpaid work than men (Fortier, 2020; Kantamneni, 2020). Regardless of employment status, women typically bear the burden of family role responsibilities, mostly attributed from societal gender norms (Fortier, 2020; Carli, 2020). As there were significant reductions in paid work, women faced care obligations:

Mothers were typically left with [the] sole responsibility for caring for their children, and with much greater responsibility for their education as schools made the shift to online learning (Blundell et al., 2020, p. 16).

This is problematic for women who shoulder a higher amount of family expectations in accomplishing unpaid labour (Kantamneni, 2020). COVID-19 has exacerbated gender inequality and the opportunity to close the gender gap.

Women-headed households are more vulnerable to maternal distress. Due to life-long inequalities, single mothers are a vulnerable group of the population because they put aside their own needs in order to meet the needs of their children (Bice-Wigington et al., 2015). Additionally, single mothers have fewer supports of raising children without a co-parent (Taylor et al., 2021):

Single mothers have been found to be more socially isolated than married mothers, work longer hours, receive less emotional and tangible support, and have less stable social networks (Taylor et al., 2021, p. 3).

These various forms of adversity impact unpaid and paid work as family role responsibilities are deeply embedded in social constructs (Alderete et al., 2018).

The division of work between women and men are embedded in two theoretical explanations encompass. The first theoretical explanation is gender ideology that plays a major role in the division of work. Women do more housework than men due to beliefs and societal attitudes about gender roles: “From childhood onwards, women and men acquire gender role attitudes through the socialisation process, including preferences for how women and men should behave” (Nordenmark, 2004, p. 2). As such, gender ideology is developed through the earliest years of life, positioning women in household labour, and men in paid labour. Both unpaid and paid labour are strongly gender-specific ideology. Women with an egalitarian gender ideology engaged in more paid labour compared to women with a traditional gender ideology who performed more household labour (Nordenmark, 2004). Yet, gender inequality persists because gender ideologies are cultivated before adulthood. This influence not only affects individual behaviours, but also government policies and distribution of resources (McMunn et al., 2020).



The second theoretical explanation, within the division of work, is time availability. Women spend more time in housework regardless of their paid employment and even if their partners work non-standard hours (McMunn et al., 2020; Doan et al., 2021). “It is likely that the work intensity in unpaid tasks has also increased through multi-tasking, such as minding the children while actively engaging in another activity” (İlkkaracan & Memiş, 2021, p. 19). Women’s time is influenced by gender ideologies. In Sweden, for example, women’s egalitarian ideology is not predominant compared to men’s traditional ideology (McMunn et al., 2020). It is important to note that gender attitudes remain strong among men regarding the divisions of labour and shared domestic and childcare responsibilities. Individual choices are constrained through societal norms that establish the conditions in which women and men should act and live (Zachorowska-Mazurkiewicz, 2016; Piovani & Aydiner-Avsar, 2021). Therefore, time allocation is influenced by gender inequality and social relations.

Unpaid care work is labeled as a female responsibility across the world (Ferrant et al., 2014). Seventy-five percent of unpaid labour falls under women and girls, globally, which on daily average represents 4 hours and 25 minutes (Power, 2020). This unpaid labour is called care economy that can be broadly defined as: “The work that involves looking after the physical, social, psychological, emotional, and developmental needs of one or more people” (Zachorowska-Mazurkiewicz, 2016; p.3). Unpaid care work is done to maintain the well-being of family members, including cooking meals, doing laundry, taking care of children, and cleaning the house, etc. Women do twice more housework, while men do the majority of paid work (Nordenmark, 2004; Zachorowska-Mazurkiewicz, 2016). The amount of time that is required to fulfill unpaid labour needs has negatively impacted women’s participation in the work force (Ferrant et al., 2014; Zamberlan et al., 2021).

Time scarcity impacts women's health and well-being. The daily demands of unpaid labour are associated with reduced mental health (Piovani & Aydiner-Avsar, 2021). Mental illness affects 970 million people worldwide in which depression and anxiety are the most prevalent health issues (Piovani & Aydiner-Avsar, 2021). Before the COVID-19 pandemic, three million Canadians experienced a mental health disorder, of which the annual costs were \$32 billion for depression and \$17 billion for anxiety (Dozois, 2020). In Canada, a greater burden of distress appears among women with more unpaid work (Piovani & Aydiner-Avsar, 2021). For example, role overload led to high risk of emotional distress and symptoms of depression and anxiety (Dozois, 2020). Stressors were intensified by the effects of the pandemic.

The psychological effects of COVID-19 impacted behaviours of healthy eating and physical activity. People experienced panic when the pandemic started by buying extra long-lasting food products. Changes in nutrition habits happened within households, as well as unhealthy eating patterns were prevalent. Food cravings were high in fat, sugar, but lower in nutritional value (Kriaucioniene et al., 2020; Bell et al., 2021). Research showed that people ate more snacks, fried food, and homemade pastries during the pandemic: "people with anxiety consumed snacks 2.45 times more often" (Kriaucioniene et al., 2020, p. 6). Additionally, the lack of physical activity led to physiological distress (Kriaucioniene et al., 2020). An increase in sedentary behaviours contributed to mental health related issues (Kriaucioniene et al., 2020). The differences in diet and physical activity were associated with low mental well-being during quarantine measures (Ammar et al., 2021; Douglas et al., 2020).

## 1.2 Theoretical Framework

Social Cognitive Theory (SCT) aims to understand health behaviours. SCT states that human behaviours are influenced by internal and external forces (Dlugonski & Molt, 2016).

Interactions between barriers and facilitators directly impact confidence, beliefs, and goal-setting concerning outcomes (Atkins, 2010). This theoretical framework can be illustrated as:

A single mother who feels more confident in her ability to engage in physical activity would have more positive outcome expectations, experience fewer barriers and more facilitators, and be more likely to plan physical activity (Dlugonski & Molt, 2016, p.3).

SCT is a useful framework to identify constructs that tailor behaviours for designing health promotion interventions and primary prevention along with recommendations (Dlugonski & Molt, 2014). SCT had the potential to understand the complexity of health behaviours, while capturing experiences because this theory takes into account individual and contextual factors that interact with one another (Dlugonski & Molt, 2013).

The ultimate goal of SCT is to produce lifestyles-related behaviour change. The social cognitive theory depicts four components: 1) self-efficacy, 2) outcome expectations, 3) socio-structural factors, and 4) self-regulatory strategies. First, self-efficacy results from self-reflection about the belief and confidence to engage in health behaviours (Schunk & DiBenedetto, 2020). Theoretically, self-efficacy is an important determinant with 86% of health-promoting behaviours (Dombrowski, 2011). Second, outcome expectations are goal settings and expected results of behaviours (Dlugonski & Molt, 2016). Third, socio-structural factors encompass barriers and facilitators such as physical, interpersonal relationships, and self-evaluative concerns (Dlugonski & Molt, 2016). Fourth, self-regulatory strategies account

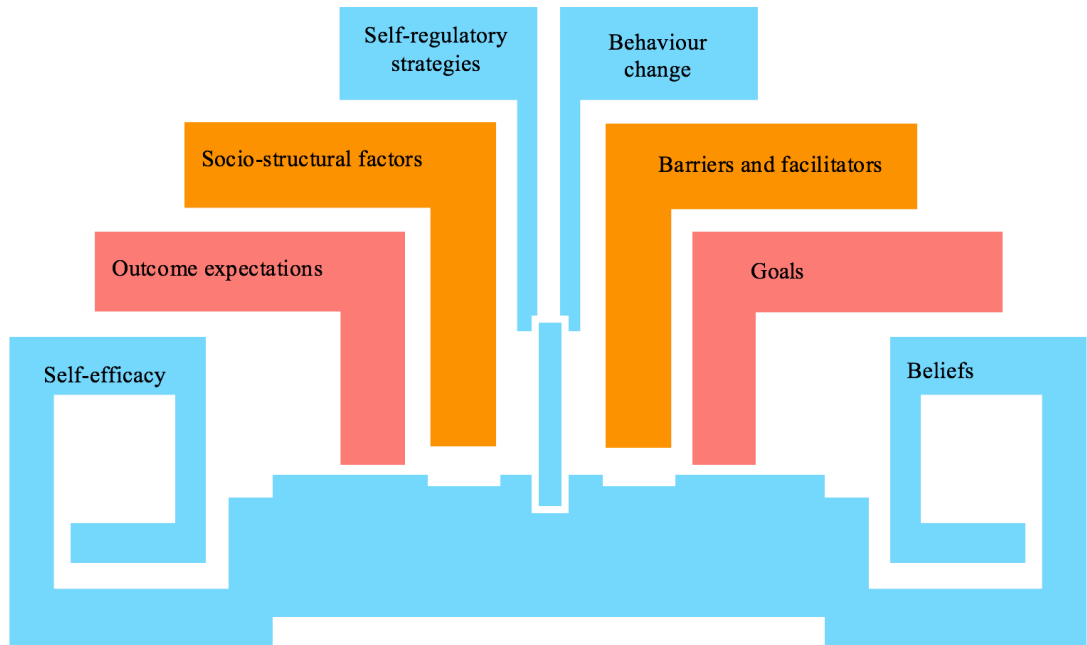
for planning health behaviours, which enhance self-efficacy. Through organization and execution of an action plan, results are achieved (Dlugonski & Molt, 2014):

Single mothers with higher levels of optimism, self-efficacy, and self-esteem have lower levels of internalizing symptoms such as depression and anxiety, and higher levels of positive parenting behaviours (Taylor & Conger, 2017, p. 3).

Self-efficacy is the foundation of Bandura's theory, operating together with outcome expectations, socio-structural factors, and self-regulatory strategies. Belief in one's efficacy is the starting point of action: "Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties" (Bandura, 2004, p. 2). Self-efficacy influences goals and aspirations: "Individuals' capabilities to direct their thoughts and actions in intentional ways designed to attain goals are critically important" (Schunk & DiBenedetto, 2020, p. 2). Short-term attainable goals facilitate higher levels of success in behaviour change rather than long-term goals (Bandura, 2004). Goal-directed efforts and activities deepen motivation. The importance of motivation in human behaviour refers to personal/internal influences to implement strategies while facing barriers (Schunk & DiBenedetto, 2020). There is a need to incorporate a process-oriented planning rather than an outcome-oriented approach for successful future health promotion interventions (Dlugonski & Molt, 2016).

Figure 1 shows the sequential paths of influence wherein self-efficacy through its positive impact on beliefs, goals, and perceptions of barriers and facilitators achieve behaviour change (Bandura, 2004).

**Figure 1- Social Cognitive Theory of human behaviour**



### **1.3 Theoretical Underpinnings**

The philosophical assumptions about the study of knowledge (epistemology) and the nature of reality and being (ontology) are within different knowledge paradigms. Based on epistemology and ontology, the paradigm-specific criteria attempt to understand the social world (Guba & Lincoln, 1994). The knowledge paradigms employed on this thesis work are positivism and interpretivist-constructionism. Positivism refers to objective and neutral knowledge in which researchers are impartial in the research process (Finlay & Ballinger 2006). “The primary goal of positivistic inquiry is an explanation that (ultimately) leads to

prediction and control of phenomena” (Ponterotto, 2005, p.3). Objectivist epistemology is understood that knowledge exists outside the beliefs and values of the researcher (Ravenek & Laliberte, 2013). Positivists support that there is no room for values in the scientific endeavour:

The researcher and the research participant are assumed to be independent of one another (dualism), and by following rigorous, standard procedures, the participant and topic can be studied by the researcher without bias (objectivism) (Ponterotto, 2005, p. 6).

The influence of the researcher within positivism is removed in the scientific process. Quantitative methods were used to explain changes in family responsibilities before and after COVID-19, as well as to explore the relationship between mothers’ age and the number of people living in the home, with post-COVID-19 family responsibilities.

In marked contrast, interpretivists–constructivists support that lived experiences and researcher’s values cannot be separated from the research process. Proponents of interpretivist–constructivist highlight that “the goal of understanding the ‘lived experiences’ is from the point of view of those who live it day to day” (Ponterotto, 2005, p. 4).

Subjectivist epistemology refers to the existence of knowledge through interactions between participants and researchers in context-specific settings. It supports the perspective on how people understand their world according to their subjective knowledge (Ravenek & Laliberte, 2013). “The constructivist position espouses a hermeneutical approach, which maintains that meaning is hidden and must be brought to the surface through deep reflection” (Ponterotto, 2005, p. 4). Deeper meanings are uncovered through reflexivity, understanding of participants’ subjective meanings about lived experiences, and how participants make sense

of the world (Carpenter & Suto, 2008). Qualitative methods were used to provide interpretative descriptions of single mothers' perceptions on COVID-19 practices such as mask wearing, social distancing, hand washing, and disinfecting surfaces, as well as personal health behaviours, particularly healthy eating, physical activity, and mental health.

Researchers encounter the need to complement one approach with another that offer various avenues to answer their research questions (Johnson & Onwuegbuzie, 2004). On one hand, quantitative methods incorporate positivism paradigms by using statistical procedures and analysis between variables (Ponterotto, 2005). The focus of quantitative research is theory-hypothesis testing, confirmation, prediction, standardized data collection, and statistical analysis (Johnson & Onwuegbuzie, 2004). On the other hand, qualitative methods describe the experiences of participants within a context-specific setting (Ponterotto, 2005). The focus of qualitative research is theory-hypothesis generation, discovery, exploration, instrument data collection, and thematic analysis (Johnson & Onwuegbuzie, 2004). During the stage of data analysis, generalizability is for quantitative studies and interpretations and descriptions are for qualitative studies (Johnson, Onwuegbuzie, & Turner, 2007). The similarities between quantitative and qualitative methods are collection, analysis, and data interpretation (Denzin, 1998; Finlay, 2002). Mixed methods research covers the middle position from the standpoint of quantitative research at one pole and qualitative research at the other pole.

Mixed methods research is defined as the research that combines quantitative and qualitative techniques, concepts or language, methods, and approaches (Johnson & Onwuegbuzie, 2004). The purpose of mixed methods is to provide researchers a form of integration and a richer understanding of complex issues to a better dissemination (Johnson, Onwuegbuzie, &

Turner, 2007. Philosophically and methodologically speaking, mixed methods is based on pragmatism, which are leads and actions towards the elimination of doubt (Johnson & Onwuegbuzie, 2004). Pragmatism is the most useful mixed methods philosophy for integrating different perspectives:

Pragmatism offers an epistemological justification, i.e., via pragmatic epistemic values or standards, and logic i.e., use the combination of methods and ideas that helps one best frame, address, and provide tentative answers to one's research question[s] for mixing approaches and methods (Johnson, Onwuegbuzie, & Turner, 2007, p.14).

In turn, it is possible that research paradigms of quantitative and qualitative can remain separate within the pragmatism philosophy.

With mixed methods research, the attempt is to incorporate the pragmatism philosophy. This approach includes the perspectives of quantitative and qualitative research, while fully respecting each one (Johnson, Onwuegbuzie, & Turner, 2007). In other words, ideas that come from quantitative and qualitative research are accepted. The reason for combining both quantitative and qualitative approaches is to use various techniques and develop analysis that can initiate new ways of thinking (Johnson, Onwuegbuzie, & Turner, 2007). At the same time, the expectation is that the field will continue to grow because: "Research questions can be examined from different perspectives and it is often useful to combine different methods" (Johnson, Onwuegbuzie, & Turner, 2007, p. 5). Mixed methods research, within each paradigm, makes clear arguments of knowledge quest. Regarding such positionality, the quest of knowledge within this thesis is situated in the approach of mixed methods from objectivism and subjectivism (Bourke, 2014). Then, the incorporation of mixed methods



research is envisioned towards facilitating multiple methods and levels of analysis (Hesse-Biber & Johnson, 2013).

Relatively few articles have captured how single mothers maintain their health, juggle to adapt family responsibilities, and support their children's health as they follow COVID-19 guidelines. This research is very meaningful to me because I grew up with a single mother in the rural community of Pallatanga, Ecuador. I saw how she worked hard to raise three girls on her own and care for our health and well-being, while facing many hardships. I came to Western University with a scholarship from the Ecuadorian government to do research on how to help single mothers maintain healthy lives. In this view, this research addresses the following questions to understand the experiences of single mothers during the COVID-19 pandemic: 1) What are the changes in family responsibilities? 2) How do they implement health-promoting behaviours that have been recommended to prevent COVID-19 such as mask wearing, social distancing, hand washing, and disinfecting surfaces; and what things helped or prevented those changes? and 3) How do they maintain other healthy behaviours to address their overall health including healthy eating, physical activity, and mental health. Quantitative surveys and qualitative interviews provided in-depth understanding on the challenges and needs of mothers' health and well-being.

## **1.4 Operational Definitions**

**COVID-19:** The coronavirus disease (COVID-19) is caused by SARS-CoV-2 virus, and is spread through close contact from person to person (Chu et al., 2020).

**Public health recommendations:** COVID-19 practices are public health advice such as mask wearing, social distancing, hand washing, and disinfecting surfaces to control

pathogenic infection in the general population and to limit over-burden in hospital settings (Haque, 2020; Lima-Costa et al., 2020).

**Unpaid labour and care:** Unpaid labour is done to maintain family members and/or a home (Shelton & John, 1996). The individual performing activity is not remunerated (Ferrant, 2014).

**Care:** Care can be broadly defined as work that involves looking after the physical, social, psychological, emotional, and developmental needs of one or more people (Zachorowska-Mazurkiewicz, 2016). “Care is often multitasked, and its magnitude is underestimated if a simultaneous activity is overlooked” (Craig and Churchill, 2020, p. 6).

**Family responsibilities:** These are considered the most time-consuming chores necessary for the family’s survival and are classified as unpaid labour (Fortier, 2020).

**Gender ideology:** Beliefs or attitudes that a person has about gender roles (Nordenmark, 2004). Gender ideology is the individual-level attitudes regarding the notion of ‘separate spheres’ in gender divisions of labour (McMunn et al., 2020).

**Single motherhood:** Being a single mother who is raising children on one’s own results in full-time family responsibilities (Dlugonski & Motl, 2014). Substantial family changes have happened in households in which the child’s father is not living within the same dwelling (Russell et al., 2020).

**Health Promotion:** “Health Promotion is the process of enabling people to increase control over the determinants of health, and to improve health” (PHAC, 1986).

**Health behaviours:** Beliefs and lifestyles regarding health and well-being (Russell et al., 2020).

**Healthy eating:** This reflects the availability of nutritional food, and it usually occurs when individuals have access to nutritious, safe, and sufficient food in terms of both quality and quantity (Rossi, et al., 2017).

**Physical activity:** It can be defined as “bodily movement produced by the contraction of skeletal muscle that increases energy above the basal level” (Dombrowski, 2011. p. 2).

**Mental health:** The psychological and emotional well-being necessary for living a healthy life. Mental health allows people to think, feel and act positively to enjoy life and cope with its challenges (Government of Canada 2020).

**Resilience:** To bounce back and adapting well from adversity. All people are born with the capacity to develop resilience traits: a sense of purpose, problem solving, and social competence (Kjellstrand & Harper, 2012).

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## Chapter 2

### 2 COVID-19 attributed Changes of Home and Family

#### Responsibilities among Single Mothers

##### 2.1 Introduction

The coronavirus disease (COVID-19) caused by SARS-CoV-2 virus has quickly impacted every sphere of society. Emergent research regarding COVID-19 revealed that stay-at-home orders resulted in increased family responsibilities (Craig, 2020). Sarker (2021) demonstrated that family responsibilities have increased by 58% during quarantine measures. The impact of the unprecedented lockdown has exacerbated families' care needs (Bahn et al., 2020). According to Craig and Churchill (2020), "care is often multitasked, and its magnitude is underestimated if a simultaneous activity is overlooked" (p. 6). The increased burden of care is the work devoted to the well-being of others, in particular focused on cleaning and cooking (Fortier, 2020). During the COVID-19 pandemic, there were observed increases of 38% and 25% in cleaning and cooking responsibilities, respectively, tasks primarily performed by women. Both of these family responsibilities are considered the most time-consuming chores necessary for the family's survival and are classified as unpaid labour (Fortier, 2020).

The challenges of adhering to COVID-19 related protocols exposed vulnerabilities of women, single mothers in particular. For example, women are more likely to be single parents and already face gaps in family responsibilities prior to COVID-19 (Bahn et al., 2020; Choi et al., 2020). The COVID-19 pandemic amplified the importance of accounting for unpaid labour among single mothers as they are responsible for the entire family's care.

Before COVID-19, women were engaged in far more household tasks than men globally (Fortier, 2020). The International Labour Organisation (ILO) estimated that women and girls, worldwide, spend 4 hours and 25 minutes on average per day performing family responsibilities that correspond to 75% of all household tasks (Power, 2020). Similarly, during the pandemic, Chauhan (2020) demonstrated that the increased burden of family responsibilities fell disproportionately on mothers, making them more vulnerable than the rest of the population.

As priorities and responsibilities shifted during COVID-19, single mothers were responsible for keeping their families functioning in terms of household tasks, childcare, and home-schooling. For full-time employed single mothers, COVID-19 related closures of childcare centres and school presented a real challenge and many mothers struggled during this time (Collins et al., 2020 & Yerkes et al., 2020). The lack of childcare and schooling forced mothers to reduce working hours and even abandon the labour market (Shafer et al., 2020). Single mothers experienced a dramatic increase in family responsibilities, leaving insufficient time for employment. As the care needs of the family increased during COVID-19, “single mothers felt tired, stressed and guilty because they were unable to compartmentalize paid work and family” (Hertz et al., 2020, p.23).

The disruption associated with COVID-19 reinforced the need for recognition to mothers’ performance within the home; such as, household tasks, added childcare and schooling (Bahn et al., 2020; Power, 2020). The burden of childcare and home-schooling was incorporated as household tasks (Hupkau & Petrongolo, 2020). However, single mothers living in multi-adult

households with shared responsibilities were able to manage better than those living in single-adult homes (Hertz et al., 2020).

As businesses closed or scaled back, the job market shrunk and this created major impediments in terms of available jobs. Single mothers were more likely to experience job loss and lay-offs (King et al., 2020; Sarker, 2020). The public recommendations to stay-at-home directly exposed single mothers to a rapid reconfiguration of home and family responsibilities (Shafer et al., 2020). Mothers prioritized the essential service of caring for their families as nurturing and self-sacrificing day-to-day, especially through these unprecedented challenges for being accountable to their home and family (Craig & Powell, 2013). However, as single mothers were confined within the home, family responsibilities turned into pandemic exhaustion, requiring their intensive engagement in unpaid labour during the shutdown. The home became the facility for daily care routines with the primary responsibility in caretaking.

Understanding changes in family responsibilities could reveal the unique impact of COVID-19 on vulnerable families headed by women. There is evidence that the global pandemic impacted home and family responsibilities, and that single mothers have been especially impacted by societal changes due to COVID-19. However, most studies have focused on specific aspects of family responsibilities like child care and not on a full range of common household tasks and roles. More research is needed to understand the nature of task role changes and the factors that are associated with changes in workload related to family responsibilities. The primary purpose of this study was to identify changes to workload in family responsibilities before and after COVID-19. In addition, a secondary purpose of this

study was to examine the relationship between a single mother's age and number of people living in the home to determine the variation in family responsibilities post-COVID-19.

## **2.2 Methods**

### **2.2.1 Data Source**

The Mental Health amid COVID-19 Survey was administered online from June 26 to August 31, 2020 and therefore represents the pre-vaccination phase of the pandemic. The survey asked closed-ended questions about demographic information and changes in family responsibilities, substance use (caffeine and tobacco), anxiety, and depression before and after the pandemic. Participants were 18 years or older who can read and understand English. This online survey took approximately 20-30 minutes to complete, of which 'The Home and Family Work Role Questionnaire' was a subset (MacDermid, 2018). This study data was extracted from the larger survey that recruited in a broad sample, to focus only on those respondents who self-reported as being single mothers with dependent children living in the home (n=72). Questions 13, 16, 22, and 23 of the Mental Health amid COVID-19 Survey were used in this secondary data analysis. For example: Q13 How many people in total currently live in your home, including yourself? Q16: How many dependent children currently live in your home? Q21: Think about the work you did to take care of your home and family BEFORE the COVID-19 pandemic (before March 11,202). Please do not count the work done by anyone else (family, friends, spouses, paid staff, etc.). Slide the scale to represent the percent of the work you did. If the question does not apply to you, then choose "not applicable". Q23. Similar to the previous question, think about the work you did to take care of your home and family AFTER the COVID-19 pandemic began (after March 11,



2020). Respondents were asked to fill out the survey once and reported retrospectively pre-COVID-19 (before March 11, 2020), and post-COVID-19 (after March 11, 2020).

### **2.2.2 Measurement of Family Responsibilities**

The Home and Family Work Role Survey consisted of 19 items (Table 1). Participants rated from 0 – 100-point scale, indicating what percentage of each item was usually done by them, not by family, friends, or paid staff. The intention of the questionnaire was to understand the proportion of the family work role responsibilities single mothers bear. For example: Does not apply to me = 0; A little = 1-20%; Some = 21-40%; About half = 41-60%; Quite a bit = 61-80%; Most = 81-99%; All = 100%. Although the item ‘help children with homework’ was part of the Home and Family Work Role Survey pre-pandemic, an additional related item was incorporated ‘supervise children with homework’ given the importance of home-schooling during the pandemic and the new hands-off/on-call responsibility associated with supervising home-schooling (Craig, 2020). The instrument was designed purposely to include gendered items that are typically performed by women, typically performed by men, or less gendered items to explore the gendered nature of family responsibilities to avoid gender bias.

### **2.2.3 Data Analysis**

What is the impact on family responsibilities because of the changes from COVID-19? was the primary research question. We looked at the overall proportion of workload being done by taking the mean of the 19 items: 64% pre-COVID-19 and 67% post COVID-19 of the total percentage of family role responsibilities. The mean percentage scores in each item were presented for the proportion of workload performed pre- and post-COVID-19 in Table

1. The change scores (post-pre-COVID-19) were compared through paired t-tests to identify the significance of individual changes. The sign test was considered to report the overall change as an alternative to the t-test because the distribution of differences between paired observations was not normal. In addition, seven extreme outliers were detected that were more than 3 box-lengths from the edge of the boxplot. Therefore, we used a nonparametric test rather than the t-test for the overall change score. Finally, multiple linear regression was used to examine the magnitude and precision in predicting of the sum of the total family responsibilities post-COVID-19 based on two predictor variables: mothers' age and people living at home. The regression model was built using the variables of Q:13 and Q:16 of the Mental Health amid COVID-19 Survey.

## **2.3 Results**

There were 72 single mothers (41 single, 30 divorced, and 1 widowed) from the original sample of 1,847 participants. Descriptive statistics such as mean percentage scores and standard deviations are observed in Table 1. Pre-COVID-19 mean percentage scores were higher in 4/19 items: manage family finances/bills (78%); arrange family appointments and activities (75%); earn family income (69%); and maintain vehicles (61%). Post-COVID-19 higher mean percentage scores were found in 15/19 items but not statistically different in 13/19: care for children when sick (82%); care for children in the home (81%); shop for groceries and supplies (75%); drive family to appointments and activities (74%); laundry (73%); supervise children with homework (72%); help children with homework (71%); prepare meals (71%); house cleaning (71%); home decorating (65%); outdoor maintenance (60%); garden (58%); care for other family members (56%); home repairs (56%); and

mowing lawn/shoveling snow (41%). Care for children in the home showed the highest burden of family responsibilities during lockdown measures to curb COVID-19. Six of these items showed statistically significant changes. These included: 1) Care for children in the home  $t(46) = 2.771$ ,  $p > 0.05$ . 2) Shop for groceries and supplies  $t(61) = 2.308$ ,  $p < 0.05$ . 3) House cleaning  $t(62) = 2.048$ ,  $p < 0.05$ . 4) Home decorating  $t(39) = 2.348$ ,  $p < 0.05$ . 5) Outdoor cleaning  $t(51) = 3.860$ ,  $p < 0.001$ . 6) Home repairs  $t(39) = 2.559$ ,  $p < 0.05$ .

**Table 1- COVID-19 individual items of home and family work role amongst single mothers**

| <i>Home and family<br/>Work Role (19/100)</i> | <i>Pre-COVID-19</i> |           | <i>Post-COVID-19</i> |           | <i>Post – Pre</i> |               |
|---|---------------------|-----------|----------------------|-----------|-------------------|---------------|
|   | <b>Mean</b>         | <b>SD</b> | <b>Mean</b>          | <b>SD</b> | <b>t</b>          | <b>Sig.</b>   |
| 1. House cleaning<br>(n=63)                   | 6.5                 | 2.9       | 7.1                  | 2.9       | 2.0               | <b>.045*</b>  |
| 2. Outdoor maintenance<br>(n=52)              | 5.0                 | 3.7       | 6.0                  | 3.4       | 3.9               | <b>.000**</b> |
| 3. Laundry (n=63)                             | 7.1                 | 3.1       | 7.3                  | 3.1       | .8                | .434          |
| 4. Home decorating<br>(n=40)                  | 6.0                 | 4.3       | 6.5                  | 4.1       | 2.3               | <b>.024*</b>  |
| 5. Home repairs (n=40)                        | 4.7                 | 4.0       | 5.6                  | 3.9       | 2.6               | <b>.014*</b>  |
| 6. Mowing lawn/<br>shoveling snow (n=32)      | 4.0                 | 4.4       | 4.1                  | 4.3       | .7                | .475          |
| 7. Garden (n=44)                              | 5.5                 | 4.2       | 5.8                  | 4.1       | 1.8               | .084          |
| 8. Prepare meals (n=63)                       | 6.7                 | 3.2       | 7.1                  | 3.1       | 1.5               | .140          |

|  |     |     |     |     |        |              |              |
|--|-----|-----|-----|-----|--------|--------------|--------------|
| 9. Shop for groceries and supplies (n=62)              | 6.9 | 3.3 | 7.5 | 3.1 | 2.3    | <b>.024*</b> |              |
| 10. Drive family to appointments and activities (n=52) | 7.2 | 3.4 | 7.4 | 3.5 | .4     | .662         |              |
| 11. Arrange family appointments (n=51)                 | 7.5 | 3.6 | 7.5 | 3.7 | -.090  | .928         |              |
| 12. Maintain vehicles (n=50)                           | 6.1 | 4.0 | 5.9 | 3.8 | -.693  | .492         |              |
| 13. Help children with homework (n=42)                 | 6.9 | 3.8 | 7.1 | 3.7 | .755   | .455         |              |
| 14. Supervise children with homework (n=36)            | 6.7 | 3.8 | 7.2 | 3.9 | .292   | .205         |              |
| 15. Care for children in the home (n=47)               | 7.1 | 3.2 | 8.1 |     | 2.8    | 2.8          | <b>.008*</b> |
| 16. Care for children when sick (n=43)                 | 7.9 | 3.6 | 8.2 | 3.3 | .9     | .398         |              |
| 17. Care for other family members (n=27)               | 5.1 | 3.8 | 5.6 | 3.8 | 1.3    | .206         |              |
| 18. Earn family income (n=49)                          | 6.9 | 3.9 | 6.5 | 4.3 | -1.700 | .096         |              |
| 19. Manage family finances (n=49)                      | 7.8 | 3.8 | 7.7 | 3.8 | -.545  | .588         |              |

*Note.* Two-tailed independent samples T-test were used for group comparisons pre- and post-COVID-19

Source. Home and Family Work Role Survey, 2020. Each item is scored out of 10, so scores greater than 5 indicate that women carry more than half of the workload.

\* $p < 0.05$ . \*\* $p < 0.005$

Table 2 reports the overall score change based on a binomial distribution of the sign test. In this section, we described our findings for the overall change of family responsibilities post-COVID-19. Seventy-two single mothers contributed scores to assess the overall change of family responsibilities measured pre- and post-COVID-19. An exact sign test looked at the ranks for the change of the paired differences, which indicated a statistically significant increase in family responsibilities post-COVID-19 (Mdn = .0000),  $z = 2.04$ ,  $p < .041$ .

**Table 2- COVID-19 overall score change of home and family work role amongst single mothers (n=72)**

|                             | <b>Related-Samples<br/>Sign Test Summary</b> |
|-----------------------------|--|
| Standardized Test Statistic | 2.041  |
| Exact Sig. (2-sided test)   | <b>.041*</b>                                 |

Source. Home and Family Work Role Survey, 2020.

\* $p < 0.05$ .

Table 3 presents the multiple linear regression model that indicated statistically significant changes in family responsibilities post-COVID-19,  $F(2,69) = 18.540$ ,  $p < 0.001$ . There was linearity as assessed by partial regression plots and a plot studentized residuals against the predicted values. There was independence of residuals as assessed by a Durbin-Watson statistic of 1.772. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no studentized deleted residuals greater than +3 standard deviations, no leverage values greater than 0.2, and values for cook's distance above 1. The assumption of normality was met, as assessed by Q-

Q plot. Both a single mother's age and number of people living in the home contributed significantly to the prediction of family responsibilities. Results from multiple linear regression analysis revealed a significant positive beta coefficient for mother's age ( $B = 1.648, p < 0.05$ ). Each year added to mother's age increases percentage workload by 1.6/72. A significant negative beta coefficient was identified for people living in the home ( $B = -13.095, p < 0.05$ ). Each additional person in the household reduces total workload by 13.1/72. The overall model fit had an  $R^2$  of 35% with an adjusted  $R^2$  of 33%, a small size effect according to Cohen rules. The adjusted  $R^2$  explains that the inclusion of all the predictor variables into this regression model explained 33% of the variability of family responsibilities post-COVID-19 over and above the mean model.

**Table 3- Multiple linear regression estimates predicting family responsibilities post-COVID-19 for the overall sample (n=72)**

| Predictor                            | Adjusted Beta coefficient<br>(95% CI) | Test<br>statistic | p-value |
|--------------------------------------|---------------------------------------|-------------------|---------|
| <i>F</i> -test (F(ndf,ddf), p-value) |                                       | 18.5 (2,69)       | <0.001  |
| Mother's age                         | 1.6 (.592, 2.705)                     | 3.1               | <0.05   |
| People living at home                | -13.1(-21.943, - 4.247)               | -2.9              | <0.05   |

$R^2 = 0.35$

$\Delta R^2 = 0.33$

## 2.4 Discussion

This study confirms that the COVID-19 pandemic was associated with an increase in the proportion of family responsibilities tasks for single mothers, particularly in gendered roles like meals and cleaning tasks. Before COVID-19, family responsibilities fell disproportionately onto women's shoulders (Sarker, 2020). This was confirmed in this study since women performed more than half of listed tasks (15/19) pre-pandemic. Since the survey was designed to capture typically gendered tasks done by both men and women, this indicates that even prior to the pandemic our sample was performing the majority of family role tasks. This is consistent with findings across a number of epidemiological and quantitative studies. For instance, in a commentary in *The Lancet* more than 75% of the housework was done by women, that corresponded to 9% of the gross domestic product globally (King et al., 2020). In a quantitative study, single mothers reported that performing domestic chores is time-consuming: "Yet there are only 24 hours in the day, and if time demands conflict too much, something must give. Often this is [our] wellbeing" (Craig, 2020, p.3). A policy brief found that most of the family responsibilities that women performed at home were highly gendered, including multitasking (Power, 2020). Labours referred to as multitasking were carried out simultaneously or by switching from one to another (Powell & Craig, 2015). This is consistent with the findings in our study that the three tasks where women did not do the majority of the work pre-pandemic were tasks considered more typically gendered for men, e.g., outdoor maintenance, home repairs, mowing lawn/ shoveling snow). Further, the tasks where women performed the highest workloads were typically gendered for women, e.g., arranging appointments, laundry, preparing meals. During COVID-19, the escalation of intensive mothering was centred around household tasks, childcare, and home-schooling (Collins et al., 2020). This study

reveals that caring for children in the home was the highest burden of family responsibilities, with the potential explanation being the closure of childcare and schools due to lockdown measures. This trend was consistent with prior research that increased childcare responsibilities fall onto women during the pandemic (Hupkau & Petrongolo, 2020).

Prior to COVID-19 single mothers already struggled with an overload of family responsibilities, but the pandemic resulted in intensification of their unpaid labour. The survey was designed to evaluate the distribution of work within families. Table 1 indicates the variable changes in work roles during the pandemic and potential explanations. We identified significant changes in 6/19 family responsibilities post-COVID-19: 1) care for children in the home, 2) shop for groceries and supplies, 3) house cleaning, 4) home decorating, 5) outdoor maintenance, and 6) home repairs. This emphasizes why it is important to evaluate family responsibilities at a task level since some activities increased, others decreased, and some remained the same. Most of the activities that changed are consistent with the nature of public health polices during the pandemic. When the lockdown started in March 2020, care for children in the home increased as daycares and others external supports were closed. The need to shop for groceries and supplies increased as more meals were provided at home, and more personal care and cleaning were performed within the home. House cleaning increased due to greater time at home and the need for disinfecting procedures. The fact that home decorating increases may be more of an indirect effect of the pandemic, since the opportunity to do work within the home was increased and people may have felt this was a time to do some these less urgent home tasks. Since construction was deemed an essential service, related stores and services remained open and institute pickup services meaning that people could safely access supplies and work on home projects. Since



the survey was administered and the summer season was approaching this might have influenced outdoor activities.

Thirteen family responsibilities did not show statistically significant post-COVID-19: 1) supervising children with homework, 2) care for other family members, 3) earn family income, 4) prepare meals, 5) garden, 6) help children with homework, 7) care for children when sick, 8) laundry, 9) maintain vehicles, 10) mowing lawn/shoveling snow, 11) drive family to appointments and activities, 12) manage family finances/bills, and 13) arrange family appointments and activities. While overall these tasks were areas less impacted by the pandemic, high standard deviations also indicate that these tasks were highly variable between families. An important consideration is the survey asked mothers to report the proportion of the household tasks performed rather than the volume of the workload. The volume of workload can increase but the proportion a person does could remain the same. For example, at the extremes if a single mother is doing 100% of a given item and the workload increases, there will still be no change observed if the mother is doing 100% of the task. Similarly, if mothers had reduced hours/income related to work outside the home, they could still be doing the same proportion of that role within the family. Since the survey was designed to look at workload distribution, not amount of work performed some nuanced changes may not have been revealed on the survey. Therefore, we expect that our data indicates both increased family responsibilities and decreased supports from others in completing that work.

Our regression model indicated that an increase in mother's age of one year is associated with an increase of one-unit change in family responsibilities post-COVID-19. The reasons

why older mothers perform a greater percentage workload are not clear but may relate to having older parents who are less able to provide instrumental help, the age of children or that older mothers were less likely to have another adult in the home. Qualitative analyses or more detailed information on family structure would be needed to investigate these hypotheses. In contrast, an increase in number of people living in the home was associated with a decrease in individual family responsibilities post-COVID-19. Possible reasons for the decrease include that other adults in the household take on a percentage of the workload e.g., extended family; or that older children take on substantive roles in performing household tasks. Our findings are consistent with studies suggesting that women from multi-adult households experienced fewer challenging situations than women who live alone with their children (Hertz et al., 2020). The consistently higher beta weights indicated that the associations in the number of people living in the home has a greater influence than the mother's age.

Others have suggested that stay-at-home regulations have increased family responsibilities for women (Craig & Churchill, 2020). Women are more likely to be the sole providers than men (Hupkau & Petrongolo, 2020), so single parenthood is a factor that compounds family role responsibilities for women to a greater extent than men. Mothers sacrifice their well-being to meet the needs of their children, particularly when the mother is the primary caregiver (Russell et al., 2020). This study revealed that single mothers already assumed more than half of the workload in many aspects of family role responsibilities prior to the pandemic, but that shutdowns exacerbated their disproportionate family responsibilities. The interrelated challenges due to loss of childcare, schooling, and jobs exacerbated family responsibilities (Bice-Wigington et al., 2015). The long-term consequences of these

disproportionate challenges are not yet known for single mothers. Future research should examine mothers' mental health and well-being during the pandemic. In these unprecedented times, it would be helpful to have greater understanding of the impact of societal changes on vulnerable groups, such as single mothers to influence restructuring of governing policy to provide greater protection.

## **2.5 Limitations**

The strengths of this study include a standardized questionnaire and focus on a specific subgroup. We acknowledge several limitations that should be noted. The sample size was not sufficient to examine subgroups of single mothers and we recognize that there is substantial diversity in family structures even within households led by a single parent. When we looked at the individual items of home and family work roles, the number of respondents varies because some of the items were not relevant to single mothers. We used a previously validated survey which asks respondents to rate the percentage of workload rather of the amount of workload performed. While this is an important perspective it can miss situations where the amount of work changes, but the proportion does not. Since we expected that loss of external help may be a major issue for single mothers during the pandemic, we felt that this validated measure best captured the construct we were interested in. We did not have data on the ages of the children or adults in the home and could not consider many predictors based on our sample size, to avoid overfitting the model. We were unable to consider employment within the model since there were too many small cells, that could not be meaningful recombined. Additionally, the full range of family responsibilities are not yet

well-established because of the multiple roles single mothers undertook during the pandemic (Hertz et al., 2020), so this survey reflects only a sampling of the work performed.

## **2.6 Conclusion**

We found that single mothers performed more than half of the family responsibilities (15/19) pre-pandemic and that increases in 6/19 tasks/roles including: care for children in the home, shop for groceries and supplies, house cleaning, home decorating, outdoor maintenance, and home repairs. Having more people living in the home to share family responsibilities during the COVID-19 pandemic may have lessened the impact on the mother. Single mothers may have lost external supports during the pandemic and, as they resume more normal work and occupation, their needs to rebuild support systems should be factored into their return to work and activities. Further studies should focus on the impact on mothers' mental health and their ability to create a healthy family environment based on different family structural features i.e. whether single mothers live by themselves, with their children or in multi-adult households.

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## Chapter 3

### 3 Barriers and Facilitators of COVID-19 Practices among Canadian Single Mothers: A Qualitative Study

#### 3.1 Introduction

The public health emergency of the COVID-19 pandemic produced worldwide mortality rates that necessitated a public health response. Governments rapidly mandated specific actions on personal protective behaviours to control pathogenic infection, including mask wearing, social distancing, more frequent hand washing and disinfection of surfaces (Zhou et al., 2021; Coroiu et al., 2020; Głąbska et al., 2020). By adopting these preventive measures, the overall goal was to reduce the virus transmission in the general population and to limit over-burden in hospital settings (Coroiu et al., 2020; Dehghani et al., 2021; Chen et al., 2020; Haque, 2020). However, there was low awareness of and willingness to implement these public health guidelines at the beginning of the pandemic (Zhou et al., 2021). According to the Angus Reid Institute, less than half (47%) of Canadians consistently followed public health guidelines in the sixth month of the COVID-19 pandemic, while approximately one-third (36%) of Canadians were inconsistent with the preventive measures. Finally, one in five Canadians (18%) do not implement COVID-19 practices (Angus Reid Institute, 2020).

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is spread through close contact from person to person causing COVID-19 infection (Chu et al., 2020). Although the virus SARS-CoV-2 is primarily transmitted through respiratory droplets, contact with eyes, mouth, and nose, it can remain on frequently touched surfaces for up to 7 days (Gharpure et al., 2021; Sun & Ostrikov, 2020). The mechanisms of transmission and seriousness of overall



infection determined the importance of public health behaviours. The Centers for Disease Control and Prevention (CDC) recommend mask wearing helps to prevent the transmission of respiratory droplets when people talk, cough, and sneeze (CDC, 2021a). Furthermore, a systematic review of personal protective behaviours during COVID-19 confirmed that masking had the potential to minimize the risk of virus infection (Chu et al., 2020).

The CDC also recommended implementing social distancing, also known as physical distancing, aims to reduce physical interaction and lower the spread of COVID-19 (CDC, 2021b). Social distancing is the practice of keeping a distance of 2m (metres) or 6 feet of open space between people (Behar-Zusman et al., 2020; Qian & Jiang, 2020). A systematic review supports that at least one metre, and if feasible two metres, is required to help prevent transmission of SARS-CoV-2 (Chu et al., 2020). Lessons from China, Spain, and Italy indicated that social distancing lessened the spread of the virus (Qian & Jiang, 2020). The most frequently policy that focused on social distancing was stay-at-home orders, in which people experienced changes in daily routines and work-related practices. This had direct and indirect effects on job loss and child-care arrangements (Ares et al., 2021).

The CDC also recommended more frequent hand washing as a preventive strategy to slow the spread of SARS CoV-2 virus (CDC, 2021c). Hand hygiene is considered a significant preventive measure that can reduce viral transmission by 55% (Haque, 2020). To be effective hand washing must be done properly, for at least 20 seconds using water and soap, or an alcohol-based sanitizer (Yigzaw et al., 2021; Al-Wutayd et al., 2021; Brown et al., 2020). During the pandemic, the CDC recommended using water and soap for hand washing, and to use hand sanitizers when these were not available (CDC, 2021c). This recommendation

reflects that soap is effective against the virus, and potentially less harmful to skin and the environment.

The recommendation of the CDC to increase the frequency of disinfecting surfaces with soap or detergent products to remove contaminants and decrease the risk of infection was made as SARS-CoV-2 can survive on plastics, metals, and surgical masks from 10 hours to 7 days (CDC, 2021d). Evidence indicated that the largest knowledge gap in disinfecting surfaces was safe preparation of disinfectant solutions (Gharpure et al., 2020). There are also risks associated with high use of disinfecting products. For example, bleach products were reported as the source of 62% of poisoning exposure followed by hand sanitizers 37% during the COVID-19 pandemic (Samara et al., 2020). Despite limited knowledge on safe preparation of disinfectants, surface disinfection was high to prevent COVID-19 during the first lockdown in March 2020 (Brown et al., 2020; Gharpure et al., 2021).

Gender and other demographic factors can affect adherence to health behaviours. In children, girls are more willing to engage in hygiene-related practices than boys (Chen et al., 2020). The same pattern continues in adulthood that self-protective behaviours are higher in women than men (Dindarloo et al., 2020; Brown et al., 2020; Al-Wutayd et al., 2021; Huong et al., 2020; Pedersen & Favero, 2020). However, women-headed households have encountered unique challenges related to COVID-19 public health guidelines (Behar-Zusman et al., 2020). For instance, restrictions on social gatherings included closures of public facilities such as schools, childcares, and workplaces, which in turn affected single mothers as they were obligated to take time off work to fulfill family and childcare responsibilities within the home (Seale et al., 2020). This resulted in women filling unpaid roles at home as many did

not have the option to work from home or make special childcare arrangements (Ribeiro et al., 2021; Viner et al., 2020). To inform and improve public health policy, it is paramount to understand the experiences of single mothers that hinder or facilitate COVID-19 practices. As such, the objectives of this qualitative study are to describe Canadian single mothers' experiences with the implementation of mask wearing, social distancing, more frequent hand washing and disinfecting surfaces, as well as to identify barriers and facilitators in implementing these specific public health behaviours.

## **3.2 Methods**

### **3.2.1 Recruitment of Participants**

Study procedures were reviewed and approved by the Western University Health Science Research Ethics Board (Appendix A). Study participants were recruited through purposeful sampling (Appendix B). The official Facebook and Twitter social media platforms of the Hand and Upper Limb Centre (HULC) were used to recruit participants. Inclusion criteria included individuals who: (1) self-identified as single mothers and have dependent children living in the home; (2) spoke fluent English; (3) were over the age of 18; (4) were able to provide informed consent; and (5) resided in Canada. Participants were provided with the letter of information and signed consent through a Western Qualtrics online form prior to the one-on-one interviews. Formal written consent was obtained from participants, and any identifying information about participants was changed to pseudonyms. Due to the COVID-19 restrictions for in-person activities, we created a unique Western Corporate Zoom link for participants according to the time that worked best for each of them.

### **3.2.2 Data Collection**

One-on-one interviews were conducted by the first author between May and June 2021, using a semi-structured interview guide to gain a better understanding of the personal protective behaviours that have been recommended for preventing COVID-19: mask wearing, social distancing, hand washing, and disinfecting surfaces (Appendix C). Each interview lasted approximately 60 minutes and was conducted via Zoom video call. The interviews were audio recorded using an encrypted device and transcribed verbatim. Pseudonyms were assigned to keep participants' identity anonymous.

### **3.2.3 Data Analysis**

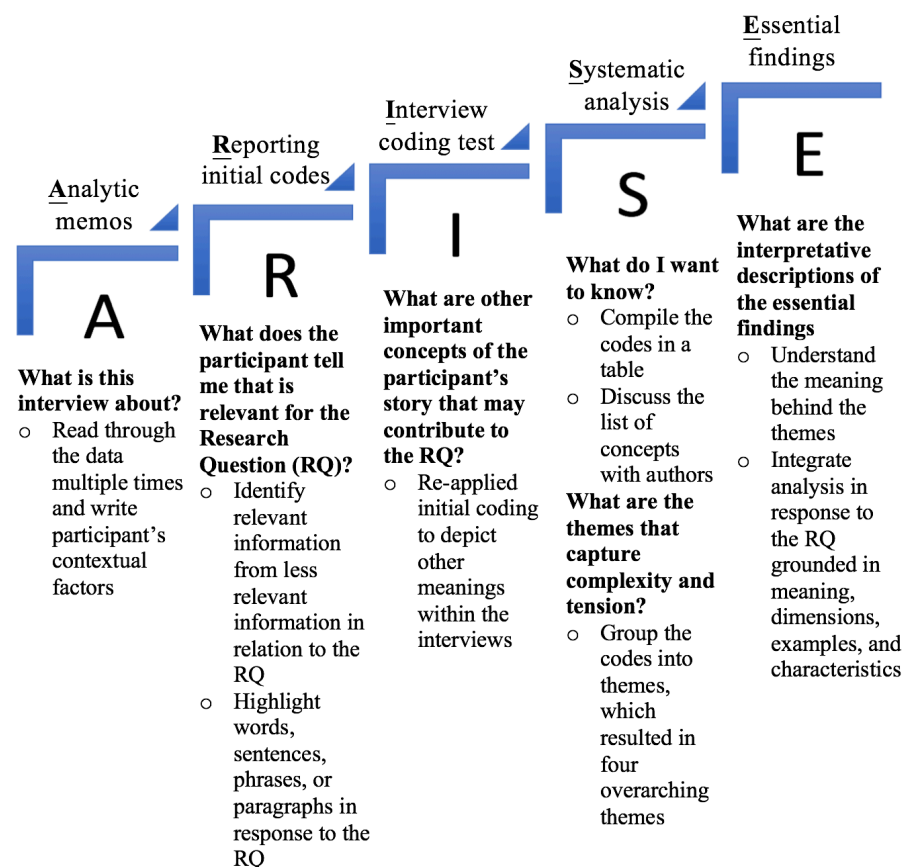
The initial analysis sample yielded twelve interviews. Thereafter, a further criterion was not considered because the point of data saturation was reached with the initial sample criterion as new information was not emerging after the twelve interviews (Francis et al., 2010). The 'Arise Framework' was developed in this thesis work that uses an analytic guide, which consisted of a set of questions with the goal to orient data organization in thematic analysis (Figure 2).

### **3.2.4 Trustworthiness**

The concepts of dependability, credibility, confirmability, and transferability were used to establish trustworthiness in this qualitative study (Lincoln & Guba, 1985). Dependability was achieved through reflexivity as a coherence process between data collection and data analysis. Credibility was maintained throughout the interview with frequent member checking following participants' responses to ensure accurate interpretations. Confirmability

consisted on presenting the personal characteristics of the respondents (Table 4). Transferability involved the operationalization of the Arise Framework within the interpretative paradigm, using NVivo 12 Software (Figure 2). From the beginning stage, the implementation and scale-up consisted on Alytic memos, in which participants' contextual factors were documented to familiarize with the data (Appendix D). Reporting initial codes include reading each transcript in order to generate initial coding. Interview coding testing allowed to step back into each interview by searching for themes. Systematic analysis compiled the codes in a table to discuss the list and review the themes with the research team. Finally, Essential findings encompassed the interpretative descriptions of the themes that captured complexity and tension.

**Figure 2- The Arise Framework for qualitative data analysis**



### 3.3 Results

Twelve Canadian single mothers, aged 18-51, participated in one-on-one interviews.

Participants were Canadians who self-identified as a single mother. Nine single mothers had school age children and three single mothers had children of daycare age. Seven single mothers were unemployed and had one dependent child. Five single mothers were employed and had two dependent children. Out of the twelve single mothers, two identify their nationality as Korean, two as Indian, and the remainder as Canadian (Table 4).

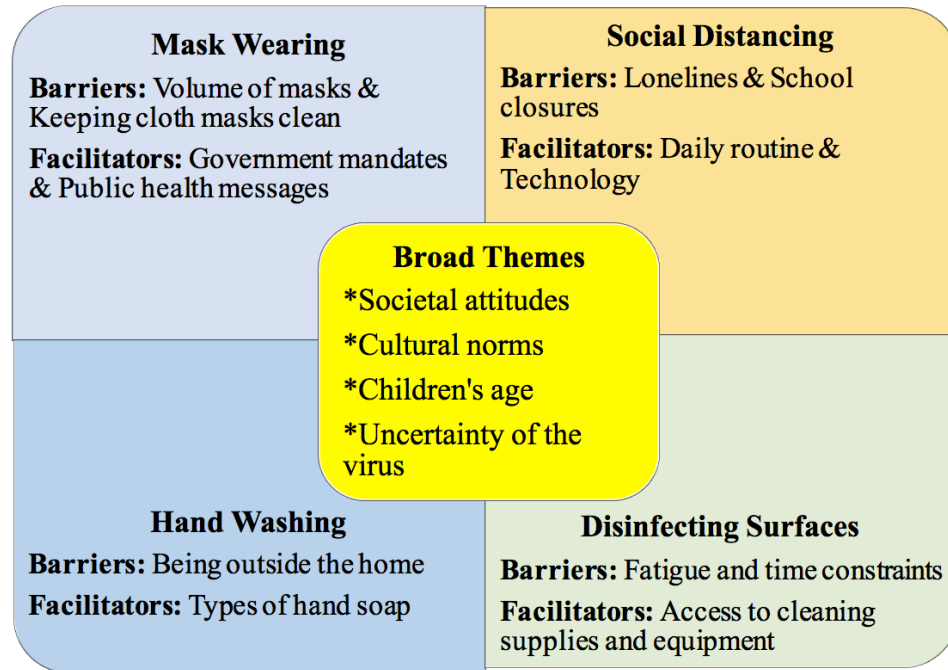
**Table 4- Description of study participants**

| <b>Pseudonyms</b> | <b>Age</b> | <b>City</b>  | <b>Number of children</b>     | <b>Occupation status</b> | <b>Nationality</b> |
|-------------------|------------|--------------|-------------------------------|--------------------------|--------------------|
| Caitlin           | 39         | St. Thomas   | 1 school age daughter         | Unemployed               | Canada             |
| Shona             | 45         | London       | 2 school age daughter and son | Employed                 | India              |
| Jillian           | 29         | London       | 1 son in daycare              | Unemployed               | Canada             |
| Mikaela           | 18         | Chatham Kent | 1 daughter in daycare         | Unemployed               | Canada             |
| Jasmine           | 41         | London       | 2 school age daughter and son | Unemployed               | Korea              |
| Anne-Marie        | 51         | St. Thomas   | 1 school age son              | Unemployed               | Korea              |
| Jolene            | 40         | London       | 2 school age sons             | Employed                 | India              |

|        |    |            |                        |            |        |
|--------|----|------------|------------------------|------------|--------|
| Jami   | 37 | London     | 2 sons in daycare      | Unemployed | Canada |
| Lisa   | 29 | Caledonia  | 1 school age daughter  | Unemployed | Canada |
| Becca  | 45 | Masstown   | 1 school age daughter  | Employed   | Canada |
| Shelly | 38 | Newcastle  | 2 school age daughters | Employed   | Canada |
| Alice  | 33 | St. Thomas | 1 school age son       | Employed   | Canada |

Regarding the experiences of single mothers in implementing COVID-19 practices, the following barriers and facilitators emerged for mask wearing, social distancing, hand washing, and disinfecting surfaces. The key findings of our study are summarized in Figure 3. The yellow box highlights the broad issues affecting all public health behaviours: societal attitudes and stigma, pre-existing cultural and family norms, children’s age, and uncertainty about the virus.

**Figure 3- Broad themes and behaviour-specific barriers and facilitators of COVID-19 practices among Canadian single mothers**



### 3.3.1 Mask Wearing

At the beginning of the pandemic, single mothers bought masks in large quantities as it was hard to get the right fit. One participant highlighted, *“When I go in a store. It is like falling off... I have to buy quite a few until I found some that fit very well, and those I don’t mind anymore. I want something that fits well”* (Lisa). Single mothers experienced that their children got used to face masks quickly. One participant elaborated, *“I was so impressed for these children and how well they adapted to these changes. She did not complain once”* (Caitlin). Mask wearing became part of the daily routine of going out. To facilitate this, mothers reported using a box besides the door helped as a visual reminder to grab a reusable cloth mask. One participant added, *“Just in case we forget our masks... We have 30 masks”*



(Jolene). In addition, single mothers considered mask wearing to be a respectful protective behaviour. By doing it, they showed to care for themselves and others.

**Barriers of mask wearing.** Mask wearing was a difficult adjustment as faces have different sizes, and one's nose and mouth being covered might not be comfortable. One participant stressed, *"I would find it sometimes like panicking with masks with the cloth ones because it is hard to breathe"* (Shelly). This personal protective behaviour has had a greater impact on some mothers more than others. For example, mask wearing might lead to health reactions, especially during long periods of time. One participant explained:

*More at work, I got acne for wearing the mask. That wasn't fun to deal with. It can get painful. I use disposal masks. I do not have acne now, but I notice that restart going back to work. So, that is kind of a nice thing of not working. I ended that getting a medication from my doctor (Jillian).*

Single mothers suggested that there is a need to reframe the mask wearing protocol for people who work eight hours a day or work in certain conditions. One participant said, *"I am really scared to go back to work this summer... wearing a mask all day in the heat"* (Caitlin). Regarding cloth masks, the barrier was keeping them clean. When masks were used, single mothers and their children did not wear them again, which was the main rationale behind stock piling many masks in a box. One participant claimed, *"It can be very easy not wash them every day. I think if you want to get the most effectiveness, you should probably have a 50 of them, and constantly kind of washing them"* (Lisa). Time constraints prevented single mothers from washing reusable masks on a regular basis.

**Facilitators of mask wearing.** Mask wearing was a mandated public health protocol in Canada during the COVID-19 pandemic. One participant stated, *"The rule was*

*put forward by the province. Otherwise if there is no rule, wearing a mask in the public would look different” (Shona).* The government rule was the biggest facilitator for everyone to wear a mask in public places. Public health messages also promoted the adoption of this health behaviour. One participant provided an example of an effective message from her original home country of India: *“a mask cost 10 rupee, but if you get COVID, you have to wear the oxygen [that] is going to be very expensive. So, you choose whether you want the mask or whether you want the oxygen” (Jolene).* Although there were no specific examples of effective public health messages in Canada, participants pointed out that the practice of wearing a mask on a regular basis reinforced collective efforts.

### **3.3.2 Social Distancing**

Social distancing measures included stay-at-home orders besides keeping distance of six feet apart between people. This resulted in going out for essentials only, for example, to the grocery store. One participant emphasized, *“We don’t go anywhere except of going for groceries” (Alice).* Additionally, single mothers considered the importance of children’s outdoor activities due to the isolation with no school and no extra-curricular activities. One participant mentioned, *“I think going to the playground is so important. We do it almost every day, really” (Caitlin).* However, mothers with young children struggled to teach them to maintain their distance: *“I can’t really teach him. I tried to teach him through this entire pandemic to give space and stay in a certain amount away. It seems that is not getting in” (Jami).* Single mothers noted that distancing was an ongoing struggle. Although they promoted the rules, their children enjoyed being near other children. While for single mothers, social engagements were limited. One participant noted, *“I do not invite people home for social gatherings during the weekends what I used to do before” (Shona).* To

implement social distancing, single mothers referred to their defining social bubbles. In other words, social bubbles were defined in terms of the most critical with loved ones and few friends whom they associated with regularly.

**Barriers of social distancing.** Single mothers described social distancing as lonely and emotional that lacked connection with other people. Single mothers expressed the needs of their children. One participant stressed, *“We still miss our friends. He asks me, mom, can we do this? Can we go somewhere?” (Anne-Marie)*. Although single mothers were unhappy about social distancing measures, they were able to follow the rule. However, the struggle was to constantly reinforce social distancing among their children by explaining they cannot do what they want because of the government rule. Children aged 3-7 years had difficulties with physical boundaries. One participant said, *“When kids see their friends, it becomes very difficult for them not to be close” (Jolene)*. Children can be very physical in terms of hugging and touching other children, and it is challenging for mothers to teach them social distancing. One participant stated, *“He is always at people’s face, giving people hugs, and trying to kiss people. So, I really struggle with him” (Jami)*. In fact, physical presence was important not only for children, but also for mothers. One participant illustrated how social distancing felt, *“You just want companionship. We just want to be around their friends. It doesn’t feel great because you want to hug your friend, being closer. Don’t look at them that they are a pile of germs” (Jillian)*. As a sole parent, companionship provided them mental stability. While the lack of social connections underlined vulnerabilities for single mothers during the pandemic.

Another challenge for single mothers was the transition from in-person school to online home-school. Since children were home, some single mothers were off work due to lack of

internal supports within the home. One participant commented, *“The biggest one is that the schools been closed. Obviously as a single mom trying to work, having my daughter not in school is really tough, and still is. Last year, I was off work for seven months”* (Caitlin).

Single mothers juggled to adapt changes in family responsibilities and recognized the value of school hours between 9:00 am to 3:00 pm in relation to their jobs. Mothers did not feel as competent as teachers in providing online learning support. One participant expressed:

*To be honest, what I find frustrating it is that depends on the day when the teacher isn't even there. Maybe, she has an appointment. For whatever reason, she takes the day off or a lot of times the work is assigned. Then the kids have to do outside of the virtual class hours. In my opinion, they waste a lot of this virtual class doing lessons ... they are not really getting those lessons* (Lisa).

Children were used to receiving in-person lessons from their teachers. In turn, mothers found that online home-school was not the same learning-structure for their children.

**Facilitators of social distancing.** Social distancing had slowly become an everyday practice even though single mothers did not believe the pandemic would last for more than a year. One participant noted, *“It has become so much of a habit. At the start, it was so weird to have to keep distance for our loved ones. I think it just becomes so second nature now. It becomes a part that we are all thinking about it. It becomes ingrained in your habits”* (Shelly). Social distancing was repeated regularly in which this practice enhanced an unconscious pattern of behaviour. Single mothers had learned to keep distance as much as possible: *“I know how to keep it, but I am always thinking about my kids”* (Shona). Single mothers used technology such as Zoom and FaceTime to communicate with their family and friends. One participant explained, *“I can get everything that bothers me, get my frustrations, talk to somebody about your irritations on whatever is going on at that point”* (Alice). The

social component was rooted in mothers' emotional needs that they need others to do well and stay well.

### 3.3.3 Hand Washing

Single mothers preferred hand sanitizers and wipes rather than implementing hand washing behaviours. One participant commented, *"We carry out those sanitizers and wipes with us when we go out... My daughter is used to it"* (Caitlin). Sanitizers and wipes were always available for mother and child in a box near the main entrance to the house. Hand washing was considered only for dirty hands. One participant emphasized, *"We may be implemented once or twice a day. If they are really dirty, I get them to wash"* (Jami). During the COVID-19 pandemic, hand washing was emphasized as a health behaviour to develop a strong habit. One participant explained, *"It was also an eye opening to us that how many people don't really wash their hands. They have to be told. Many people kind of push that away"* (Mikaela).

**Barriers of hand washing.** Being outside the home was challenging for single mothers and their children because of the inability to find public facilities for hand hygiene. One participant mentioned, *"The most frustrating things is that public places are open, but there are no public washrooms. There was no place to wash your hands, that is kind of gross"* (Caitlin). This was also challenging for single mothers with little children, especially regarding proper hand washing. One participant added, *"My youngest wants to play with the water forever, and taking him away is a major thing. I struggle there. My oldest is fine"* (Jami).

**Facilitators of hand washing.** Single mothers highlighted that hand soap made hand washing a more positive experience. For example, a soap that smells nice could

encourage hand washing for 20 seconds. Using different types of hand soap was the main facilitator for success in achieving hand washing behaviours as single mothers did not have to work as hard to implement the behaviour in older children as they did in younger children. One participant explained, *“It is probably because my kids are the age that they are. The thing with younger kids, it would be that you have to stay on top a lot more”* (Shelly). Children’s age was a factor influencing their ability to practice hand washing on their own. One participant agreed by saying, *“I think that is easier with my daughter because being 10. She understands things a lot more. I think it would be more challenging for a 3-year old to wash their hands and wear a mask”* (Lisa).

### **3.3.4 Disinfecting Surfaces**

Surfaces were disinfected more frequently at the beginning of the pandemic. Single mothers cleaned handles, steering wheels, door knobs, cars, and groceries, using chemical products and wipes. One participant stated, *“I have a spray, which I spray on my shoes. I make sure that we all put our shoes outside the house”* (Shona). However, surfaces were disinfected less over time due to changes in knowledge about the virus. Single mothers explained that extra cleaning is not a mandatory behaviour to prevent COVID-19. As such, cleaning remained the same as before. One participant commented:

*I clean and I disinfect, but I don’t do more than I did before. I disinfect my entire bathroom when I clean it and my kitchen. I wash the floors with bacteria killing products that I use. I do enough as it is. I do my bathroom once a week. Probably I do my kitchen every two days [and] the house three days a week (Jami).*

Overall, there was not an increased in house cleaning because participants observed that disinfecting did not have an impact on preventing COVID-19.

**Barriers of disinfecting surfaces.** The primary barrier that single mothers experienced in disinfecting surfaces was lack of energy due to childcare responsibilities. Motherhood without external supports was time-consuming. Daily struggles to perform all parenting duties alone, in some cases with decreased supports than prior to the pandemic was a major concern of single mothers. Every step for them was a struggle, and it was related to parenting alone during COVID-19. One participant highlighted, *“Just giving the amount of time I have, cleaning takes probably four to five hours in a week... It tires me out because we don’t go out too much, but it is still. That takes a very long time” (Jolene)*. When single mothers saw the need to clean and disinfect, it was still challenging because of time constraints. One participant remarked, *“I think it is hard because you just can’t do it once a week. I don’t really think that is effective. You probably have to do it every day” (Lisa)*. Single mothers devoted most of their time to childcare as their primary and most important family responsibility.

**Facilitators of disinfecting surfaces.** Disinfecting wipes were the supplies that facilitated the process to clean surfaces. One participant mentioned, *“One of the things they keep saying is that it removes 99.9% of bacteria” (Jolene)*. However, single mothers understood that disinfecting surfaces is not a mandatory behaviour to prevent COVID-19. Additionally, access to disinfectants facilitate house cleaning. One participant stated, *“I think it is the same as just having the mask thing, knowing where they are. I mean accessibility” (Jillian)*. Besides chemical supplies, single mothers also found it useful to have multiple cleaning tools such as a vacuum, broom, and cloths for wiping floors. These tools were used once a week.

### 3.3.5 Generic Issues Influencing all COVID-19 Practices

Societal attitudes, cultural norms, children's related behaviours, and uncertainty of the virus were the generic issues that influenced all COVID-19 practices. Regarding mask wearing and social distancing measures, there was conflict between social stigma and medical issues. In fact, health conditions hindered the ability to wear a mask for a few mothers. One participant examined:

*We face a lot of rude comments. A lot of ignorance towards people who can't wear one. We did try, but it made our medical condition so much worse. I cannot wear neither disposal nor cloth masks. We keep our distance from people. It is very frustrating to go out in public now with all these masks, especially because being one of the few that we can't wear one. It is very frustrating (Mikaela).*

There was also lot of pressure on mothers who cannot wear a mask to find employment as mask wearing is mandatory in public places. Being a sole parent in the home without sources of income jeopardizes the opportunity to provide for the family.

In terms of hand washing behaviours, cultural norms were visible. A mother of Korean descent explained that washing hands was part of her culture, while in Canada, it was observed that it is not natural:

*When we eat together if I ask my son to wash his hands because we are going to eat supper now, and then [Canadian friend] is really surprise for that. She said, oh that is a really good habit. You guys always do that? Yes, Korean people likes to do that, not every Korean, but usually for the family who has kids. I do not think this is a special habit here (Anne-Marie).*



The ability to recognize the need to wash hands more often was a positive attitude from mothers in implementing this preventive measure. However, age is an important factor influencing whether a child engages in this behaviour on their own. One participant noted, *“I think that having a three-year-old. He is in his own little world, which is normal. I am here, wash your hands”* (Jillian). Single mothers felt responsible to teach their children this practice: it was an ongoing awareness to be fully present to stay healthy.

For disinfecting surfaces, uncertainty was a recurrent theme due to evolving knowledge about the virus. One participant said, *“At some point it came out that COVID doesn’t transmit as much on surfaces as it does in the air. We have read some articles that wasn’t a necessary behaviour anymore. So, we really relaxed on that front”* (Shelly). While outside the home, uncertainty was manifested in attitudes of fear in bringing something into the house. One participant remarked, *“That ongoing fear in your head that why if I have something in my hands. It is something you can feel it. It is that fear not so much for myself. Although fear for myself too because you just never know with COVID”* (Shelly).

### **3.4 Discussion**

This study highlights that a sample of single mothers engaged in voluntary personal protective behaviours supported by public health advice to slow the spread of COVID-19. Although there was high adherence to public health guidelines, single mothers experienced a broad array of barriers. A study by Williams et al. (2020) reported that the major stressors of the COVID-19 pandemic were quarantine duration, fear, unclear information, inadequate supplies, and financial constraints. The shutdown of public facilities compromised mothers’

employment, school closures, and family/social supports were no longer available. Mothers felt lonely, which was directly related to parenting “more” alone during COVID-19.

The most important personal protective behaviours for Canadian single mothers were mask wearing and social distancing measures. Their experiences illustrated that mask wearing and social distancing bears the burden of protecting self and others. A study by Benham et al. (2021) found that mask wearing and social distancing behaviours required less physical effort compared to hand washing and disinfecting surfaces. This may be an important contributor to the findings of the current study as a result of the increased responsibilities single mothers faced during the COVID-19 pandemic.

Mask wearing behaviours led single mothers to acquire big quantities of cloth masks. Our findings related to the high volume of masks in single mothers agrees with a narrative review of mask wearing that reported a high level of adherence among women (Seale et al., 2020). Motivation is a central predictor to behaviour change, mothers’ motivation in our study was driven by protecting others by wearing a mask (Schunk & DiBenedetto, 2020). The only women who did not use masks in our study did so for medical reasons and experienced stigma as a result. The impact of societal pressures was evident through discriminatory comments in public spheres for single mothers who were medically exempted from mask wearing. General public health campaigns had been a channel to promote mask wearing behaviours. There is evidence that some people experienced barriers to mask wearing due to certain medical conditions (Benham et al., 2021); however, public health messages did not address this challenge. Research has demonstrated that when preventive messages are focused on a prosocial framework, the messaging is more effective (Coroiu et al., 2020;

Dehghani et al., 2021). As such, prosocial emotional messages should aim for a compassionate approach towards people who are unable to wear a mask. This might increase the likelihood that all members of society respect one another.

Social distancing measures had a negative effect on single mothers' emotional well-being. Loneliness was present among many single mothers while dealing with unemployment and daily stressors of home and family responsibilities. This was congruent with another qualitative study, which found that social distancing resulted in the loss of social interaction, income, and daily routine during the pandemic (Williams et al., 2020). Outside the home, the playground was a recurrent place for mothers and their children to visit. However, their children had a difficult time keeping their distance from other children. Evidence showed that social distancing among children is not effective as it is for adults (Chen et al., 2020). This explains the constant struggle single mothers experience in trying to teach their children to keep a distance of two feet apart. Single mothers were responsible not only for their children's entertainment, but also for their children's home-schooling. Decisions to cancel in-person schools impacted children, leaving them without access to educational centres and extra-curricular activities, therefore, a substantial burden of supervising children with online education and homework fell upon mothers' shoulders. Caregiving burdens increased, while mothers' well-being decreased. This was consistent with another study that found the added responsibility associated with online learning increased parental levels of stress, worry, and social isolation (Ribeiro et al., 2021). Single mothers grieved the loss of external supports in isolation.

Hand washing was challenging to implement outside the home as washrooms in public facilities were closed even if other parts of the service were opened. As such, hand sanitizers were more frequently used among single mothers and children. Before COVID-19, the routine of hand washing has not been a habit, instead it was implemented for dirty hands only. This finding agrees with a study in Vietnam that reports low adherence to hand washing practices (Huong et al., 2020). Hand washing can become a lifelong habit, but the process of forming that habit should start in childhood (Głabska et al., 2020). However, our study revealed that single mothers experienced more difficulties in teaching their young children hand hygiene habits compared to mothers with older children. In Wuhan China, for example, it was observed that more than half of primary students had improper hand washing during February 2020 (Głabska et al., 2020). Basic hand washing education should be encouraged, as people adopted better hand washing practices after a demonstration, improving this habit by six times better performance (Yigzaw et al., 2021). Proper hand washing technique and frequency are needed especially before meals, after sneezing and coughing, and when coming home.

Disinfecting surfaces was a predominant strategy used in the early stage of the pandemic only. A similar pattern was found among US adults who highly engaged in household cleaning and disinfection (Gharpure et al., 2020). Our findings reveal that this behaviour gradually lessened as mothers learned that COVID-19 is transmitted more frequently through respiratory droplets rather than surfaces. Although it was beneficial to have access to cleaning supplies and equipment, single mothers expressed that fatigue and time constraints were impediments to disinfecting schedules, which was related to parenting alone during an ongoing pandemic. This is supported by research that demonstrated low levels of adherence

were reported if disinfecting surfaces required a large amount of effort (Gharpure et al., 2021).

### **3.5 Strengths and Limitations**

This study was conducted amid the COVID-19 pandemic (May - June 2021) so that single mothers had sufficient time to implement and adapt to public health recommendations. We achieved diversity of different types of single mothers, including different ethnicity, ages, employment status and number/age of children. There are limitations that should be noted.

The findings of behaviour-specific barriers and facilitators of mask wearing, social distancing, hand washing, and disinfecting surfaces were not unique to single mothers as the general population also encountered the pandemic-related challenges outlined in figure 3. In addition, our focus on specific public health directives did not include all recommendations e.g. avoidance of touching mouth, nose, and eyes, and that while personal factors related to the mother may have influenced these behaviours we did not focus on this aspect.

Furthermore, the role of culture and societal values was not considered in our sampling, but it became a latent theme in some of the answers. This study was not designed to look at cultural differences, rather it was a reflection of a North American context.

### **3.6 Conclusion**

Single mothers encountered challenges during the pandemic related to societal attitudes and stigma, pre-existing cultural and family norms, the impact of children's age, and uncertainty related to changing knowledge about the virus. These broad issues affected all public health behaviours. In addition, some barriers were noted for adherence to recommended public

health behaviours. Volume of masks and keeping cloth masks clean were reported as barriers of mask wearing. Loneliness and school closures were reported barriers to social distancing. Being outside the home was a barrier to hand washing; and fatigue and time constraints were barriers to disinfecting surfaces. Despite the willingness to follow COVID-19 protocols, behaviour change was not straightforward because of these challenges and being a single parent without employment and social supports during the pandemic. Finally, some facilitators were highlighted in implementing personal protective behaviours. Government mandates and public health messages were facilitators of mask wearing. Daily routine and technology were facilitators of social distancing. Types of hand soap was a facilitator of hand washing and access to cleaning supplies and equipment were facilitators to disinfecting surfaces. Further studies should focus on assessing health-promoting interventions that consider generic issues and behaviour-specific barriers that address the extra difficulties that single mothers experience in implementing pandemic-related public health policies.

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## Chapter 4

### 4 A Qualitative Study of Healthy Eating, Physical Activity, and Mental Health among Canadian Single Mothers

#### 4.1 Introduction

There has been an increase in the number of families headed by single parents since the late twentieth century (Avison et al., 2007). Increased rates of divorce have resulted in single-parent families, particularly headed by women, and it is fairly common that most children live permanently with the mother (Elfhag & Rasmussen, 2008). In Canada, single parenthood is mostly experienced by women (Dziak et al., 2010). These changes in the family structure impact the health and well-being of women; for example, single mothers under the age of 50 are more vulnerable to experience poor health and disability compared to married mothers (Dlugonski et al., 2017). In addition, single mothers often face financial strains because they are the lone income provider which limits their ability to purchase nutritious food through socially acceptable means. Families with low incomes are more vulnerable to the consumption of less healthier diets (Power, 2005; Dlugonski & Motl, 2014). One income earner and lower wages often result in low-income households and poor nutrition.

In the context of Canada, a lower intake of fruits and vegetables is observed among single mothers (Elfhag & Rasmussen, 2008; Dumas et al., 2020). This often occurs because women prioritise the needs of their children before their own (Welch et al., 2009). In other words, mothers sacrifice their own nutrition to maintain their children's diets by modifying their own food consumption (McIntyre et al., 2003). For instance, 52% of single mothers deprived

themselves of good nutrition to meet the needs of their children in a low-income community of Ontario, Canada (McIntyre et al., 2003). Inadequate income restricts healthy eating practices for mothers who are working at a minimum wage (Power, 2005). As illustrated, single mothers who are employed are more likely to be in low-paying jobs than married mothers (Dziak et al., 2010).

The literature on women's health has focused on their multiple roles either in the labour force or in the family responsibilities (Chandola et al., 2004). Being a single mother who is raising children on one's own requires a full-time commitment to family roles. Caring for children is one of the family role responsibilities that is time-consuming among single mothers (Dlugonski & Motl, 2014). Research showed that time available for grocery shopping, preparation, and good nutrition is in jeopardy due to time pressures at home and family responsibilities (Welch et al., 2009). Single mothers experienced time scarcity, leading to high consumption of energy-dense fast foods and low consumption of fruits and vegetables (Welch et al., 2009). Food preferences also influences eating behaviours, which accounts for sensory appeal, price, and convenience (Power, 2005; Oellingrath et al., 2013). Food choices are influenced by a variety of factors varying from individual to social and cultural factors.

Due to an overload in these roles, a higher proportion of stress-related outcomes occur, including higher levels of depression and anxiety in single mothers compared to married/partnered mothers (Dlugonski & Motl, 2016; Chandola et al., 2004). The presence of depression contributes to low levels of physical activity, and poor health (Dlugonski et al., 2017). Physical activity is considered one of the public health strategies to help people improve their health (Dlugonski & Motl, 2016). However, around 60-80% of adults are not

physically active enough to achieve health benefits (Dixon, 2009). Public health guidelines for physical activity suggest moderate-intensity aerobic activity for  $\geq 150$  minutes every week, combined with muscle-strengthening activities on at least for two days per week (Dlugonski et al., 2017; Dlugonski & Motl, 2013). Overall, women experience low rates of physical activity, particularly single mothers with young children (Dixon, 2009).

In Western societies, physical activity often happens during leisure time (Borodulin et al., 2016). Mothers who are working full-time and raising children on their own may not have enough access to leisure-time activities (Dombrowski, 2011). In turn, single mothers juggle multiple family role responsibilities often prioritizing family needs and sacrificing self-pursuits to do so (Hoebeke, 2008). Despite the recognition that physical activity optimizes health and well-being, family roles and busy schedules are barriers for single mothers to engage in leisure-time physical activity (Dixon, 2009; Thompson et al., 2010). This may also be due to conflicts associated with family life and work.

Family responsibilities fall disproportionately to women globally (Fortier, 2020). During the COVID-19 pandemic, single mothers faced further imbalance between home and work, often being most responsible for caring for children in the home (Chauhan, 2020). Single mothers experienced high levels of parenting stress and depression during the pandemic (Limbers et al., 2020). Increased parenting stress has been demonstrated to be associated with low levels of physical activity (Dlugonski et al., 2017). In addition to stress and depression, working mothers experienced high levels of loneliness and isolation during the COVID-19 pandemic (Limbers et al., 2020). High stressors include social isolation and lack of support that add into the demands of daily life (Taylor & Conger, 2017; Skomorovsky et al., 2019). This

highlights that single mothers experience constraints at many levels, which may compromise their mental health.

Due to overload in family responsibilities and work, single mothers in industrialized societies have poor mental health (Chandola et al., 2004). Depression is the major mental illness among women with the prevalence of depression being two to three times higher in single mothers compared to the general population (Peden et al., 2005; Samuels-Dennis, 2007). Worldwide estimates show that 9.5% of women experience depression compared to 5.8% of men (Atkins, 2010). In particular, depression disproportionately affects the maintenance of healthy eating and physical activity in which single mothers are more likely to experience depression than married mothers (Atkins, 2010). For instance, if single mothers have more stressors, they have a higher probability of experiencing persistent levels of depression over 1-year period (Peden et al., 2005). This may demonstrate that single mothers are a more vulnerable group relative to the rest of the population.

Single mothers report resilience through coping mechanisms in day-to-day living. Resilience means to bounce back and adapt in response to adversity (Kjellstrand & Harper, 2012). All people are born with the capacity to develop resilience traits such as a sense of purpose, problem solving, and social competence (Kjellstrand & Harper, 2012). Resilience helps single mothers to cope with difficult situations. Coping is a cognitive and behavioural strategy to control emotional and depressive symptoms, and interacts with sense of belonging (Samuels-Dennis, 2007; Skomorovsky et al., 2019). Coping is also a positive predictor for women's mental health (Samuels-Dennis, 2007). In turn, coping strategies have two types. First, emotion-focused coping is to manage emotions. Second, problem-focused coping is to



deal with problems (Hashim et al., 2015). There are few studies that examine which coping strategies are used by single mothers. The identification of mechanisms that help single mothers to cope and function would benefit their health and well-being.

Most studies have targeted specific issues or subgroups of single mothers. For instance, areas in the following domains: African American low-income single mothers (Taylor & Conger, 2017); employment status, welfare issues, and absence of support sources (Cakir, 2010); economic deprivation (Kjellstrand & Harper, 2012); comparison between single-mother families to two-parent families (Taylor & Conger, 2017); and life satisfaction and psychological distress (Skomorovsky et al., 2019). More research is needed to identify how single mothers implement health behaviours and what things help or prevent those changes with a focus on Canadian women who are parenting alone. We ask the following research questions, recognizing that both systemic and pandemic-related issues might arise: 1) What are the experiences of single mothers as they try to maintain healthy eating, physical activity, and mental health? and 2) What are some of the challenges and facilitators to maintain those health behaviours?

## **4.2 Methods**

This is a qualitative study in which single mothers aged 18-51 were recruited through purposeful sampling seeking variation in age and employment status. Participants had to meet all of the following specific criteria (Appendix B). First, participants were Canadians who self-identified as single mothers and spoke fluent English. Second, participants were over the age of 18, and had dependent children living in the home. Finally, participants were able to provide informed consent. Semi-structured interviews were used to facilitate

conversation with the aim to explore participants' lived experiences while investigating the research questions.

Francis et al. (2010) suggested two main principles of an adequate sample size to reach thematic saturation: 1) Specify an initial sample size upon which is the first round of analysis, and 2) Identify a final criterion that needs to be further conducted if new ideas are not emerging. In this view, the initial analysis sample yielded 12 interviews, using a process of constant comparison in which saturation occurred. Data was transcribed verbatim and transfer to NVivo 12 software to facilitate coding and analysis of participants' responses.

#### **4.2.1 Study Design**

This study used a narrative inquiry methodology to advance the understanding of the experiences of single mothers. To engage in narrative inquiry, our positionality is to become co-participants in knowledge co-creation alongside the participants (Lindsay & Schwind, 2016). This study was conducted with the interpretative paradigm where knowledge construction embodied individual lived experiences of what participants perceived to exist about their personal health (Ponterotto, 2005).

#### **4.2.2 Study Procedures**

This qualitative study provided a rich description of the lived experiences of single mothers regarding their beliefs and lifestyles on health behaviours. It also examined the unique factors that help or prevent healthy eating, physical activity, and contribute to mental health. All procedures of this study were approved by the Western University Health Science Research Ethics Board (Appendix A).

Participants read the letter of information and signed consent through a Western Qualtrics online form prior to the individual interviews. As a result of the COVID-19 pandemic, interviews took place over a video/call using Western Corporate Zoom and a semi-structured interview guide (Appendix C). Participants were asked about healthy eating, physical activity, and mental health to maintain general health, and how easy and difficult was to implement health behaviours. All data collection occurred with the same interviewer between May and June 2021.

Content and structural analyses were conducted on the interview transcripts. Content analysis was intended to identify emerging codes from the transcripts that characterized the data (Smith & Sparkles, 2008). Sentences were coded and then compiled into categories to establish themes. Structural analysis was then used to interpret the meanings of the narratives as a whole towards the identification of themes (Smith & Sparkles, 2008).

### **4.3 Results**

Demographic information (Table 5) was collected from twelve single mothers. Nine single mothers had school age children, whereas three single mothers had preschool age children in daycares. Seven single mothers were unemployed and had one child, while five single mothers were employed and had two children. The primary and most time-consuming family responsibility for single mothers was caring for children in the home during COVID-19.

**Table 5- Characteristics of study participants and their family responsibilities**

| <b>ID</b> | <b>Age</b> | <b>Number of children</b>               | <b>City</b>     | <b>Occupation status</b> | <b>Family responsibilities</b>   |
|-----------|------------|---|-----------------|--------------------------|--|
| (1)       | 39         | 1 school age daughter                   | St. Thomas      | Unemployed               | Care for the child in the home   |
| (2)       | 45         | 2 school age children; daughter and son | London          | Employed                 | Care for the children in the home  |
| (3)       | 29         | 1 preschool age son in daycare          | London          | Unemployed               | Emotional support to the child, and care for the child in the home             |
| (4)       | 18         | 1 preschool age daughter in daycare     | Chatham<br>Kent | Unemployed               | Share family responsibilities with parents, and care for the child in the home |
| (5)       | 41         | 2 school age children; daughter and son | London          | Unemployed               | Care for the children in the home  |
| (6)       | 51         | 1 school age son                        | St. Thomas      | Unemployed               | Emotional support to the child, and care for the child in the home             |

|      |    |                                 |            |            |  |
|------|----|---------------------------------|------------|------------|--|
| (7)  | 40 | 2 school age sons               | London     | Employed   | Care for the children in the home  |
| (8)  | 37 | 2 preschool age sons in daycare | London     | Unemployed | Care for the children in the home  |
| (9)  | 29 | 1 school age daughter           | Caledonia  | Unemployed | Share family responsibilities with parents, and care for the child in the home |
| (10) | 45 | 1 school age daughter           | Masstown   | Employed   | Prepare meals, and care for the child in the home                              |
| (11) | 38 | 2 school age daughters          | Newcastle  | Employed   | Care for the children in the home  |
| (12) | 33 | 1 school age son                | St. Thomas | Employed   | Emotional support to the child, and care for the children in the home          |

The research data revealed in-depth insights of the experiences of single mothers about their family responsibilities and health behaviours. The themes that emerged from the data were the overarching connection between the codes (Table 6).

**Table 6- Barriers and facilitators of health behaviours among Canadian single mothers**

| <b>Theme - Healthy Eating</b>  |  |  |
|--|--|--|
|  | <b>Barriers</b>  | <b>Facilitators</b>  |
| Affordable foods were not necessarily healthy: it is an individual issue, but it is also a societal issue                            | <ul style="list-style-type: none"> <li>• Stay-at-home orders</li> <li>• Limited budget</li> <li>• Unhealthy food/cravings</li> <li>• Lack of motivation</li> </ul> | <ul style="list-style-type: none"> <li>• Living with parents who help</li> <li>• Understanding of healthy food</li> </ul>                      |
| <b>Theme - Physical Activity</b>   |  |  |
|  | <b>Barriers</b>  | <b>Facilitators</b>  |
| As single mothers were burdened with stress; their physical activity was mostly walking and online video exercises amid the pandemic | <ul style="list-style-type: none"> <li>• Lack of willpower</li> <li>• Lack of time</li> <li>• Low energy</li> </ul>  | <ul style="list-style-type: none"> <li>• Time on one's own</li> <li>• Weighing scales or outdoor gear</li> <li>• Weather conditions</li> </ul> |
| <b>Theme - Mental Health</b>   |  |  |
|  | <b>Barriers</b>  | <b>Facilitators</b>  |
| Resilience helped single mothers the most to move on after negative events   | <ul style="list-style-type: none"> <li>• Loneliness</li> <li>• Unemployment</li> <li>• Depressive symptoms</li> </ul>  | <ul style="list-style-type: none"> <li>• Spirituality</li> <li>• Gratitude</li> </ul>  |

### **4.3.1 Caring for children in the home, the most time-consuming family responsibility**

Being a single mother required women to fulfill the roles of a mother and a father. Before COVID-19, home and family work roles were oriented to the well-being of children. One participant explained, *“I wouldn’t say that I have too much of a social life before because again they take so much of my time”* (ID 7, 40 years old, 2 children). During COVID-19, caring for children in the home was more demanding and a full-time job. One participant remarked, *“I need to support my son... and I need to sacrifice all of my life”* (ID 6, 51 years old, 1 child). Another participant added, *“Making sure she wakes up on time and gets ready to go for the day. Feeding her, changing her, bathing her, putting her to bed.”* (ID 4, 18 years old, 1 child). Mothers’ volume of duties and commitment was a priority that limited personal time.

Single mothers experienced nothing left for themselves as their children were the priority. In fact, children’s needs were considered the most-time consuming family roles among single mothers. Besides the lack of tangible support, emotional support was also missing for mothers and their children during the pandemic. One participant stressed, *“If he needs help with something, I help him. Helping him to have a good day. Do it all. He has some behavioural issues... It is not a lot of more work, but I definitely try to make sure he gets some support that he needs.”* (ID 12, 33 years old, 1 child). Mothers’ sacrificial love was not self-seeking, but always protecting, hoping, and persevering. One participant expressed, *“The emotional component, I think there is a need for emotional support for the girls. (ID 11, 38 years old, 2 children). Mothers’ emotional support encompassed lots of attention, love, and care.*

Home and family responsibilities were performed by single mothers without supports from family and friends: *“My role and everything I’ve done is the same because I am all myself, I don’t have any help” (ID 8, 37 years old, 2 children)*. Then, single mothers faced unique challenges as they did not have another person helping in the home. One participant noted, *“It is week by week stress” (ID 1, 39 years old, 1 child)*. Although single mothers desired to have time on their own, they were committed to their children first. One participant mentioned, *“I feel strongly responsible to them. The negative thing is that makes me stressful” (ID 5, 41 years old, 2 children)*. For single mothers who were living alone with their children, their loneliness was evident through symptoms of anxiety and depression. One participant said,

*Some really good highs like been able to spend much time with my daughter. That has been awesome, but at the same point, conversations with a five-year-old get old. I need adult interactions. I’ve experienced a few panics attacks this year and depression. It is not something that I feel I dealt with. Also, I probably drink more this year than ever. (ID 1, 39 years old, 1 child)*

The strain of being a mother is rewarding but imposes on mental health and time for personal health.

#### **4.3.2 Affordable foods as not necessarily healthy**

Convenience is an individual issue, but it is also a societal issue. Single mothers had knowledge about healthy eating behaviours, but stress and busyness prevented them from preparing healthy homemade meals. To be the only adult in the house was a stressful situation that led single mothers to grab something quick and simple rather than cooking. Some mothers opted for meal kits that were delivered to the house which came with healthy



ingredients. Single mothers reused leftovers during the week as a strategy to make healthy foods more affordable. One participant commented:

*I am only a single person and I get lots of leftovers, and I love leftovers. I just recooked for lunch next day. If I go to the grocery store, I buy vegetables, I just wasted it, and I do not want to waste it. I do not like food waste. It might cost a bit, but I eat the whole thing over and over a week. The three meals and leftovers. Those are big portions. (ID 3, 29 years old, 1 child)*

Cooking is time-consuming, and single mothers had limited time as they fulfill family and work expectations. One participant mentioned, “*We are so busy nowadays, and a lot of people aren’t eating home cooked meals*” (ID 9, 29 years old, 1 child). This trend led to consuming easily access fast foods: hamburgers, fries, and pizza. However, single mothers were aware of not eating too much of these fast foods. Although cooking was not an enjoyable activity, single mothers expressed the need to prioritize the nutrition of their children with vegetables. One participant noted:

*I think I worry more about with my daughter that I do with myself, which is not necessarily good. Today, for example, I cut up vegetables on plate to go with her and I just eat the pizza. That would be my weakness. I probably do a better job when it comes to her than what it comes to my own personal health. (ID 1, 39 years old, 1 child)*

To maintain a sustainable approach to healthy eating, single mothers tried to establish flexible food principles that could support positive health behaviours. One participant remarked:

*When you are trying to be too rigid, you end up setting yourself up for failure. I learned that the hard way. If you say I am not going to have any carbs, you set yourself to the point that you just give up. So, I really like this 80/20 principle where the 80% of the time, we are eating really healthy, which I wanted to do anyway. (ID 11, 38 years old, 2 children)*

Flexibility was an important factor and can be seen in the 80/20 principle discussed by this participant. For example, 80% of the time families eat healthy foods and 20% of the time they allow themselves to have less healthy foods as a treat. This approach was more sustainable for life rather than mothers feeling deprived when trying to be 100% healthy. One participant accounted, *“I think if a person is healthy and happy, it shows... I like eating sweets. I don't over indulge it ... I think having anything in a limited quantity is great” (ID 7, 40 years old, 2 children)*. Single mothers were mindful of the consequences of an unhealthy lifestyle associated with food, that might contribute to changes later in their older age. In this view, one participant said, *“I take it seriously if I want to have good outcomes.” (ID 10, 45 years old, 1 child)*.

**Barriers of healthy eating.** The stay-at-home orders associated with the COVID-19 pandemic affected eating schedules, in particular lunch time because of children's online home-schooling. One participant stated, *“It is very challenging because their lunch break is 10:50 to 11:50. Who has lunch at 10:50 in the morning?” (ID 7, 40 years old, 2 children)*. There was a need for more meals and more “stocking up” behaviours as mothers and children were at home more. This increased the financial burden and often there was not enough budget to cover this increased demand. One participant remarked, *“What am I going to buy? what recipes do I want to make? I spend all my money ... and we don't really have enough budget for everything.” (ID 6, 51 years old, 1 child)*. Most of the mothers' budget was spent

on food, especially vegetables and meat. On the other hand, unhealthy food was associated with cheap food and less nutritional value. One participant explained, *“I think that sometimes I am really tired from being a single mom, and I just say let’s get a hamburger and fries. I tried not to do it that much”* (ID 3, 29 years old, 1 child).

Mothers acknowledged that their bodies naturally craved fat and sugar. They also acknowledged that the more junk food they ate, the poorer health they experienced. One participant recognized, *“I really like fast food. It is one of my guilty pleasures ... I am still not there with healthy eating”* (ID 4, 18 years old, 1 child). The predominant barrier was that single mothers did not find the motivation to cook. One reason was being the only adult in the household, as well as not having extra time. One participant commented:

*I used to eat a sandwich for lunch every day, and it was really fast to make it and it was really fast to eat. Now, I have a salad to make and it takes longer to make and longer to eat. It just takes extra time. I am still having to cook even when I am really tired.* (ID 10, 45 years old, 1 child)

At the end of the day, single mothers were exhausted due to the extensive family responsibilities performed within the home. Mothers recognized the need to learn time management skills to handle time in an effective way.

**Facilitators of healthy eating.** Due to social isolation that single mothers experienced during COVID-19, a few moved back to their parents’ house, which in turn facilitated healthy eating. One participant said, *“My mom is good at cooking dinner. She does not deprive everybody in my family for a decent meal”* (ID 9, 29 years old, 1 child). Single mothers had knowledge that healthy food maintains their own personal health. Small steps led single mothers to great changes. One participant mentioned, *“My parents are really good*

*at maintaining that ... We have changed from white bread to whole wheat. That white bread change still doesn't sit it right with me somedays. [But] I am getting there."* (ID 4, 18 years old, 1 child). Single mothers expressed willingness to undertake healthy behaviours. For example, to invest more time on new menus as their children are growing up. One participant remarked, *"I read a lot what boys need. I asked the doctor recently because he is growing."* (ID 7, 40 years old, 2 children). Single mothers supported healthy eating for their children, and were willing to be healthy for their children.

### **4.3.3 Walking and online video exercises as mothers' main physical activity**

As single mothers were burdened with stress, their physical activity was mostly walking and online exercises amid the pandemic. To manage stress, single mothers recognized the need to be physically active. Outdoor exercises were the mostly valued physical activities by the majority of participants in our study. One participant accounted, *"Everything impacts you, your mental health, getting out for a walk, getting fresh air and exercise. That is so beneficial."* (ID 3, 29 years old, 1 child). In particular, walking became a priority among single mothers during lockdown measures since it was perceived as convenient, inexpensive and safe. Single mothers also used physical activity as a means to escape and spend time away from their children. One participant revealed:

*While my children are having their classes, I go to the park. I can release my stress there because I have to be away from my children for a while. Just staying at home makes me so weighted. So, I have to go outside to exercise. I need that. (ID 5, 41 years old, 2 children)*

During COVID-19, single mothers faced loneliness at home, which negatively impacted their mental health. However, the pandemic encouraged them to spend time walking in the surroundings of nature. One participant explained:

*Before COVID-19 there were so many things competing for attention. We do live in a very much consumer society. It is that pursue of happiness through things and through work, which a lot of people are still working. It is very hard to have fun without spending money, and when everything is closed. You have to find different ways to entertain yourself. (ID 9, 29 years old, 1 child)*

As there were less options and things to do during the pandemic, going back to basics like walking encouraged single mothers to be creative about being physically active.

Walking was the gentle approach implemented by single mothers. One participant recalled, *“A lot of times, I’ve been hard on myself... Some week ago, I did HIIT exercises, so High Intensity Interval Training. It is more of an intense, kind of a crazy thing. My body was not happy after. I just trying to be gentle to myself” (ID 3, 29 years old, 1 child)*. Intense exercises ended up in exhaustion. As a result, it was important for single mothers to find more moderate types of physical activity. Walking was carried out from 2-4 times every week for at least one hour. One participant said, *“I was able to at least have something as an outlet because physical activity is so important to me...Without that, it would have been really tough through the winter, but having that definitely helped a lot.” (ID 10, 45 years old, 1 child)*.

Single mothers identified that physical activity was helpful, especially as they became older. Besides walking, online video exercises was also a useful method of being physically active. YouTube became a feasible and easily accessible option for exercising from home during the

pandemic. One participant noted, *“I go to the basement, put a music a do a little bit of dances maybe 15 minutes.”* (ID 2, 45 years old, 2 children). Doing exercises from home was easier and more comfortable than going to the gym. Another participant stated, *“Sometimes, my pose is not perfect and in front other people is kind of embarrassment, but exercising by myself it doesn’t matter.”* (ID 6, 51 years old, 1 child). Resources like YouTube videos gave participants the opportunity to explore other options to exercise from home.

**Barriers of physical activity.** Single mothers were mindful that physical activity must be incorporated into their regular routine for their health and well-being. However, the practice of physical activity on a regular basis was linked with willpower. One participant illustrated, *“I don’t want to do because I am not the person who likes exercise. Every morning, I feel lazy, I do not want to do that.”* (ID 6, 51 years old, 1 child). Contradictory attitudes toward physical activity were exposed. While other participants expressed the importance of developing self-discipline regardless the circumstances. One participant pointed out, *“It is usually 8 or 9 o’clock at night. It is always at night. I know that this has to happen for my wellness, so I make that happen.”* (ID 11, 38 years old, 2 children). Single mothers were responsible for all family tasks. By the time, they had time to exercise, they were extremely tired. One participant added, *“I think again just being tired. I feel like my resources are limited.”* (ID 3, 29 years old, 1 child). As such, mothers had to manage and prioritize their limited resources between home responsibilities and their own personal health.

**Facilitators of physical activity.** Single mothers felt comfortable to do physical activity outside the home and without their children. One participant reflected, *“I exercise by myself without my children. Just going for walks because they will not do it for one hour or two hours. So, we have different habits.”* (ID 5, 41 years old, 2 children). As gyms were

closed during the COVID-19 pandemic, walking became the main outlet to escape the pressures of family responsibilities. Weight scales were a tool for single mothers to check their weight regularly, and a facilitator for walking. As such, walking turned into a personal motivation towards achieving positive health behaviours. This was related to ‘why’ single mothers were exercising. For example, one participant said, *“When I see my body, I think that I have to do exercise” (ID 5, 41 years old, 2 children).*

Equipment was considered necessary to going outside. One participant stated, *“I got a special insulated running jacket and insulated waterproof shoes. That helped a lot. Instead of paying for the gym membership, I invested in the outdoor gear.” (ID 10, 45 years old, 1 child).* The summer season was also an important factor that single mothers took advantage of. One participant highlighted, *“My biggest exercise right now is getting out with my daughter, walking down the park, see the dogs, the playground, the splash pad. In the summer, we often do lots of different zoos. It is mostly walking” (ID 1, 39 years old, 1 child).* In fact, weather conditions facilitated outdoor activities for both walking and recreational activities.

#### **4.3.4 Resilience as a coping mechanism to move on after negative events**

Single mothers described that the first shutdown was very challenging because they spent a lot of time with their children. One participant said, *“I don’t think I was ever born to stay-at-home mom. I’ve loved this time with my daughter, and gets to be a lot some days.” (ID 1, 39 years old, 1 child).* The mental health of single mothers was compromised. One participant expressed, *“Mental health is the problem. I feel very bored and stressful with things to do*

*and to stay home every day.” (ID 5, 41 years old, 2 children).* The overload of family responsibilities overwhelmed single mothers. Over the years, several of the single mothers reported to have been battling depression. Participants attributed their depression to unhealthy relationships with their ex-partners and suggested that social and emotional support from friends was important to their mental health. Once participant commented:

*It took me a really long time to leave that relationship. I think 9 years... It was one of the hardest times in my life to make that decision and not looking back to that. I have a friend who literally said, you are picking a day and you are leaving. She was there, she helped me. Honestly, I don't know if I wouldn't have done it without her really helping me. (ID 11, 38 years old, 2 children)*

Some single mothers embarked on a journey of spirituality to improve their mental health. Spirituality was an anchor in their lives. Single mothers pointed out that their relationship with God gave them hope to face adversity. One participant expressed, *“I try to do for my mental health is just take some time to sit and pray and read the Bible.” (ID 10, 45 years old, 1 child).* Another participant accounted, *“God helps me. I still have my core values and beliefs that I learned. There are still there. I know He is there. I have the knowledge that Jesus is my saviour and saves me every day.” (ID 8, 37 years old, 2 children).* To have the compass of living a life in the spirit helped single mothers to move forward in a journey of healing and gratitude.

**Barriers of mental health.** As the sole adult in the home, single mothers experienced loneliness. One participant reflected, *“My biggest thing is that as far as being a mom is that some days I have to figure all out. Nobody is going to do it if I don't do it.” (ID 1, 39 years old, 1 child).* There were many uncertainties regarding the pandemic. One



participant said, *“There is no way out of it, just to wait, and we are still waiting.”* (ID 10, 45 years old, 1 child). Worries about unemployment and children’s school crowded their minds. Additionally, limited contact with their loved ones triggered isolation, which contributed to exacerbation of their depressive symptoms. One participant remarked, *“I will call my grandma and just cry. I just call my dad, and I just cry. What is wrong with me. What do I feel this? I feel such a burden or heaviness.”* (ID 3, 29 years old, 1 child). It was difficult for single mothers to realize that depression was happening again.

**Facilitators of mental health.** Spirituality was raised as a support for multiple participants. A source of encouragement was Scripture, which helped single mothers to find peace that God was with them in the midst of adversity. Spirituality was an important area that mothers explored during the pandemic, and gratitude was enacted from spiritual disciples. One participant stated, *“I am a religious person. I hold on to the Bible verses, which means a lot to me, and this has proved maybe from my childhood.”* (ID 2, 45 years old, 2 children). Gratitude made single mothers more resilient to enter the process of healing from depressive symptoms. Gratitude gave them hope in giving thanks for things they have taken for granted in their lives. One participant reflected:

*Some days, it just be, I have breath in my lungs... I just walk out my door and go for a walk in a safe country where I have free fluent water. Some of these things. When you start thinking like that it changes everything about your day and your whole mentality* (ID 11, 38 years old, 2 children).

## 4.4 Discussion

This study highlights that single mothers experienced substantial challenges in maintaining health behaviours due to competing demands, economic limitations, fatigue, and lack of social supports. These challenges were aggravated during the pandemic as employment, family and social supports, school resources and contributions to child care were compromised. A recurrent guiding principle pre- and post-pandemic was for mothers to place their children's needs first. Resilience tools such as living with family, gratitude, spirituality, exercise and time in nature mitigated the stress, despair, and loneliness felt by mothers and helped them engage in positive health behaviours.

Single mothers encountered limited time and budget hindering them from making homemade quality meals, and leading them to access less expensive industrial foods high in sugar, salt, and fat, but lower in nutritional value. This was also connected to food culture within the Canadian context in which mothers recognized that industrial and fast foods are pleasure oriented, as well as require little effort to prepare. Research shows that psychological factors drive behaviours and food choices such as the sensory appeal of smell, taste, and appearance, and is considered the most important parental motive for food choices (Elfhag & Rasmussen, 2008).

Single motherhood was related to lower consumption of vegetables. Being the only adult in the household influenced lower intakes of fruit and vegetables due to fulfilling family role responsibilities. A self-reported lack of time hindered mothers' ability to make personal healthy choices, even if they had adequate knowledge about healthy behaviours. However, this did not always extend to their children's eating behaviours. Our findings were consistent

with Hertz et al. (2020) that women from multi-adult households experienced fewer challenging situations than women who live alone with their children. Maternal food self-deprivation happened among lone mothers as they prioritized family responsibilities, including feeding their children with healthy food (McIntyre et al., 2003). Living with parents helped single mothers to eat healthy compared to those living in single-adult households. This may demonstrate that family structure is related to burden of family responsibilities, such that in multi-adult households the responsibilities are shared among other household members.

The main stressors discussed in this research were unaided childbearing and lower levels of support among single mothers. Lack of time and low energy was the most frequently reported barrier. This was consistent with another qualitative study that reported high levels of stress among parents with young children (Dlugonski & Motl, 2014). Competing family responsibilities between home and work roles represent time constraints for physical activity among single mothers (Dlugonski & Motl, 2016; Thompson et al., 2010). Before COVID-19, single mothers may have been physically active by spending energy on caregiving and housework. Research shows that activities that involve childcare and housework may maintain caloric balance, but are not considered sufficient for cardiorespiratory fitness (Dombrowski, 2011). During COVID-19, single mothers took the initiative to do online-based exercises and outdoor walking. This finding confirms what another qualitative study found, that walking was the primary leisure-time physical activity of single mothers (Dlugonski et al., 2017). The pandemic motivated some single mothers to spend time in nature four times per week for about an hour, and occasionally follow online video exercises.

Although external supports were lost during the pandemic, single mothers felt comfortable to go walking on their own, while their school-age children stayed at home. Single mothers acknowledged that physical activity has a positive impact on their health and well-being. Intrinsic motivation was an important value of mothers' long-term adherence, which encouraged physically active roles by setting a schedule until a habit is developed. It is necessary to understand the psychological motivation to participate in physical activity. There is substantial research that suggest that self-motivation is a requirement to maintain physical activity (Thompson et al., 2010; Dombrowski, 2011). In this study, access to weight scales, outdoor gear, and favourable weather conditions were also identified as important facilitators for physical activity. Finally, flexibility to adapt to busy schedules will be a recurrent need among single mothers after the pandemic to pursue physical activity.

Single mothers experienced loneliness during the COVID-19 pandemic. Feelings of isolation aggravated symptoms of depression as their primary focus was to take care of their children in the home. Another contributing factor to their depression was broken relationships with their ex-partners. Research revealed that the dissolution of a relationship or marriage is often accompanied by depression (Avison et al., 2007). Our study highlighted that difficulty in past relationships had negative consequences on mothers' mental health. While supportive relationships benefitted mental health through reassurance, assistance, and positive interactions (Taylor & Conger, 2017). Yet single mothers from our study tended to have fewer or no emotional and tangible supports after dissolution of relationships.

Coping mechanisms within resilience may moderate the influence between stressors and depressive symptoms (Taylor & Conger, 2017; Skomorovsky et al., 2019). In this study,

spirituality and gratitude were coping mechanisms that single mothers implemented to move forward after negative events of life. Single mothers explained that the uncertainties of the pandemic were the anchor to return to faith. In turn, single mothers embarked on a spiritual journey to also heal emotional wounds from past relationships. As a result, gratitude arose as an expression of not taking things for granted such as the gift of life and the presence of loved ones. “Gratitude is a life orientation toward noticing and appreciating the positive effect in life” (Taylor & Conger, 2017, p. 6). In this study, gratitude nurtured the strength of mothers’ hearts and was related with less depressive symptoms, positive associations in the levels of personality traits, and relationships with others. Spirituality and gratitude were important constructs of mother’s mental well-being that should be explored further in future research.

## **4.5 Recommendations**

Healthy behaviours cannot improve unless we provide sufficient support to single mothers in ways that are in line with their needs, including child care and emotional support. Research showed that perceived social support is an important factor within resilience (Taylor & Conger, 2017). For healthy eating habits, food kits might be useful for time management by reducing the need to plan meals and shop for ingredients and have a benefit of potentially increasing cooking skills as they come with step-by-step instructions. Single mothers discussed needing self-discipline and a gentle approach to participate in physical activity as evidenced by undertaking daily walks or following online video exercises. It was paramount to plan physical activity on moderate intensity levels and regular leisure time routines. Single mothers felt they were able to lessen the stressors of home and family responsibilities through physical activity in these ways. During the COVID-19 pandemic, it will be important

to continue these habits as life changes post-pandemic. Experiences of resilience highlighted the importance of incorporating spirituality and gratitude as components for future individual and community-based health interventions for single mothers. Spirituality became a resiliency tool used by single mothers as a coping mechanism to face unprecedented events of life. Future research on health interventions for single mothers should consider incorporating components of spirituality, gratitude and positive emotions with the goal of increasing health and well-being.

## **4.6 Conclusion**

Single mothers faced unique challenges associated with home and family work role responsibilities. Canadian single mothers struggled to maintain their own personal health due to the multiple family responsibilities they perform on a daily basis, particularly caring for children in the home during the COVID-19 pandemic. Time pressures compromised mothers' healthy eating, physical activity, and mental health. Both time constraints and the ease of accessing processed foods challenged mothers' ability to make healthy choices. Mothers' physical activity was outdoor walking and online video exercises that positively impacted unaided childcare, financial strains, and unemployment. Although the pandemic exacerbated symptoms of depression and feelings of isolation, walking contributed with the prevention of sedentary behaviours and stress. Spirituality and gratitude were identified as key coping mechanisms of resilience to moderate psychological distress. Further studies should focus on how gratitude supports mothers' mental health and well-being.

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## Chapter 5

### 5 Discussion

This thesis focused on understanding the unique challenges of single mothers as they try to maintain health behaviours while they first prioritize the needs of their children, and meet the evolving COVID-19 public recommendations. Single mothers were the target population of interest for this thesis because they were uniquely affected by the pandemic. They needed to deal with their family responsibilities, and most likely did not have another adult living in the home to share those responsibilities or lost their external support systems since outside help was restricted by public health rules. To maintain personal health behaviours might be particularly problematic for single mothers because the pandemic might have layered on additional challenges. Three research questions were addressed:

1. How did family responsibilities change before and after COVID-19?
2. How did single mothers implement new health behaviours required to comply with COVID-19 public health recommendations focusing on 4 specific behaviours mask wearing, social distancing, hand washing, and disinfecting surfaces?
3. How did single mothers maintain their personal health behaviours, particularly healthy eating, physical activity, and mental health?

My research approach involved quantitative secondary data analysis for the first research question. While for question two and three, qualitative semi-structured interviews were conducted to provide understanding of the social cognitive theory that directly impact

barriers and facilitators concerning single mothers so they can follow COVID-19 public health rules, stay healthy, and care for their children and well-being.

## 5.1 Lay Summaries

**Research Question 1:** How did family responsibilities change before and after COVID-19?

The COVID-19 pandemic presented new challenges in completing home and family responsibilities. Single mothers may have special challenges since they have less supports and may be the sole income earner. This might affect their ability to implement COVID-19 recommendations. Single mothers completed a survey about family responsibilities, before and after COVID-19. We explored the relationship between the mother's age and the number of people living in the home, with family role responsibilities. This study confirmed that family responsibilities increased during the pandemic, particularly in gendered roles like meal preparation, cleaning tasks, and care for children in the home. An increase in the mother's age by one year was associated with an increase in family responsibilities post-COVID-19. In contrast, each additional person living in the home was associated with a decrease in family responsibilities. Social support agencies, families and health care providers should consider the burden that single mothers bear in home responsibilities when developing policies or providing care.

**Research Question 2:** How did single mothers implement new health behaviours required to comply with COVID-19 public health recommendations focusing on 4 specific behaviours mask wearing, social distancing, hand washing, and disinfecting surfaces?

Implementation of COVID-19 practices such as mask wearing, social distancing, hand washing, and disinfecting surfaces are not always clear or simple. Women-headed households have encountered unique challenges related to COVID-19 public health recommendations. The experiences of Canadian single mothers were used to identify barriers and facilitators to health-promoting behaviours. Twelve single mothers aged 18-51, who have dependent children living in the home, participated in one-on-one interviews. Qualitative analysis was used to provide interpretative descriptions. Findings showed that generic issues affected all COVID-19 practices. Generic themes were societal attitudes and stigma, pre-existing cultural and family norms, the impact of children's age, and uncertainty related to changing knowledge about the virus. General barriers were identified for adherence to recommended public health guidelines. Volume of masks and keeping cloth masks clean were barriers to mask wearing. Loneliness and school closures were reported as barriers of social distancing. Being outside the home was a barrier to hand washing. Fatigue/time constraints were barriers to disinfecting surfaces. The following facilitators were found. Government mandates and public health messages were identified as facilitators to mask wearing. Daily routine and technology were facilitators of social distancing. Types of hand soap was a facilitator of hand washing. Access to cleaning supplies and equipment were facilitators of disinfecting surfaces. Behaviour change was not straightforward due to generic themes and behaviour-specific barrier.

**Research Question 3:** How did single mothers maintain their personal health

behaviours, particularly healthy eating, physical activity, and mental health?

Mothers sacrifice their health and well-being to meet the needs of their children and the demands of home and family responsibilities. Little is known about how single mothers implement health behaviours. Through a focus on women who are parenting alone, individual interviews were carried out to identify barriers and facilitators of healthy eating, physical activity, and mental health. A qualitative narrative approach was used to explore what things help or prevent changes on health-promoting behaviours. Participants were 12 Canadian single mothers who had dependent children in the home. This research revealed in-depth insights of the experiences of single mothers. The challenges of healthy eating encompassed stay-at-home orders, limited budget, unhealthy food/cravings, and lack of motivation. On the positive side, living with parents and having an understanding of healthy food facilitated healthy eating habits. The challenges of maintaining physical activity levels included willpower, lack of time and low energy. On the positive side, time on one's own, having a weigh scale or outdoor gear, and weather conditions encouraged physical activity. Spirituality and gratitude were the main coping mechanisms that single mothers used to deal with mental health stresses which included unemployment, loneliness, and depressive symptoms. These results can be used for future health promotion interventions to focus on character traits such as spirituality and gratitude towards resembling mothers' personal health.

The three research questions mentioned above inform the overarching topic on how single mothers care for themselves and their children during the COVID-19 pandemic with a health promotion lens. The findings from each study support that the impact of COVID-19 has

brought disruption within the home. In particular, family responsibilities increased during quarantine measures, while employment decreased. This resulted in women having more work in unpaid roles and more precarious income. This increased burden of care jeopardized mothers' well-being as they first prioritized families' care needs. Prior to COVID-19, women already faced gaps to parenting alone, but the pandemic exposed more vulnerabilities among women. For instance, the challenges to adhering to COVID-19 public health recommendations and restrictions for in-person family/social supports contributed to their loneliness since isolation was increased. Single mothers experienced substantial challenges in maintaining their own personal health due to competing demands, exhaustion, financial constraints, and lack of social supports. An overload of roles compromised mothers' ability to make healthy choices on healthy eating, physical activity, mental health. This highlights that single mothers are a vulnerable group of the population as they experienced constraints at many levels. In the face of isolation and symptoms of depression, mothers' coping skills were reflected through the focus on spirituality and gratitude.

## **5.2 Limitations**

Several limitations should be noted per research question:

**Limitations of Research Question 1:** How did family responsibilities change before and after COVID-19?

The data were a subset of the online 'Home and Family Work Roles Survey'. The focus was only on those respondents who self-identified as being single mothers (n=72). Although there might be different family structures within women-headed households, the sample size was not sufficient to consider subgroups among single mothers. Data on ages of children and additional adults living in the home were not available. Additionally, the category of



employment was not possible to account within the multiple linear regression model in order to avoid overfitting the model. Only two predictors were used: mothers' age and people living in the home. It was not possible to examine more predictors since there were too many small cells in the regression model. The 'Home and Family Work Roles Survey' encompassed 19 items. However, the full range of family responsibilities are not yet well-established in the literature. The most common reported tasks in the literature were cleaning, cooking, and caregiver-child roles. Finally, for the overall score, a nonparametric test was used rather than the t-test because the distribution of differences between paired observations was not normal.

**Limitations of Research Question 2:** How did single mothers implement COVID-19 practices such as mask wearing, social distancing, hand washing, and disinfecting surfaces?

Public health guidelines included the following behaviours: mask wearing, social distancing, hand washing, and disinfecting surfaces to slow the spread of COVID-19. Single mothers reported high adherence to preventive measures. Mask wearing and social distancing were the most important personal protective behaviours that bore an emotional component for single mothers to protect self and others. Emotional factors were not examined that might have influenced COVID-19 practices. Specific public health directives were also not incorporated in the semi-structured interview guide. For example, respiratory etiquette was a recommendation from the Centers for Disease Control and Prevention (CDC) to avoid touching mouth, nose, and eyes. A broad array of generic issues pointed out that societal attitudes, pre-existing cultural and family norms, children's age, and uncertainty about the virus affected all public health behaviours. Although diversity on ages, ethnicity, and

employment status were achieved, the role of culture was not considered within this study. However, it became a predominant generic theme among Canadian single mothers.

**Limitations of Research Question 3:** How did single mothers maintain healthy behaviours, particularly healthy eating, physical activity, and mental health?

When developing the semi-structured interview guide, non-COVID questions were created in terms of the experiences of single mothers about healthy eating, physical activity, and mental health. The interview questions did not include the effects of the pandemic even though COVID-19 negatively impacted health behaviours. In turn, other substantial family changes happened in households headed by single mothers as a result of the pandemic. Single mothers who worked in industry related jobs were laid off. However, the approach of this study design was not intended to compare employed vs unemployed mothers. The aim was to explore mothers' personal health in maintaining healthy lifestyles. In addition, the loss of social supports brought challenges to health behaviours. As such, this was another level of omission in relation to health-promoting behaviours. Finally, the Canadian food culture was not addressed even though mothers pointed out its influence on their eating practices.

### **5.3 Impact of Research**

Throughout this research, the roles and responsibilities of single mothers have been revealed. The global COVID-19 pandemic has negatively impacted vulnerable families headed by women, resulting in increased unpaid work, parenting 'more' alone, and substantial challenges in maintaining COVID-19 recommendations and health behaviours. Findings suggested three areas of further research in the field of Health Promotion. First, it would be helpful to have greater understanding of the impact of COVID-19 on mother's mental health

as the shutdown of public facilities compromised mothers' employment and restrictions of social gatherings contributed to their loneliness. Second, there is considerable diversity in family structures even within households led by single mothers and whether they live by themselves, with their children or in multi-adult households. Further research should focus on different family structural features. Third, generic issues such as societal attitudes and stigma, pre-existing cultural and family norms, uncertainty of COVID-19, and the impact of children's age should be included in future health promotion interventions. Single mothers encountered these generic issues, which in turn affected all public health behaviours (mask wearing, social distancing, hand washing, and disinfecting surfaces). Finally, spirituality and gratitude were identified as key priority for next studies to be conducted that will significantly improve mothers' health and well-being. These factors can be reflected in the responsiveness of a resilience-based health intervention with the potential to mobilize available resources in the face of vulnerability and hardship.

## **5.4 Knowledge Translation Dissemination**

First, the manuscript titled, "COVID-19 attributed Changes of Home and Family Work Roles among Single Mothers" was presented through a five minutes oral presentation at the Joint Mental Health Research and Innovation Day that was organized by Lawson Health Research Institute, Schulich Medicine and Dentistry, & St. Joseph's Health Care London. Second, the manuscript titled, "Barriers and Facilitators of COVID-19 practices among Canadian Single Mothers: A Qualitative Study" was disseminated through a poster presentation at the 15<sup>th</sup> Annual Health and Rehabilitation Sciences Graduate Research Conference. Third, a poster and a video of the manuscript titled, "A Qualitative Study of Healthy Eating, Physical

Activity, and Mental Health among Canadian Single Mothers” was illustrated at London Health Research Day, Schulich Medicine and Dentistry.

In terms of methodology, qualitative data analysis is one of the most challenging aspects of the research process. There is a need to publish an analytic framework with a set of questions that orient the reading of the data and is reflective to the study questions. To improve the quality of future research, ‘The Arise Framework’ is a methodological analytic guide that was developed during this thesis work with clear instructions on how to analyze, interpret, and summarize qualitative data with an interpretive-constructivist design. From the beginning stage, the implementation of the framework captures theoretically and practical procedures, as described in the five-stage process of the Arise Framework:

1. **A**nalytic memos: What is this interview about?
2. **R**eporting initial codes: What do participants tell me that is relevant for the research question(s)?
3. **I**nterview coding testing: What are other important concepts of participants’ stories that may contribute to the research question?
4. **S**ystematic analysis: What do I want to know? & What are the themes that capture complexity and tension?
5. **E**ssential findings: What are the interpretative descriptions of the essential findings?

In summary, this overall research created an evidence base to inform and improve public health policy and future health promotion interventions to support the health and well-being of single mothers and their children. Health-promoting behaviours will not improve unless policies and programs from national government, local government, and non-profits provide

sufficient support to single mothers in ways that align with their needs, especially with emotional support. Single mothers faced a disproportionate burden of unpaid/paid labour during the COVID-19 pandemic in which behaviour change was not straightforward. It is paramount to incorporate mothers' internal strengths into spirituality and gratitude. Perceived coping mechanisms and emotional support will positively impact mothers' health and well-being.

# Appendices

## Appendix A- Research ethics approval



**Date:** 17 May 2021

**To:** Dr. Joy MacDermid

**Project ID:** 118854

**Study Title:** A Qualitative Study Understanding Barriers and Facilitators of Health-promoting Behaviours among Canadian Single Mothers

**Application Type:** HSREB Initial Application

**Review Type:** Delegated

**Full Board Reporting Date:** 08/June/2021

**Date Approval Issued:** 17/May/2021 14:17

**REB Approval Expiry Date:** 17/May/2022

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Dear Dr. Joy MacDermid

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above mentioned study as described in the WREM application form, as of the HSREB Initial Approval Date noted above. This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

**Documents Approved:**

| Document Name  | Document Type          | Document Date | Document Version |
|--|------------------------|---------------|------------------|
| Poster - Barriers and Facilitators in Single Mothers | Recruitment Materials  |               |                  |
| PROTOCOL v2_10_05_2021                               | Protocol               | 10/May/2021   | 2                |
| interview guide_clean_v2                             | Interview Guide        | 10/May/2021   | 2                |
| V5 LOI 05.14.2021                                    | Written Consent/Assent | 14/May/2021   | 5                |

No deviations from, or changes to, the protocol or WREM application should be initiated without prior written approval of an appropriate amendment from Western HSREB, 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.

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University HSREB operates in compliance with, and is constituted in accordance with, the requirements of the TriCouncil Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2); the International Conference on Harmonisation Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

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

Sincerely,

Ms. Nicola Geoghegan-Morphet, Ethics Officer on behalf of Dr. Philip Jones, HSREB Chair

## Appendix B- Participant recruitment

### Participants Needed for Research Study: Health-promoting Behaviours

This study will help gain a better understanding of the health-promoting behaviours that have been recommended for preventing COVID-19, as well as for maintaining general health.

**Do you meet the criteria?**

- 1** I am a Canadian single mother who can speak fluent English
- 2** I am over the age of 18
- 3** I have dependent children living in the home

Volunteers will be able to provide informed consent to answer a 60-minute questionnaire over a Zoom interview

## Appendix C- Interview Guide of Barriers and Facilitators among Single Mothers

Welcome to this study on barriers and facilitators of health-promoting behaviours amongst single mothers. Health-promoting behaviours are your beliefs and lifestyles regarding your health and well-being. Before moving forward, please let me know if you have questions regarding the content of the letter of information and consent. Five introductory questions will be asked first. Then, the interview is going to be conducted in two parts. In Part One, we are going to focus on COVID-19, some of the health behaviours that have been recommended, and how easy and difficult was for you to implement those for your family. In Part Two, we are going to focus on your own personal health. You will be asked 10 questions and sub questions that will take approximately 60 minutes to answer. There are no right or wrong answers: all of your views are welcome. Audio-recording will start, but if you do not wish to answer, you can skip that question by simply saying “pass”.

### Introductory questions:

1. Where are you from?
2. What language do you speak? If English is not your first language, do you speak fluent English?
3. What is your age?
4. How many dependent children are living in your home?
5. What is your role as a single mother?

### Part One:

The following question addresses your personal experience about COVID-19:

1. What are some of the challenges you as a family have faced around COVID-19?

Now we are going to talk about some of the specific behaviours that have been recommended to prevent COVID-19:

2. **With respect to social distancing**, what do you and your family do about social distancing because of COVID-19?
  - a) What are some of the challenges at implementing social distancing for preventing COVID-19?
  - b) What are some of the facilitators at implementing social distancing for preventing COVID-19?
3. **With respect to hand washing**, what do you and your family do about hand washing because of COVID-19?
  - a) What are some of the challenges at implementing hand washing for preventing COVID-19?



- b) What are some of the facilitators at implementing hand washing for preventing COVID-19?
- 4. **With respect to mask wearing**, what do you and your family do about mask wearing because of COVID-19?
  - a) What are some of the challenges at implementing mask wearing for preventing COVID-19?
  - b) What are some of the facilitators at implementing mask wearing for preventing COVID-19?
- 5. **With respect to disinfecting surfaces**, what do you and your family do about disinfecting surfaces because of COVID-19?
  - a) What are some of the challenges at disinfecting surfaces for preventing COVID-19?
  - b) What are some of the facilitators at disinfecting surfaces for preventing COVID-19?

**Part Two:**

The following question addresses general health (non-COVID) about your personal experience on healthy eating, exercise, and mental health. If you feel distressed in the mental health questions, you can skip that question by simply saying “pass”.

- 6. What is your personal experience about healthy eating, exercise, and mental health?

Now we are going to talk about each of those health behaviours:

- 7. **With respect to healthy eating**, what do you do about maintaining healthy eating?
  - a) What are some of the challenges to maintain healthy eating behaviours?
  - b) What are some of the facilitators to maintain healthy eating behaviours?
- 8. **With respect to exercise**, what do you do about exercising?
  - a) What are some of the challenges to exercise on a regular basis?
  - b) What are some of the facilitators to exercise on a regular basis?
- 9. **With respect to mental health**, what do you do to balance activities between home and work?
  - a) What are some of the challenges you’ve faced to handle stress?
  - b) What are some of the facilitators to help you move on after a negative event of your life?
- 10. Of all the health promoting behaviours referenced above, what behaviour has been the most important to you in facilitating engagement?

**Probes:**

How have you implemented that?

Was it useful?

What causes you to feel that way

Please tell me more...

Provide examples of these challenges

Provide examples of these facilitators

Please elaborate on that

What's an example of... (ask participants to expand on an example they had mentioned)

You said... please expand on ...

How you cope with this

Talk how is different now than it was. Comparing your life before and after

What are you going to do in the future related to these practices?

## Appendix D- Analytic memos of participants

| <p><b>Alice</b><br/> <b>33 years old</b><br/> <b>8-year-old son</b><br/> <b>St. Thomas, Ontario</b></p>   | <p><b>Anne-Marie</b><br/> <b>51 years old</b><br/> <b>16-year-old son</b><br/> <b>St. Thomas, Ontario</b></p>  | <p><b>Becca</b><br/> <b>45 years old</b><br/> <b>16-year-old daughter</b><br/> <b>Masstown, Nova Scotia</b></p>   |
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| <p>The context that matters to Alice is to give extra emotional support to her eight-year old son. Her son has behavioural issues and learning disabilities: dyslexia and attention deficit disorder (ADD). Her son has anxiety for both COVID-19 and stay-at-home orders. Alice finds it difficult to have personal space for herself because his son suffers from separation anxiety. Her frequent places are the grocery store and her parents' house. Alice works full-time outside the home, while her son does online school in her parent's house in which her son does not like online learning. What is very important for Alice is that her son is happy and less anxious in order to have a good day.</p> <p>She teaches her son imaginary bubbles and imaginary germs, so he cannot come into other people's bubbles and bring paint in his hands (COVID virus). This is very difficult for him because he is a hugger.</p> | <p>The context that matters to Anne-Marie is being a single mother with a teenager (16-year old son). She feels lonely because her husband and family are in Korea. She acknowledges that she was happy back in her home country, but she is sacrificing her life for seven years to stay and support her son to study in Canada. Her husband sends money from Korea because she is not able to work in Canada due to her visa, therefore, the budget is limited. The hard part for her is home-schooling with long hours and assignments for her son. She wants her son to go back to in-person school. Her son misses his friends.</p> <p>She recognizes that COVID-19 practices are not a problem for her as these are part of her Korean culture (mask wearing, hand washing, etc.). However, during the pandemic, she focuses it more. Anne-Marie follows the rules, but she is mindful that her son is</p> | <p>The context that matters to Becca is that her daughter is a teenager (16-year old). There is no communication with her daughter's father as he lives in Thailand. Becca does all the cooking and the household chores. Although she has the support from her parents who live next door, she feels that the single motherhood role does not allow her to have a break. Her parents help with driving, sometimes with meals, and looking after Becca's daughter when she is away from home. In exchange, she helps her parents with the animals in the farm.</p> <p>Becca hasn't been very anxious about the COVID-19 pandemic. However, she recognizes that the lockdown has affected herself and her daughter's mental health. The fact that she was not able to see her boyfriend was really hard on her during the first lockdown. She feels lonely because people's presence is very important to her. The</p> |

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| <p>Anxiety matters to her because of the uncertainties of the pandemic regarding to school and work. She is mindful about the COVID-19 practices. She keeps everything clean and if somebody visits her home, she does the extra cleaning.</p> <p>Healthy habits are difficult to implement for Alice because her mental health is up and down. Her depression and anxiety persist over the years. One cause of these stressors is her divorce and going through court with her ex-husband makes her depression worse. Being busy and the daily stress do not facilitate her healthy eating to prepare full meals. With COVID, she can't access to exercise facilities like the gym. She does not focus on her very much because her son is a priority. Therapy is helping her the most as she values having someone to talk to about her frustrations.</p> | <p>asking her all the time to have visits with friends. Then, she has some flexibility to visit her neighbours and go to the beach as she wants to make her son happy.</p> <p>Regarding healthy habits, Anne-Marie is aware to eat healthy and exercise. However, she does not want to cook three times a day and her gym is closed. To wake up late limits her ability to have meals on time. Also, she does not enjoy cooking, but she tries menus because her son is growing up. She also feels stressful because of the pandemic, and her gym is closed. She feels like every day is surviving as there are not many places to go. YouTube videos is helping her the most to exercise three or four times a week. Anne-Marie tries to find space for her mental health like going to the deck, reading, watching funny videos as a way to release her stress.</p> | <p>online learning was unstructured for her daughter and lack of interaction with her friends caused depression, for example, she spent all day in her room and she did not want to see anybody. The positive things of the lockdown for her were that she does not have to commute to work, as well as to drive her daughter to her extra curriculum activity (dancing). They both realize how busy they were before the pandemic.</p> <p>Becca points out that she is not a rule follower. But, when it comes to her workplace in the government services offices, she follows the protocol.</p> <p>As Becca lives in a farm, there is a lot of space and not many people are around. So, her COVID-19 practices are flexible. Due to her diabetes, she watches carefully what she eats, as well as she does exercise every day (running and walking). For her mental health, she prays and reads the Bible to get rid of stress and uncertainties.</p> |
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| <p style="text-align: center;"><b>Shelly</b><br/> <b>38 years old</b><br/> <b>2 daughters: 14 and 10-</b><br/> <b>years old</b><br/> <b>Newcastle, Ontario</b><br/> <b>Just move with her</b><br/> <b>parents</b></p>   | <p style="text-align: center;"><b>Jami</b><br/> <b>37 years old</b><br/> <b>2 sons: 2 and 4 years-old</b><br/> <b>London, Ontario</b></p>   | <p style="text-align: center;"><b>Jasmine</b><br/> <b>41 years old</b><br/> <b>2 sons: 9 and 12-years</b><br/> <b>old</b><br/> <b>London, Ontario</b></p>   |
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| <p>The context that matters to Shelly is that she is a full-time single mom who provides for her two girls. Her oldest is 14 and her youngest is 10. As her children are self-sufficient in online school, she does not feel pressure in that area when she is trying to work full-time from home. However, it is hard for her children to do home-schooling.</p> <p>Not seeing her friends and parents is hard on Shelly. Then, she decided to move back into her parents' house as her mother is chronically ill. Having to interact with her parents is helping with her mental health. Her family responsibilities increase in a sense of more emotional support for her two children.</p> <p>Shelly and her family are rule followers for the COVID-19 practices, which became part of their daily life. Visual signs reinforce those behaviours in the family. She points out that some</p> | <p>Jami has two sons who are 2 and 4 years old. The context that matters to Jami is the isolation due to COVID-19. She misses a lot to interact with her friends and family. The hardest thing is to be away from her social network as she already faces mental illness (depression).</p> <p>Regarding COVID-19 practices, she feels uncomfortable to practice six feet apart. Due to her oldest boy's personality, social distancing is being hard on him. As her children are still young, they sanitize their hands frequently instead of washing hands because her younger boy wants to play with water all the time. Jami feels that nothing has change in terms of her family responsibilities because of the pandemic. Jami suffers of fiber miles that affects her energy levels. Also, she struggles with bipolar. Jami recognizes that is noting easy for her because of parenting</p> | <p>The context that matters to Jasmine is to take care of her children as well as to support them with home-schooling from 9:00 am to 3:00 pm, while she is doing the household chores at the same time. Her sons are 12 and 9 years old. She refers that recess and playful activities used to be a healthy program at school. Now, her children are bored at home. She really struggles having her kids with her all the time and without breaks, she needs a mental space for herself. Her relaxing time is to take her children to the playground every weekend.</p> <p>Jasmine does not feel comfortable in Canada because all her family is in Korea and she deals with things by herself in Canada. Due to the pandemic, she cannot make friends. She does not work in Canada, but she used to work in Korea.</p> <p>Jasmine lives in an apartment building, which</p> |

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| <p>members of the family are going to bring something into the house are scary. In fact, she feels a sense of anxiety and panic about the transmission of the virus and not being able to socialize.</p> <p>Shelly explained that she is been in a journey with healthy eating, physical activity, and exercise. When she was a teenager, she was diagnosed with an eating disorder and struggle with anxiety and depression since her 20s. She had a very challenging marriage (9 years), and she thinks that her depression was part of her marriage.</p> <p>For the most part, she maintains healthy eating, keeping in mind that balance is important. As long as she has her daily exercises, her mental health is going well because she can manage her stress and anxiety. As the gyms are closed, her father set a treadmill for her to exercise. As time goes, she has learned about positivity tools, for example, things to be grateful. Her faith in God is an anchor to keep her going.</p> | <p>alone and the pandemic. Currently, she is off work. Jami does not have experience with healthy eating and exercise. She is going through a very difficult divorce and custody battle. Her ex-husband wants custody for one of her children. She disagrees because brothers have to grow together, she explained. There is a lot of stress and she has zero appetite. A parenting advisor walks with her in the afternoons. She also has her mother's support. Jami is in recovery addicts where she has counselors, a public health nurse, an abused women advisor, and a psychiatry. She highlights that her core values to believe in Jesus are still engrained in her, but her relationship with the Lord is difficult to maintain. She knows that God helps her and saves her every day.</p> | <p>she encounters barriers to social distancing, for example in the elevator. Jasmine prefers to order groceries online for convenience. Wearing masks and washing hands are part of her culture. So those behaviours were easy to implement.</p> <p>Jasmine is stressful to stay at home every day. She needs to put that burden away in which she goes outside the building to breathe deeply and take a break. She prefers cooking Korean food as she considers healthier than Canadian food (salty and sweet). However, her children demand hamburgers sometimes. The fact that she stays at home, she does not feel the motivation to exercise. Going shopping, watching a movie, and connecting with her friends helped the most in her day-to-day routine and mental health.</p> |
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| <p><b>Jillian</b><br/> <b>29 years old</b><br/> <b>1 son: 3-year old</b><br/> <b>London, Ontario</b><br/> <b>Just move with her mother</b></p>  | <p><b>Caitlin</b><br/> <b>39 years old</b><br/> <b>1 daughter: 5-year old</b><br/> <b>St, Thomas, Ontario</b></p>  | <p><b>Shona</b><br/> <b>45 years old</b><br/> <b>2 children: 12-year old daughter and 18-year old son</b><br/> <b>London, Ontario</b></p>  |
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| <p>The challenges Jillian faced around COVID-19 are definitely being a single mother who is working and parenting alone. When she is working, she does not have as much time because her routine goes back and forth. She is getting to the point where she wants to see people. For example, she reached one of her friends, and said, "can we meet outside and just distance?" She feels lonely: "where is somebody to help me?" she emphasized.</p> <p>Jillian needs a break and a mental space. Having a three-year-old is a lot of work for her, especially been with her son outside somewhere. She is trying to encourage him to wash his hands. She thinks that some of the COVID measures are good such as social distancing and hand washing. However, for mask wearing, she developed acne for wearing a mask. She also developed anxiety to disinfect everything that somebody touched. She</p> | <p>Caitlin has a 5-year old daughter. Caitlin 's biggest challenge is that the schools are closed. She feels that social interaction is important for her daughter. However, she takes precaution by talking to her daughter about social distancing, for example, when they go to the playground. Caitlin wants to limit her daughter's exposure in the grocery store, so she gets groceries delivered to her apartment. She was off work for 7 months, but she will be back to work this summer.</p> <p>COVID-19 practices have been second nature for her and her daughter. Caitlin is really surprised how her daughter learned so well these practices at school. Caitlin has developed anxiety going to the common areas in the building where she lives like the laundry room.</p> <p>Caitlin is not used to healthy habits because she expressed that she comes from a meat a potatoes</p> | <p>Shona has a 12-year old daughter and an 18-year old son. Shona is a very busy mom who has to provide for her family in many ways: cooking, working, cleaning, and studying. She does not have free time. During the pandemic, she was not laid off. She is concern for her kids being stuck in the house. She does not feel isolated as she has to fulfill many roles.</p> <p>When it comes to COVID-19 practices, she explained to her kids that this is between life and death. Shona does not struggle with home-schooling because her children are independent to study by themselves. As she works in home care, she is very careful with handwashing, mask wearing, social distancing, and disinfecting surfaces. Moreover, some of her family back in her home country of India have died due to COVID (two close family members and two distant family members). As such, it's being an emotional burden for her,</p> |

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| <p>acknowledges the need to be more relax.</p> <p>For Jillian, healthy eating, physical activity, and mental health are all connected. She gets meal kits from good food. She enjoys getting all the ingredients in a box, and it is delivered to her house. As a result, she has lots of leftovers, which she can build in and re-cook. One thing, she learned, especially during COVID is to be gentle to herself. Before COVID, she was hard on herself that she was not exercising. Now, she is trying to reframe that like going for walks. Lastly, she feels that her mental health resources are limited because she is very tired of being a single mother. Therapy is helping her the most because she went through a very difficult divorce.</p> | <p>family. The COVID-19 pandemic has been the hardest thing of her life. In fact, she is experiencing panic attacks and she is drinking more. Being alone with her daughter is a struggle to cook a full meal. Going to the playground is what makes their day. As a single mother, Caitlin feels that she has to figure everything out alone without somebody to help her.</p> | <p>and she very cautious in following the rules to prevent COVID.</p> <p>Healthy eating, physical activity, exercise, and mental health are very important for her, but she is too busy to put it into practice. In fact, she is not taking care of these domains. Lack of time is her biggest barrier. Therefore, doing too much has become a challenge in her everyday life. Shona reads Bible verses, and it is proven to be perfect, in which she explained that is one of the foundations of her mental health.</p> |
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| <p><b>Lisa</b><br/> <b>29 years old</b><br/> <b>1 daughter: 10-year old</b><br/> <b>Caledonia, Ontario</b><br/> <b>Just move with her</b><br/> <b>parents</b></p>   | <p><b>Mikaela</b><br/> <b>18 years old</b><br/> <b>1 daughter: 1-year old</b><br/> <b>Chatham, Ontario</b><br/> <b>Live with her parents</b></p>  | <p><b>Jolene</b><br/> <b>40 years old</b><br/> <b>2 sons: 8 and 13-years</b><br/> <b>old</b><br/> <b>London, Ontario</b></p>   |
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| <p>The context that matters to Lisa is that she is living with her parents and with her 10-year old daughter in which she is thankful for all the support she receives at home. Home-schooling is challenging for Lisa, especially the online learning for her daughter from 9:00 am to 3:00 pm. Some days, the teacher does not come to class. Also, she thinks that her daughter is not learning because she is not used to receive lessons from her mother. Lisa suffers from attention deficit disorder, which makes even more challenging for her to assist her daughter with school. She is on medication, so she can do her own studies as well. Lisa attends to support groups to recovery from addiction on a weekly basis. During the pandemic, she was still attending socially distancing meetings as these things are non-negotiables in her life to prevent relapse. As Lisa does not have many friends, her recovery</p> | <p>The context that matters to Mikaela is having a one-year old daughter who was born in the first lockdown in which the rules at the hospital changed four times a day. She was thankful that the lockdown helped her to separate and keep distance with her ex-husband as she had a very difficult relationship with him for three years. Mikaela cannot visit her family to introduce her daughter. For now, everything is facetime. She has witnessed that many people actually don't wash their hands during the pandemic. She is not comfortable using hand sanitizer because of having a baby who puts everything in her mouth. Mikaela faces discrimination for not being able to wear a mask due to her medical condition that overheats her body. However, she keeps her distance from others and stay home. Mikaela is not able to work at the moment for the mandatory mask wearing in public places.</p> | <p>The context that matters to Jolene is being a single mother of two boys (13-year old and 8-year-old). Jolene makes sure that her kids follow a schedule for everything. She finds difficult online school because she is a professor who works full-time from home. The biggest impact of the lockdown for Jolene's family is the online learning for kids to focus remotely for many hours. She encourages her kids to do extra curriculum activities (Koradi, Sunday school, and Italian classes). As her children take most her time, Jolene does not have social life. Due to the lockdown, she is able to cook full meals and sit down in the table and have a meal together. She explained that before the pandemic everything was rush and finger food. Jolene minimizes her children's contact outside, but she is concern that her boys play video games many hours. Her children miss their friends. She attributes that the school has done a great job in</p> |

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| <p>community is her social network. She thinks that addiction is a disease and she needs to do her homework every day to stay recover. Lisa has been grieving during the pandemic, but slowly becoming stable. Lisa is being anxious about hand washing. For mask wearing, she needed to find the right mask as her face is small. She is always mindful to disinfect because of certain impulses.</p> <p>Lisa's mental health is taking care, but eating healthy and physical activity are not priorities in her life. Lisa does not know how to cook, but she has the knowledge that unhealthy life styles have serious effects later on. Living with her parents is a positive thing for Lisa and her daughter.</p> | <p>Mikaela has been having breakfast since she had her daughter. She wants to set a good example for her daughter by having breakfast every day. She lives with her parents whom are putting away a lot of sugars and changing from white bread to whole wheat. However, she likes fast food a lot. Her exercises are going up and down. She walks outside with her daughter a lot lately. Regarding her mental health, Mikaela suffers from major depression, anxiety, social anxiety, impulsiveness, borderline personality disorder. She smokes cigarettes to try to be calmed to face whatever situation. She has a lot of uncertainties, worries, and sadness about things that would might happen to her daughter, to the cat, etc. Mikaela has a psychiatry for her major illness. Currently, she is in the waiting list for therapy.</p> | <p>teaching children to implement COVID-19 practices. Jolene finds useful information messages from the government.</p> <p>Jolene believes that there is a positive relationship between healthy eating and happiness. She tries to balance her daily intake that also incorporates chocolates and ice cream. Jolene tries to work out 15 minutes every morning following YouTube videos and do gardening every evening. During the pandemic. she has lost some of her family members back in her home country of India. As she was grieving, she took counseling services. She needed somebody to talk through and reassuring for her. Now, she is connecting with her family in India twice a week to share memories and experiences.</p> |
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## Appendix C- Curriculum vitae

**Name:** Lisbeth Alexandra Pino Gavidia

**Post-secondary Education and Degrees:** Chimborazo Polytechnic University  
Riobamba, Chimborazo, Ecuador  
2010-2014 B.Sc.

The University of Western Ontario  
London, Ontario, Canada  
2017-2018 MPH

The University of Western Ontario  
London, Ontario, Canada  
2018-2022 PhD

**Honours and Awards:** Secretariat for Higher Education, Science, Technology and Innovation (SENESCYT-ECUADOR)  
2016-2018

**Related Work Experience:** Teaching Assistant  
The University of Western Ontario  
2019-2022

### Publications:

Pino Gavidia, L. A., Seens H., Fraser, J., Sivagurunathan, M., MacDermid, J. C., Brunton, L., & Doralp, S. (2022). COVID-19 attributed Changes of Home and Family Responsibilities among Single Mothers. *Journal of Family Issues*.

Pino Gavidia, L. A., MacDermid, J. C., Brunton, L., & Doralp, S. (2022). A narrative review of the oppression of single mothers in Highland Ecuador. *The Open Public Health Journal*.

Pino Gavidia, L. A., & Adu, J. (2022). Critical Narrative Inquiry: An Examination of a Methodological Approach. *International Journal of Qualitative Methods*, 21,16094069221081594.

Pino Gavidia, L. A. (2021). HIV/AIDS from the Perspective of Indigenous Peoples in Latin America: A Compassionate Approach to Addressing Health and Well-Being. *RehabINK*. 11.

## **Peer-reviewed presentations**

Pino Gavidia L. A, MacDermid J. C, Brunton L, & Doralp S. Healthy eating, physical activity, and mental health. London Health Research Day – Schulich Medicine and Dentistry Virtual Conference. May 11, 2022.

Pino Gavidia L. A, MacDermid J. C, Brunton L, & Doralp S. Barriers and Facilitators of COVID-19 practices among Canadian single mothers: a qualitative study. The 15th Annual Health and Rehabilitation Sciences Graduate Research Conference Virtual Conference. February 2, 2022.

Pino Gavidia L. A, MacDermid J. C, Brunton L, & Doralp S. A narrative review of the oppression of single mothers in Highland Ecuador. London Health Research Day – Schulich Medicine and Dentistry Virtual Conference. May 11, 2021.

Pino Gavidia L. A, Seens H, Fraser J, Sivagurunathan M, MacDermid J. C, Brunton L, & Doralp S. (2021). COVID-19 attributed changes of home and family work roles among single mothers. Joint Mental Health Research and Innovation Day – Lawson Health Research Institute, Schulich Medicine and Dentistry, & Joseph's Health Care London Virtual Conference. October 28, 2021.